API Reference

Amazon Simple Storage Service

API Version 2006-03-01

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Amazon Simple Storage Service: API Reference

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Welcome

Welcome to the *Amazon Simple Storage Service API Reference*. This guide explains the Amazon Simple Storage Service (Amazon S3) application programming interface (API).

You can use any toolkit that supports HTTP to use the REST API. You can even use a browser to fetch objects, as long as they are anonymously readable.

The REST API uses the standard HTTP headers and status codes, so that standard browsers and toolkits work as expected. In some areas, we have added functionality to HTTP (for example, we added headers to support access control). In these cases, we have done our best to add the new functionality in a way that matched the style of standard HTTP usage.

Version

The current version of the Amazon S3 API is `2006-03-01`.

Type

Amazon S3 supports the REST API.

> **Note**
>
> Support for SOAP over HTTP is deprecated, but it is still available over HTTPS. However, new Amazon S3 features will not be supported for SOAP. We recommend that you use either this REST API or the AWS SDKs at the following link: https://aws.amazon.com/developer/tools/

This REST API reference includes:

- S3 API Reference — which contains Actions (operations) and Data Types
- *Headers* — Common request headers and Common response headers
- Error responses
- Browser-Based Uploads Using POST (AWS Signature Version 4)

> **Important**
>
> Read the following about authentication and access control before going to specific API topics.

Requests to Amazon S3 can be authenticated or anonymous. Authenticated access requires credentials that AWS can use to authenticate your requests.

API call recommendations

Making REST API calls directly from your code can be cumbersome. It requires you to write the necessary code to calculate a valid signature to authenticate your requests. We recommend the following alternatives instead:

- Use the AWS SDKs to send your requests.

  Also, see the Sample Code and Libraries.

  If you use the SDKs, you don't need to write code to calculate a signature for request authentication because the SDK clients authenticate your requests by using access keys that you provide. Unless you have a good reason not to, you should always use the AWS SDKs.
- Use the AWS CLI to make Amazon S3 API calls. For information about setting up the AWS CLI and example Amazon S3 commands see the following topics:

  Set Up the AWS CLI in the *Amazon Simple Storage Service User Guide*.

  Using Amazon S3 with the AWS Command Line Interface in the *AWS Command Line Interface User Guide*.

Making direct REST API calls

> **Note**
>
> The PUT request header is limited to 8 KB in size. Within the PUT request header, the system-defined metadata is limited to 2 KB in size. The size of system-defined metadata is measured by taking the sum of the number of bytes in the US-ASCII encoding of each key and value.

If you'd like to make your own REST API calls instead of using one of the above alternatives, there are some things to keep in mind.

- To make direct REST API calls from your code, create a signature using valid credentials and include the signature in your request. For information about various authentication methods and signature calculations, see Authenticating Requests (AWS Signature Version 4).
- The REST API uses standard HTTP headers and status codes, so standard browsers and toolkits work as expected. In some areas, we have added functionality to HTTP (for example, we added headers to support access control). In these cases, we have done our best to add the new functionality in a way that matches the style of standard HTTP usage. For more information about making requests, see Making requests.

Permissions

You can have valid credentials to authenticate your requests, but unless you have S3 permissions from the account owner or bucket owner you cannot create or access Amazon S3 resources. These permissions are typically granted through an AWS Identity and Access Management (IAM) policy, such as a bucket policy. For example, you must have permissions to create an S3 bucket or get an object in a bucket. For a complete list of S3 permissions, see Actions, resources, and condition keys for Amazon S3.

For more information about the permissions to S3 API operations by S3 resource types, see Required permissions for Amazon S3 API operations in the *Amazon Simple Storage Service User Guide*.

If you use the root user credentials of your AWS account, you have all the permissions. However, using root user credentials is not recommended. Instead, we recommend that you create AWS Identity and Access Management (IAM) roles in your account and manage user permissions. For more information, see Access Management in the *Amazon Simple Storage Service User Guide*.

S3 API Reference

This section contains the Amazon S3 API Reference documentation, which includes *actions* (operations) and data types.

The S3 API reference groups each of its Actions and Data Types into three sets: *Amazon S3*, *Amazon S3 Control*, and *Amazon S3 on Outposts*. There is no functional distinction between the three sets. If you don't find an API operation or data type that you're looking for in one set, check one of the other sets.

Actions

- Amazon S3 — API operations that apply bucket-level and object-level actions.
- Amazon S3 Control — API operations for managing all other S3 resources.
- Amazon S3 on Outposts — API operations for use with Amazon S3 on Outposts. You communicate with your Outposts bucket using an access point and endpoint connection over a virtual private cloud (VPC).
- Amazon S3 Tables — API operations for use with Amazon S3 Tables.
- Amazon S3 Vectors — API operations for use with Amazon S3 Vectors.

Data types

- Amazon S3 — Data types of API operations that apply bucket-level and object-level actions.
- Amazon S3 Control — Data types of API operations for managing all other S3 resources.
- Amazon S3 on Outposts — Data types of API operations for use with Amazon S3 on Outposts.
- Amazon S3 Tables — Data types of API operations for use with Amazon S3 Tables.
- Amazon S3 Vectors — Data types of API operations for use with Amazon S3 Vectors.

Actions

The following actions are supported by Amazon S3:

- AbortMultipartUpload
- CompleteMultipartUpload
- CopyObject

- CreateBucket
- CreateBucketMetadataConfiguration
- CreateBucketMetadataTableConfiguration
- CreateMultipartUpload
- CreateSession
- DeleteBucket
- DeleteBucketAnalyticsConfiguration
- DeleteBucketCors
- DeleteBucketEncryption
- DeleteBucketIntelligentTieringConfiguration
- DeleteBucketInventoryConfiguration
- DeleteBucketLifecycle
- DeleteBucketMetadataConfiguration
- DeleteBucketMetadataTableConfiguration
- DeleteBucketMetricsConfiguration
- DeleteBucketOwnershipControls
- DeleteBucketPolicy
- DeleteBucketReplication
- DeleteBucketTagging
- DeleteBucketWebsite
- DeleteObject
- DeleteObjects
- DeleteObjectTagging
- DeletePublicAccessBlock
- GetBucketAccelerateConfiguration
- GetBucketAcl
- GetBucketAnalyticsConfiguration
- GetBucketCors
- GetBucketEncryption
- GetBucketIntelligentTieringConfiguration

- GetBucketInventoryConfiguration
- GetBucketLifecycle
- GetBucketLifecycleConfiguration
- GetBucketLocation
- GetBucketLogging
- GetBucketMetadataConfiguration
- GetBucketMetadataTableConfiguration
- GetBucketMetricsConfiguration
- GetBucketNotification
- GetBucketNotificationConfiguration
- GetBucketOwnershipControls
- GetBucketPolicy
- GetBucketPolicyStatus
- GetBucketReplication
- GetBucketRequestPayment
- GetBucketTagging
- GetBucketVersioning
- GetBucketWebsite
- GetObject
- GetObjectAcl
- GetObjectAttributes
- GetObjectLegalHold
- GetObjectLockConfiguration
- GetObjectRetention
- GetObjectTagging
- GetObjectTorrent
- GetPublicAccessBlock
- HeadBucket
- HeadObject
- ListBucketAnalyticsConfigurations

- ListBucketIntelligentTieringConfigurations
- ListBucketInventoryConfigurations
- ListBucketMetricsConfigurations
- ListBuckets
- ListDirectoryBuckets
- ListMultipartUploads
- ListObjects
- ListObjectsV2
- ListObjectVersions
- ListParts
- PutBucketAccelerateConfiguration
- PutBucketAcl
- PutBucketAnalyticsConfiguration
- PutBucketCors
- PutBucketEncryption
- PutBucketIntelligentTieringConfiguration
- PutBucketInventoryConfiguration
- PutBucketLifecycle
- PutBucketLifecycleConfiguration
- PutBucketLogging
- PutBucketMetricsConfiguration
- PutBucketNotification
- PutBucketNotificationConfiguration
- PutBucketOwnershipControls
- PutBucketPolicy
- PutBucketReplication
- PutBucketRequestPayment
- PutBucketTagging
- PutBucketVersioning
- PutBucketWebsite

- PutObject
- PutObjectAcl
- PutObjectLegalHold
- PutObjectLockConfiguration
- PutObjectRetention
- PutObjectTagging
- PutPublicAccessBlock
- RenameObject
- RestoreObject
- SelectObjectContent
- UpdateBucketMetadataInventoryTableConfiguration
- UpdateBucketMetadataJournalTableConfiguration
- UploadPart
- UploadPartCopy
- WriteGetObjectResponse

The following actions are supported by Amazon S3 Control:

- AssociateAccessGrantsIdentityCenter
- CreateAccessGrant
- CreateAccessGrantsInstance
- CreateAccessGrantsLocation
- CreateAccessPoint
- CreateAccessPointForObjectLambda
- CreateBucket
- CreateJob
- CreateMultiRegionAccessPoint
- CreateStorageLensGroup
- DeleteAccessGrant
- DeleteAccessGrantsInstance
- DeleteAccessGrantsInstanceResourcePolicy

- DeleteAccessGrantsLocation
- DeleteAccessPoint
- DeleteAccessPointForObjectLambda
- DeleteAccessPointPolicy
- DeleteAccessPointPolicyForObjectLambda
- DeleteAccessPointScope
- DeleteBucket
- DeleteBucketLifecycleConfiguration
- DeleteBucketPolicy
- DeleteBucketReplication
- DeleteBucketTagging
- DeleteJobTagging
- DeleteMultiRegionAccessPoint
- DeletePublicAccessBlock
- DeleteStorageLensConfiguration
- DeleteStorageLensConfigurationTagging
- DeleteStorageLensGroup
- DescribeJob
- DescribeMultiRegionAccessPointOperation
- DissociateAccessGrantsIdentityCenter
- GetAccessGrant
- GetAccessGrantsInstance
- GetAccessGrantsInstanceForPrefix
- GetAccessGrantsInstanceResourcePolicy
- GetAccessGrantsLocation
- GetAccessPoint
- GetAccessPointConfigurationForObjectLambda
- GetAccessPointForObjectLambda
- GetAccessPointPolicy
- GetAccessPointPolicyForObjectLambda

- GetAccessPointPolicyStatus
- GetAccessPointPolicyStatusForObjectLambda
- GetAccessPointScope
- GetBucket
- GetBucketLifecycleConfiguration
- GetBucketPolicy
- GetBucketReplication
- GetBucketTagging
- GetBucketVersioning
- GetDataAccess
- GetJobTagging
- GetMultiRegionAccessPoint
- GetMultiRegionAccessPointPolicy
- GetMultiRegionAccessPointPolicyStatus
- GetMultiRegionAccessPointRoutes
- GetPublicAccessBlock
- GetStorageLensConfiguration
- GetStorageLensConfigurationTagging
- GetStorageLensGroup
- ListAccessGrants
- ListAccessGrantsInstances
- ListAccessGrantsLocations
- ListAccessPoints
- ListAccessPointsForDirectoryBuckets
- ListAccessPointsForObjectLambda
- ListCallerAccessGrants
- ListJobs
- ListMultiRegionAccessPoints
- ListRegionalBuckets
- ListStorageLensConfigurations

- ListStorageLensGroups
- ListTagsForResource
- PutAccessGrantsInstanceResourcePolicy
- PutAccessPointConfigurationForObjectLambda
- PutAccessPointPolicy
- PutAccessPointPolicyForObjectLambda
- PutAccessPointScope
- PutBucketLifecycleConfiguration
- PutBucketPolicy
- PutBucketReplication
- PutBucketTagging
- PutBucketVersioning
- PutJobTagging
- PutMultiRegionAccessPointPolicy
- PutPublicAccessBlock
- PutStorageLensConfiguration
- PutStorageLensConfigurationTagging
- SubmitMultiRegionAccessPointRoutes
- TagResource
- UntagResource
- UpdateAccessGrantsLocation
- UpdateJobPriority
- UpdateJobStatus
- UpdateStorageLensGroup

The following actions are supported by Amazon S3 on Outposts:

- CreateEndpoint
- DeleteEndpoint
- ListEndpoints
- ListOutpostsWithS3

- ListSharedEndpoints

The following actions are supported by Amazon S3 Tables:

- CreateNamespace
- CreateTable
- CreateTableBucket
- DeleteNamespace
- DeleteTable
- DeleteTableBucket
- DeleteTableBucketEncryption
- DeleteTableBucketPolicy
- DeleteTablePolicy
- GetNamespace
- GetTable
- GetTableBucket
- GetTableBucketEncryption
- GetTableBucketMaintenanceConfiguration
- GetTableBucketPolicy
- GetTableEncryption
- GetTableMaintenanceConfiguration
- GetTableMaintenanceJobStatus
- GetTableMetadataLocation
- GetTablePolicy
- ListNamespaces
- ListTableBuckets
- ListTables
- PutTableBucketEncryption
- PutTableBucketMaintenanceConfiguration
- PutTableBucketPolicy
- PutTableMaintenanceConfiguration

- PutTablePolicy
- RenameTable
- UpdateTableMetadataLocation

The following actions are supported by Amazon S3 Vectors:

- CreateIndex
- CreateVectorBucket
- DeleteIndex
- DeleteVectorBucket
- DeleteVectorBucketPolicy
- DeleteVectors
- GetIndex
- GetVectorBucket
- GetVectorBucketPolicy
- GetVectors
- ListIndexes
- ListVectorBuckets
- ListVectors
- PutVectorBucketPolicy
- PutVectors
- QueryVectors

Amazon S3

The following actions are supported by Amazon S3:

- AbortMultipartUpload
- CompleteMultipartUpload
- CopyObject
- CreateBucket
- CreateBucketMetadataConfiguration

- CreateBucketMetadataTableConfiguration
- CreateMultipartUpload
- CreateSession
- DeleteBucket
- DeleteBucketAnalyticsConfiguration
- DeleteBucketCors
- DeleteBucketEncryption
- DeleteBucketIntelligentTieringConfiguration
- DeleteBucketInventoryConfiguration
- DeleteBucketLifecycle
- DeleteBucketMetadataConfiguration
- DeleteBucketMetadataTableConfiguration
- DeleteBucketMetricsConfiguration
- DeleteBucketOwnershipControls
- DeleteBucketPolicy
- DeleteBucketReplication
- DeleteBucketTagging
- DeleteBucketWebsite
- DeleteObject
- DeleteObjects
- DeleteObjectTagging
- DeletePublicAccessBlock
- GetBucketAccelerateConfiguration
- GetBucketAcl
- GetBucketAnalyticsConfiguration
- GetBucketCors
- GetBucketEncryption
- GetBucketIntelligentTieringConfiguration
- GetBucketInventoryConfiguration
- GetBucketLifecycle

- GetBucketLifecycleConfiguration
- GetBucketLocation
- GetBucketLogging
- GetBucketMetadataConfiguration
- GetBucketMetadataTableConfiguration
- GetBucketMetricsConfiguration
- GetBucketNotification
- GetBucketNotificationConfiguration
- GetBucketOwnershipControls
- GetBucketPolicy
- GetBucketPolicyStatus
- GetBucketReplication
- GetBucketRequestPayment
- GetBucketTagging
- GetBucketVersioning
- GetBucketWebsite
- GetObject
- GetObjectAcl
- GetObjectAttributes
- GetObjectLegalHold
- GetObjectLockConfiguration
- GetObjectRetention
- GetObjectTagging
- GetObjectTorrent
- GetPublicAccessBlock
- HeadBucket
- HeadObject
- ListBucketAnalyticsConfigurations
- ListBucketIntelligentTieringConfigurations
- ListBucketInventoryConfigurations

- ListBucketMetricsConfigurations
- ListBuckets
- ListDirectoryBuckets
- ListMultipartUploads
- ListObjects
- ListObjectsV2
- ListObjectVersions
- ListParts
- PutBucketAccelerateConfiguration
- PutBucketAcl
- PutBucketAnalyticsConfiguration
- PutBucketCors
- PutBucketEncryption
- PutBucketIntelligentTieringConfiguration
- PutBucketInventoryConfiguration
- PutBucketLifecycle
- PutBucketLifecycleConfiguration
- PutBucketLogging
- PutBucketMetricsConfiguration
- PutBucketNotification
- PutBucketNotificationConfiguration
- PutBucketOwnershipControls
- PutBucketPolicy
- PutBucketReplication
- PutBucketRequestPayment
- PutBucketTagging
- PutBucketVersioning
- PutBucketWebsite
- PutObject
- PutObjectAcl

- PutObjectLegalHold
- PutObjectLockConfiguration
- PutObjectRetention
- PutObjectTagging
- PutPublicAccessBlock
- RenameObject
- RestoreObject
- SelectObjectContent
- UpdateBucketMetadataInventoryTableConfiguration
- UpdateBucketMetadataJournalTableConfiguration
- UploadPart
- UploadPartCopy
- WriteGetObjectResponse

AbortMultipartUpload

Service: Amazon S3

This operation aborts a multipart upload. After a multipart upload is aborted, no additional parts can be uploaded using that upload ID. The storage consumed by any previously uploaded parts will be freed. However, if any part uploads are currently in progress, those part uploads might or might not succeed. As a result, it might be necessary to abort a given multipart upload multiple times in order to completely free all storage consumed by all parts.

To verify that all parts have been removed and prevent getting charged for the part storage, you should call the ListParts API operation and ensure that the parts list is empty.

> **Note**
>
> - **Directory buckets** - If multipart uploads in a directory bucket are in progress, you can't delete the bucket until all the in-progress multipart uploads are aborted or completed. To delete these in-progress multipart uploads, use the `ListMultipartUploads` operation to list the in-progress multipart uploads in the bucket and use the `AbortMultipartUpload` operation to abort all the in-progress multipart uploads.
> - **Directory buckets** - For directory buckets, you must make requests for this API operation to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://amzn-s3-demo-bucket.s3express-zone-id.region-code.amazonaws.com/key-name` . Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Permissions

- **General purpose bucket permissions** - For information about permissions required to use the multipart upload, see Multipart Upload and Permissions in the *Amazon S3 User Guide*.
- **Directory bucket permissions** - To grant access to this API operation on a directory bucket, we recommend that you use the `CreateSession` API operation for session-based authorization. Specifically, you grant the `s3express:CreateSession` permission to the directory bucket in a bucket policy or an IAM identity-based policy. Then, you make the `CreateSession` API call on the bucket to obtain a session token. With the session token in

your request header, you can make API requests to this operation. After the session token expires, you make another `CreateSession` API call to generate a new session token for use. AWS CLI or SDKs create session and refresh the session token automatically to avoid service interruptions when a session expires. For more information about authorization, see `CreateSession`.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is *`Bucket-name`*`.s3express-`*`zone-id`*`.`*`region-code`*`.amazonaws.com`.

The following operations are related to `AbortMultipartUpload`:

- CreateMultipartUpload
- UploadPart
- CompleteMultipartUpload
- ListParts
- ListMultipartUploads

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /Key+?uploadId=UploadId HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-request-payer: RequestPayer
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-if-match-initiated-time: IfMatchInitiatedTime
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name to which the upload was taking place.

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format `Bucket-name.s3express-zone-id.region-code.amazonaws.com`. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format `bucket-base-name--zone-id--x-s3` (for example, `amzn-s3-demo-bucket--usw2-az1--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

Key

Key of the object for which the multipart upload was initiated.

Length Constraints: Minimum length of 1.

Required: Yes

uploadId

Upload ID that identifies the multipart upload.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-if-match-initiated-time

If present, this header aborts an in progress multipart upload only if it was initiated on the provided timestamp. If the initiated timestamp of the multipart upload does not match the provided value, the operation returns a `412 Precondition Failed` error. If the initiated timestamp matches or if the multipart upload doesn't exist, the operation returns a `204 Success (No Content)` response.

> **Note**
>
> This functionality is only supported for directory buckets.

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
x-amz-request-charged: RequestCharged
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response.

The response returns the following HTTP headers.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

Errors

NoSuchUpload

The specified multipart upload does not exist.

HTTP Status Code: 404

Examples

Sample Request for general purpose buckets

The following request aborts a multipart upload identified by its upload ID.

```
               DELETE /example-object?
uploadId=VXBsb2FkIElEIGZvciBlbHZpbmcncyBteS1tb3ZpZS5tMnRzIHVwbG9hZ HTTP/1.1
               Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
               Date:  Mon, 1 Nov 2010 20:34:56 GMT
               Authorization: authorization string
```

Sample Response for general purpose buckets

This example illustrates one usage of AbortMultipartUpload.

```
               HTTP/1.1 204 OK
               x-amz-id-2: Weag1LuByRx9e6j5Onimru9pO4ZVKnJ2Qz7/C1NPcfTWAtRPfTaOFg==
               x-amz-request-id: 996c76696e6727732072657175657374
               Date:  Mon, 1 Nov 2010 20:34:56 GMT
               Content-Length: 0
               Connection: keep-alive
               Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CompleteMultipartUpload

Service: Amazon S3

Completes a multipart upload by assembling previously uploaded parts.

You first initiate the multipart upload and then upload all parts using the UploadPart operation or the UploadPartCopy operation. After successfully uploading all relevant parts of an upload, you call this `CompleteMultipartUpload` operation to complete the upload. Upon receiving this request, Amazon S3 concatenates all the parts in ascending order by part number to create a new object. In the CompleteMultipartUpload request, you must provide the parts list and ensure that the parts list is complete. The CompleteMultipartUpload API operation concatenates the parts that you provide in the list. For each part in the list, you must provide the `PartNumber` value and the `ETag` value that are returned after that part was uploaded.

The processing of a CompleteMultipartUpload request could take several minutes to finalize. After Amazon S3 begins processing the request, it sends an HTTP response header that specifies a `200 OK` response. While processing is in progress, Amazon S3 periodically sends white space characters to keep the connection from timing out. A request could fail after the initial `200 OK` response has been sent. This means that a `200 OK` response can contain either a success or an error. The error response might be embedded in the `200 OK` response. If you call this API operation directly, make sure to design your application to parse the contents of the response and handle it appropriately. If you use AWS SDKs, SDKs handle this condition. The SDKs detect the embedded error and apply error handling per your configuration settings (including automatically retrying the request as appropriate). If the condition persists, the SDKs throw an exception (or, for the SDKs that don't use exceptions, they return an error).

Note that if `CompleteMultipartUpload` fails, applications should be prepared to retry any failed requests (including 500 error responses). For more information, see Amazon S3 Error Best Practices.

> **Important**
>
> You can't use `Content-Type: application/x-www-form-urlencoded` for the CompleteMultipartUpload requests. Also, if you don't provide a `Content-Type` header, `CompleteMultipartUpload` can still return a `200 OK` response.

For more information about multipart uploads, see Uploading Objects Using Multipart Upload in the *Amazon S3 User Guide*.

> **Note**
>
> **Directory buckets** - For directory buckets, you must make requests for this API operation to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://amzn-s3-demo-bucket.s3express-zone-id.region-code.amazonaws.com/key-name` . Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Permissions

- **General purpose bucket permissions** - For information about permissions required to use the multipart upload API, see Multipart Upload and Permissions in the *Amazon S3 User Guide*.

  If you provide an additional checksum value in your `MultipartUpload` requests and the object is encrypted with AWS Key Management Service, you must have permission to use the `kms:Decrypt` action for the `CompleteMultipartUpload` request to succeed.

- **Directory bucket permissions** - To grant access to this API operation on a directory bucket, we recommend that you use the `CreateSession` API operation for session-based authorization. Specifically, you grant the `s3express:CreateSession` permission to the directory bucket in a bucket policy or an IAM identity-based policy. Then, you make the `CreateSession` API call on the bucket to obtain a session token. With the session token in your request header, you can make API requests to this operation. After the session token expires, you make another `CreateSession` API call to generate a new session token for use. AWS CLI or SDKs create session and refresh the session token automatically to avoid service interruptions when a session expires. For more information about authorization, see `CreateSession`.

  If the object is encrypted with SSE-KMS, you must also have the `kms:GenerateDataKey` and `kms:Decrypt` permissions in IAM identity-based policies and AWS KMS key policies for the AWS KMS key.

Special errors

- Error Code: `EntityTooSmall`

  - Description: Your proposed upload is smaller than the minimum allowed object size. Each part must be at least 5 MB in size, except the last part.
  - HTTP Status Code: 400 Bad Request
- Error Code: `InvalidPart`
  - Description: One or more of the specified parts could not be found. The part might not have been uploaded, or the specified ETag might not have matched the uploaded part's ETag.
  - HTTP Status Code: 400 Bad Request
- Error Code: `InvalidPartOrder`
  - Description: The list of parts was not in ascending order. The parts list must be specified in order by part number.
  - HTTP Status Code: 400 Bad Request
- Error Code: `NoSuchUpload`
  - Description: The specified multipart upload does not exist. The upload ID might be invalid, or the multipart upload might have been aborted or completed.
  - HTTP Status Code: 404 Not Found

HTTP Host header syntax

> **Directory buckets** - The HTTP Host header syntax is *`Bucket-name`*`.s3express-`*`zone-id`*`.`*`region-code`*`.amazonaws.com`.

The following operations are related to `CompleteMultipartUpload`:

- CreateMultipartUpload
- UploadPart
- AbortMultipartUpload
- ListParts
- ListMultipartUploads

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /Key+?uploadId=UploadId HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-checksum-crc32: ChecksumCRC32
x-amz-checksum-crc32c: ChecksumCRC32C
x-amz-checksum-crc64nvme: ChecksumCRC64NVME
x-amz-checksum-sha1: ChecksumSHA1
x-amz-checksum-sha256: ChecksumSHA256
x-amz-checksum-type: ChecksumType
x-amz-mp-object-size: MpuObjectSize
x-amz-request-payer: RequestPayer
x-amz-expected-bucket-owner: ExpectedBucketOwner
If-Match: IfMatch
If-None-Match: IfNoneMatch
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key: SSECustomerKey
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
<?xml version="1.0" encoding="UTF-8"?>
<CompleteMultipartUpload xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Part>
      <ChecksumCRC32>string</ChecksumCRC32>
      <ChecksumCRC32C>string</ChecksumCRC32C>
      <ChecksumCRC64NVME>string</ChecksumCRC64NVME>
      <ChecksumSHA1>string</ChecksumSHA1>
      <ChecksumSHA256>string</ChecksumSHA256>
      <ETag>string</ETag>
      <PartNumber>integer</PartNumber>
   </Part>
   ...
</CompleteMultipartUpload>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

Name of the bucket to which the multipart upload was initiated.

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format `Bucket-name.s3express-zone-id.region-code.amazonaws.com`. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format `bucket-base-name--zone-id--x-s3` (for example, `amzn-s3-demo-bucket--usw2-az1--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

If-Match

Uploads the object only if the ETag (entity tag) value provided during the WRITE operation matches the ETag of the object in S3. If the ETag values do not match, the operation returns a `412 Precondition Failed` error.

If a conflicting operation occurs during the upload S3 returns a `409 ConditionalRequestConflict` response. On a 409 failure you should fetch the object's ETag, re-initiate the multipart upload with `CreateMultipartUpload`, and re-upload each part.

Expects the ETag value as a string.

For more information about conditional requests, see RFC 7232, or Conditional requests in the *Amazon S3 User Guide*.

If-None-Match

Uploads the object only if the object key name does not already exist in the bucket specified. Otherwise, Amazon S3 returns a `412 Precondition Failed` error.

If a conflicting operation occurs during the upload S3 returns a `409 ConditionalRequestConflict` response. On a 409 failure you should re-initiate the multipart upload with `CreateMultipartUpload` and re-upload each part.

Expects the '*' (asterisk) character.

For more information about conditional requests, see RFC 7232, or Conditional requests in the *Amazon S3 User Guide*.

Key

Object key for which the multipart upload was initiated.

Length Constraints: Minimum length of 1.

Required: Yes

uploadId

ID for the initiated multipart upload.

Required: Yes

x-amz-checksum-crc32

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 32-bit `CRC32` checksum of the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-crc32c

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 32-bit `CRC32C` checksum of the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-crc64nvme

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 64-bit `CRC64NVME` checksum of the object. The `CRC64NVME` checksum is always a full object checksum. For more information, see Checking object integrity in the Amazon S3 User Guide.

x-amz-checksum-sha1

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 160-bit `SHA1` digest of the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-sha256

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 256-bit `SHA256` digest of the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-type

This header specifies the checksum type of the object, which determines how part-level checksums are combined to create an object-level checksum for multipart objects. You can use this header as a data integrity check to verify that the checksum type that is received is the same checksum that was specified. If the checksum type doesn't match the checksum type that was specified for the object during the `CreateMultipartUpload` request, it'll result in a `BadDigest` error. For more information, see Checking object integrity in the Amazon S3 User Guide.

Valid Values: `COMPOSITE | FULL_OBJECT`

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-mp-object-size

The expected total object size of the multipart upload request. If there's a mismatch between the specified object size value and the actual object size value, it results in an `HTTP 400 InvalidRequest` error.

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-server-side-encryption-customer-algorithm

The server-side encryption (SSE) algorithm used to encrypt the object. This parameter is required only when the object was created using a checksum algorithm or if your bucket policy requires the use of SSE-C. For more information, see Protecting data using SSE-C keys in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key

The server-side encryption (SSE) customer managed key. This parameter is needed only when the object was created using a checksum algorithm. For more information, see Protecting data using SSE-C keys in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key-MD5

The MD5 server-side encryption (SSE) customer managed key. This parameter is needed only when the object was created using a checksum algorithm. For more information, see Protecting data using SSE-C keys in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Request Body

The request accepts the following data in XML format.

CompleteMultipartUpload

Root level tag for the CompleteMultipartUpload parameters.

Required: Yes

Part

Array of CompletedPart data types.

If you do not supply a valid `Part` with your request, the service sends back an HTTP 400 response.

Type: Array of CompletedPart data types

Required: No

Response Syntax

```
HTTP/1.1 200
x-amz-expiration: Expiration
x-amz-server-side-encryption: ServerSideEncryption
x-amz-version-id: VersionId
x-amz-server-side-encryption-aws-kms-key-id: SSEKMSKeyId
x-amz-server-side-encryption-bucket-key-enabled: BucketKeyEnabled
x-amz-request-charged: RequestCharged
<?xml version="1.0" encoding="UTF-8"?>
<CompleteMultipartUploadResult>
   <Location>string</Location>
   <Bucket>string</Bucket>
   <Key>string</Key>
   <ETag>string</ETag>
   <ChecksumCRC32>string</ChecksumCRC32>
   <ChecksumCRC32C>string</ChecksumCRC32C>
   <ChecksumCRC64NVME>string</ChecksumCRC64NVME>
   <ChecksumSHA1>string</ChecksumSHA1>
   <ChecksumSHA256>string</ChecksumSHA256>
   <ChecksumType>string</ChecksumType>
</CompleteMultipartUploadResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-expiration

If the object expiration is configured, this will contain the expiration date (`expiry-date`) and rule ID (`rule-id`). The value of `rule-id` is URL-encoded.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-server-side-encryption

The server-side encryption algorithm used when storing this object in Amazon S3.

> **Note**
>
> When accessing data stored in Amazon FSx file systems using S3 access points, the only valid server side encryption option is `aws:fsx`.

Valid Values: `AES256` | `aws:fsx` | `aws:kms` | `aws:kms:dsse`

x-amz-server-side-encryption-aws-kms-key-id

If present, indicates the ID of the KMS key that was used for object encryption.

x-amz-server-side-encryption-bucket-key-enabled

Indicates whether the multipart upload uses an S3 Bucket Key for server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS).

x-amz-version-id

Version ID of the newly created object, in case the bucket has versioning turned on.

> **Note**
>
> This functionality is not supported for directory buckets.

The following data is returned in XML format by the service.

CompleteMultipartUploadResult

Root level tag for the CompleteMultipartUploadResult parameters.

Required: Yes

Bucket

The name of the bucket that contains the newly created object. Does not return the access point ARN or access point alias if used.

> **Note**
>
> Access points are not supported by directory buckets.

Type: String

ChecksumCRC32

The Base64 encoded, 32-bit `CRC32 checksum` of the object. This checksum is only be present if the checksum was uploaded with the object. When you use an API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

ChecksumCRC32C

The Base64 encoded, 32-bit `CRC32C` checksum of the object. This checksum is only present if the checksum was uploaded with the object. When you use an API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

ChecksumCRC64NVME

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 64-bit `CRC64NVME` checksum of the object. The `CRC64NVME` checksum is always a full object checksum. For more information, see Checking object integrity in the Amazon S3 User Guide.

Type: String

ChecksumSHA1

The Base64 encoded, 160-bit `SHA1` digest of the object. This will only be present if the object was uploaded with the object. When you use the API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

ChecksumSHA256

The Base64 encoded, 256-bit `SHA256` digest of the object. This will only be present if the object was uploaded with the object. When you use an API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

ChecksumType

The checksum type, which determines how part-level checksums are combined to create an object-level checksum for multipart objects. You can use this header as a data integrity check to verify that the checksum type that is received is the same checksum type that was specified during the `CreateMultipartUpload` request. For more information, see Checking object integrity in the Amazon S3 User Guide.

Type: String

Valid Values: `COMPOSITE | FULL_OBJECT`

ETag

Entity tag that identifies the newly created object's data. Objects with different object data will have different entity tags. The entity tag is an opaque string. The entity tag may or may not be an MD5 digest of the object data. If the entity tag is not an MD5 digest of the object data, it will contain one or more nonhexadecimal characters and/or will consist of less than 32 or more than 32 hexadecimal digits. For more information about how the entity tag is calculated, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Key

The object key of the newly created object.

Type: String

Length Constraints: Minimum length of 1.

Location

The URI that identifies the newly created object.

Type: String

Examples

Sample Request for general purpose buckets

The following Complete Multipart Upload request specifies three parts in the `CompleteMultipartUpload` element.

```
            POST /example-object?
uploadId=AAAsb2FkIElEIGZvciBlbHZpbmcncyWeeS1tb3ZpZS5tMnRzIRRwbG9hZA HTTP/1.1
            Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
            Date:  Mon, 1 Nov 2010 20:34:56 GMT
            Content-Length: 391
            Authorization: authorization string

            <CompleteMultipartUpload>
             <Part>
                <PartNumber>1</PartNumber>
               <ETag>"a54357aff0632cce46d942af68356b38"</ETag>
```

```
              </Part>
              <Part>
                 <PartNumber>2</PartNumber>
                <ETag>"0c78aef83f66abc1fa1e8477f296d394"</ETag>
              </Part>
              <Part>
                <PartNumber>3</PartNumber>
                <ETag>"acbd18db4cc2f85cedef654fccc4a4d8"</ETag>
              </Part>
            </CompleteMultipartUpload>
```

Sample Response for general purpose buckets

The following response indicates that an object was successfully assembled.

```
            HTTP/1.1 200 OK
            x-amz-id-2: Uuag1LuByRx9e6j5Onimru9pO4ZVKnJ2Qz7/C1NPcfTWAtRPfTaOFg==
            x-amz-request-id: 656c76696e67277320726571756573 74
            Date: Mon, 1 Nov 2010 20:34:56 GMT
            Connection: close
            Server: AmazonS3

            <?xml version="1.0" encoding="UTF-8"?>
            <CompleteMultipartUploadResult xmlns="http://s3.amazonaws.com/
doc/2006-03-01/">
             <Location>http://amzn-s3-demo-bucket.s3.<Region>.amazonaws.com/Example-
Object</Location>
             <Bucket>amzn-s3-demo-bucket</Bucket>
             <Key>Example-Object</Key>
             <ETag>"3858f62230ac3c915f300c664312c11f-9"</ETag>
            </CompleteMultipartUploadResult>
```

Sample Response for general purpose buckets: Error specified in header

The following response indicates that an error occurred before the HTTP response header was sent.

```
            HTTP/1.1 403 Forbidden
            x-amz-id-2: Uuag1LuByRx9e6j5Onimru9pO4ZVKnJ2Qz7/C1NPcfTWAtRPfTaOFg==
            x-amz-request-id: 656c76696e67277320726571756573 74
```

```
Date:  Mon, 1 Nov 2010 20:34:56 GMT
Content-Length: 237
Connection: keep-alive
Server: AmazonS3

<?xml version="1.0" encoding="UTF-8"?>
<Error>
  <Code>AccessDenied</Code>
 <Message>Access Denied</Message>
 <RequestId>656c76696e6727732072657175657374</RequestId>
 <HostId>Uuag1LuByRx9e6j5Onimru9pO4ZVKnJ2Qz7/C1NPcfTWAtRPfTaOFg==</HostId>
</Error>
```

Sample Response for general purpose buckets: Error specified in body

The following response indicates that an error occurred after the HTTP response header was sent. Note that while the HTTP status code is 200 OK, the request actually failed as described in the `Error` element.

```
HTTP/1.1 200 OK
x-amz-id-2: Uuag1LuByRx9e6j5Onimru9pO4ZVKnJ2Qz7/C1NPcfTWAtRPfTaOFg==
x-amz-request-id: 656c76696e6727732072657175657374
Date:  Mon, 1 Nov 2010 20:34:56 GMT
Connection: close
Server: AmazonS3

<?xml version="1.0" encoding="UTF-8"?>

<Error>
 <Code>InternalError</Code>
 <Message>We encountered an internal error. Please try again.</Message>
 <RequestId>656c76696e6727732072657175657374</RequestId>
 <HostId>Uuag1LuByRx9e6j5Onimru9pO4ZVKnJ2Qz7/C1NPcfTWAtRPfTaOFg==</HostId>
</Error>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CopyObject

Service: Amazon S3

> **Important**
>
> End of support notice: Beginning October 1, 2025, Amazon S3 will discontinue support for creating new Email Grantee Access Control Lists (ACL). Email Grantee ACLs created prior to this date will continue to work and remain accessible through the AWS Management Console, Command Line Interface (CLI), SDKs, and REST API. However, you will no longer be able to create new Email Grantee ACLs.
>
> Between July 15, 2025 and October 1, 2025, you will begin to see an increasing rate of `HTTP 405` errors for requests to Amazon S3 when attempting to create new Email Grantee ACLs.
>
> This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

Creates a copy of an object that is already stored in Amazon S3.

> **Note**
>
> You can store individual objects of up to 5 TB in Amazon S3. You create a copy of your object up to 5 GB in size in a single atomic action using this API. However, to copy an object greater than 5 GB, you must use the multipart upload Upload Part - Copy (UploadPartCopy) API. For more information, see Copy Object Using the REST Multipart Upload API.

You can copy individual objects between general purpose buckets, between directory buckets, and between general purpose buckets and directory buckets.

> **Note**
>
> - Amazon S3 supports copy operations using Multi-Region Access Points only as a destination when using the Multi-Region Access Point ARN.

- **Directory buckets** - For directory buckets, you must make requests for this API operation to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://amzn-s3-demo-bucket.s3express-zone-id.region-code.amazonaws.com/key-name` . Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.
- VPC endpoints don't support cross-Region requests (including copies). If you're using VPC endpoints, your source and destination buckets should be in the same AWS Region as your VPC endpoint.

Both the Region that you want to copy the object from and the Region that you want to copy the object to must be enabled for your account. For more information about how to enable a Region for your account, see Enable or disable a Region for standalone accounts in the *AWS Account Management Guide*.

Important

Amazon S3 transfer acceleration does not support cross-Region copies. If you request a cross-Region copy using a transfer acceleration endpoint, you get a `400 Bad Request` error. For more information, see Transfer Acceleration.

Authentication and authorization

All `CopyObject` requests must be authenticated and signed by using IAM credentials (access key ID and secret access key for the IAM identities). All headers with the `x-amz-` prefix, including `x-amz-copy-source`, must be signed. For more information, see REST Authentication.

Directory buckets - You must use the IAM credentials to authenticate and authorize your access to the `CopyObject` API operation, instead of using the temporary security credentials through the `CreateSession` API operation.

AWS CLI or SDKs handles authentication and authorization on your behalf.

Permissions

You must have *read* access to the source object and *write* access to the destination bucket.

- **General purpose bucket permissions** - You must have permissions in an IAM policy based on the source and destination bucket types in a `CopyObject` operation.
  - If the source object is in a general purpose bucket, you must have **`s3:GetObject`** permission to read the source object that is being copied.
  - If the destination bucket is a general purpose bucket, you must have **`s3:PutObject`** permission to write the object copy to the destination bucket.
- **Directory bucket permissions** - You must have permissions in a bucket policy or an IAM identity-based policy based on the source and destination bucket types in a `CopyObject` operation.
  - If the source object that you want to copy is in a directory bucket, you must have the **`s3express:CreateSession`** permission in the `Action` element of a policy to read the object. By default, the session is in the `ReadWrite` mode. If you want to restrict the access, you can explicitly set the `s3express:SessionMode` condition key to `ReadOnly` on the copy source bucket.
  - If the copy destination is a directory bucket, you must have the **`s3express:CreateSession`** permission in the `Action` element of a policy to write the object to the destination. The `s3express:SessionMode` condition key can't be set to `ReadOnly` on the copy destination bucket.

  If the object is encrypted with SSE-KMS, you must also have the `kms:GenerateDataKey` and `kms:Decrypt` permissions in IAM identity-based policies and AWS KMS key policies for the AWS KMS key.

  For example policies, see Example bucket policies for S3 Express One Zone and AWS Identity and Access Management (IAM) identity-based policies for S3 Express One Zone in the *Amazon S3 User Guide*.

Response and special errors

When the request is an HTTP 1.1 request, the response is chunk encoded. When the request is not an HTTP 1.1 request, the response would not contain the `Content-Length`. You always need to read the entire response body to check if the copy succeeds.

- If the copy is successful, you receive a response with information about the copied object.

- A copy request might return an error when Amazon S3 receives the copy request or while Amazon S3 is copying the files. A `200 OK` response can contain either a success or an error.
  - If the error occurs before the copy action starts, you receive a standard Amazon S3 error.
  - If the error occurs during the copy operation, the error response is embedded in the `200 OK` response. For example, in a cross-region copy, you may encounter throttling and receive a `200 OK` response. For more information, see Resolve the Error 200 response when copying objects to Amazon S3. The `200 OK` status code means the copy was accepted, but it doesn't mean the copy is complete. Another example is when you disconnect from Amazon S3 before the copy is complete, Amazon S3 might cancel the copy and you may receive a `200 OK` response. You must stay connected to Amazon S3 until the entire response is successfully received and processed.

    If you call this API operation directly, make sure to design your application to parse the content of the response and handle it appropriately. If you use AWS SDKs, SDKs handle this condition. The SDKs detect the embedded error and apply error handling per your configuration settings (including automatically retrying the request as appropriate). If the condition persists, the SDKs throw an exception (or, for the SDKs that don't use exceptions, they return an error).

Charge

The copy request charge is based on the storage class and Region that you specify for the destination object. The request can also result in a data retrieval charge for the source if the source storage class bills for data retrieval. If the copy source is in a different region, the data transfer is billed to the copy source account. For pricing information, see Amazon S3 pricing.

HTTP Host header syntax

- **Directory buckets** - The HTTP Host header syntax is `Bucket-name.s3express-zone-id.region-code.amazonaws.com`.
- **Amazon S3 on Outposts** - When you use this action with S3 on Outposts through the REST API, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. The hostname isn't required when you use the AWS CLI or SDKs.

The following operations are related to `CopyObject`:

- PutObject

- GetObject

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /Key+ HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-acl: ACL
Cache-Control: CacheControl
x-amz-checksum-algorithm: ChecksumAlgorithm
Content-Disposition: ContentDisposition
Content-Encoding: ContentEncoding
Content-Language: ContentLanguage
Content-Type: ContentType
x-amz-copy-source: CopySource
x-amz-copy-source-if-match: CopySourceIfMatch
x-amz-copy-source-if-modified-since: CopySourceIfModifiedSince
x-amz-copy-source-if-none-match: CopySourceIfNoneMatch
x-amz-copy-source-if-unmodified-since: CopySourceIfUnmodifiedSince
Expires: Expires
x-amz-grant-full-control: GrantFullControl
x-amz-grant-read: GrantRead
x-amz-grant-read-acp: GrantReadACP
x-amz-grant-write-acp: GrantWriteACP
x-amz-metadata-directive: MetadataDirective
x-amz-tagging-directive: TaggingDirective
x-amz-server-side-encryption: ServerSideEncryption
x-amz-storage-class: StorageClass
x-amz-website-redirect-location: WebsiteRedirectLocation
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key: SSECustomerKey
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-server-side-encryption-aws-kms-key-id: SSEKMSKeyId
x-amz-server-side-encryption-context: SSEKMSEncryptionContext
x-amz-server-side-encryption-bucket-key-enabled: BucketKeyEnabled
```

```
x-amz-copy-source-server-side-encryption-customer-
algorithm: CopySourceSSECustomerAlgorithm
x-amz-copy-source-server-side-encryption-customer-key: CopySourceSSECustomerKey
x-amz-copy-source-server-side-encryption-customer-key-MD5: CopySourceSSECustomerKeyMD5
x-amz-request-payer: RequestPayer
x-amz-tagging: Tagging
x-amz-object-lock-mode: ObjectLockMode
x-amz-object-lock-retain-until-date: ObjectLockRetainUntilDate
x-amz-object-lock-legal-hold: ObjectLockLegalHoldStatus
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-source-expected-bucket-owner: ExpectedSourceBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the destination bucket.

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format *Bucket-name*.s3express-*zone-id*.*region-code*.amazonaws.com. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format *bucket-base-name*--*zone-id*--x-s3 (for example, *amzn-s3-demo-bucket*--*usw2-az1*--x-s3). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

> **Note**
>
> Copying objects across different AWS Regions isn't supported when the source or destination bucket is in AWS Local Zones. The source and destination buckets must have the same parent AWS Region. Otherwise, you get an HTTP `400 Bad Request` error with the error code `InvalidRequest`.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the

form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must use the Outpost bucket access point ARN or the access point alias for the destination bucket. You can only copy objects within the same Outpost bucket. It's not supported to copy objects across different AWS Outposts, between buckets on the same Outposts, or between Outposts buckets and any other bucket types. For more information about S3 on Outposts, see What is S3 on Outposts? in the *S3 on Outposts guide*. When you use this action with S3 on Outposts through the REST API, you must direct requests to the S3 on Outposts hostname, in the format `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. The hostname isn't required when you use the AWS CLI or SDKs.

Required: Yes

Cache-Control

Specifies the caching behavior along the request/reply chain.

Content-Disposition

Specifies presentational information for the object. Indicates whether an object should be displayed in a web browser or downloaded as a file. It allows specifying the desired filename for the downloaded file.

Content-Encoding

Specifies what content encodings have been applied to the object and thus what decoding mechanisms must be applied to obtain the media-type referenced by the Content-Type header field.

> **Note**
>
> For directory buckets, only the `aws-chunked` value is supported in this header field.

Content-Language

The language the content is in.

Content-Type

A standard MIME type that describes the format of the object data.

Expires

The date and time at which the object is no longer cacheable.

Key

The key of the destination object.

Length Constraints: Minimum length of 1.

Required: Yes

x-amz-acl

The canned access control list (ACL) to apply to the object.

When you copy an object, the ACL metadata is not preserved and is set to `private` by default. Only the owner has full access control. To override the default ACL setting, specify a new ACL when you generate a copy request. For more information, see Using ACLs.

If the destination bucket that you're copying objects to uses the bucket owner enforced setting for S3 Object Ownership, ACLs are disabled and no longer affect permissions. Buckets that use this setting only accept PUT requests that don't specify an ACL or PUT requests that specify bucket owner full control ACLs, such as the `bucket-owner-full-control` canned ACL or an equivalent form of this ACL expressed in the XML format. For more information, see Controlling ownership of objects and disabling ACLs in the *Amazon S3 User Guide*.

> **Note**
>
> - If your destination bucket uses the bucket owner enforced setting for Object Ownership, all objects written to the bucket by any account will be owned by the bucket owner.
> - This functionality is not supported for directory buckets.
> - This functionality is not supported for Amazon S3 on Outposts.

Valid Values: `private` | `public-read` | `public-read-write` | `authenticated-read` | `aws-exec-read` | `bucket-owner-read` | `bucket-owner-full-control`

x-amz-checksum-algorithm

Indicates the algorithm that you want Amazon S3 to use to create the checksum for the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

When you copy an object, if the source object has a checksum, that checksum value will be copied to the new object by default. If the `CopyObject` request does not include this `x-amz-checksum-algorithm` header, the checksum algorithm will be copied from the source object to the destination object (if it's present on the source object). You can optionally specify a different checksum algorithm to use with the `x-amz-checksum-algorithm` header. Unrecognized or unsupported values will respond with the HTTP status code `400 Bad Request`.

> **Note**
>
> For directory buckets, when you use AWS SDKs, CRC32 is the default checksum algorithm that's used for performance.

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

x-amz-copy-source

Specifies the source object for the copy operation. The source object can be up to 5 GB. If the source object is an object that was uploaded by using a multipart upload, the object copy will be a single part object after the source object is copied to the destination bucket.

You specify the value of the copy source in one of two formats, depending on whether you want to access the source object through an access point:

- For objects not accessed through an access point, specify the name of the source bucket and the key of the source object, separated by a slash (/). For example, to copy the object `reports/january.pdf` from the general purpose bucket `awsexamplebucket`, use `awsexamplebucket/reports/january.pdf`. The value must be URL-encoded. To copy the object `reports/january.pdf` from the directory bucket `awsexamplebucket--use1-az5--x-s3`, use `awsexamplebucket--use1-az5--x-s3/reports/january.pdf`. The value must be URL-encoded.

- For objects accessed through access points, specify the Amazon Resource Name (ARN) of the object as accessed through the access point, in the format `arn:aws:s3:<Region>:<account-id>:accesspoint/<access-point-name>/object/<key>`. For example, to copy the object `reports/january.pdf` through access point `my-access-point` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3:us-west-2:123456789012:accesspoint/my-access-point/object/reports/january.pdf`. The value must be URL encoded.

  > **Note**
  >
  > - Amazon S3 supports copy operations using Access points only when the source and destination buckets are in the same AWS Region.
  > - Access points are not supported by directory buckets.

  Alternatively, for objects accessed through Amazon S3 on Outposts, specify the ARN of the object as accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/object/<key>`. For example, to copy the object `reports/january.pdf` through outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/object/reports/january.pdf`. The value must be URL-encoded.

If your source bucket versioning is enabled, the `x-amz-copy-source` header by default identifies the current version of an object to copy. If the current version is a delete marker, Amazon S3 behaves as if the object was deleted. To copy a different version, use the `versionId` query parameter. Specifically, append `?versionId=<version-id>` to the value (for example, `awsexamplebucket/reports/january.pdf?versionId=QUpfdndhfd8438MNFDN93jdnJFkdmqnh893`). If you don't specify a version ID, Amazon S3 copies the latest version of the source object.

If you enable versioning on the destination bucket, Amazon S3 generates a unique version ID for the copied object. This version ID is different from the version ID of the source object. Amazon S3 returns the version ID of the copied object in the `x-amz-version-id` response header in the response.

If you do not enable versioning or suspend it on the destination bucket, the version ID that Amazon S3 generates in the `x-amz-version-id` response header is always null.

> **Note**
>
> **Directory buckets** - S3 Versioning isn't enabled and supported for directory buckets.

Pattern: `\/?.+\/.+`

Required: Yes

x-amz-copy-source-if-match

Copies the object if its entity tag (ETag) matches the specified tag.

If both the `x-amz-copy-source-if-match` and `x-amz-copy-source-if-unmodified-since` headers are present in the request and evaluate as follows, Amazon S3 returns `200 OK` and copies the data:

- `x-amz-copy-source-if-match` condition evaluates to true
- `x-amz-copy-source-if-unmodified-since` condition evaluates to false

x-amz-copy-source-if-modified-since

Copies the object if it has been modified since the specified time.

If both the `x-amz-copy-source-if-none-match` and `x-amz-copy-source-if-modified-since` headers are present in the request and evaluate as follows, Amazon S3 returns the `412 Precondition Failed` response code:

- `x-amz-copy-source-if-none-match` condition evaluates to false
- `x-amz-copy-source-if-modified-since` condition evaluates to true

x-amz-copy-source-if-none-match

Copies the object if its entity tag (ETag) is different than the specified ETag.

If both the `x-amz-copy-source-if-none-match` and `x-amz-copy-source-if-modified-since` headers are present in the request and evaluate as follows, Amazon S3 returns the `412 Precondition Failed` response code:

- `x-amz-copy-source-if-none-match` condition evaluates to false
- `x-amz-copy-source-if-modified-since` condition evaluates to true

x-amz-copy-source-if-unmodified-since

Copies the object if it hasn't been modified since the specified time.

If both the `x-amz-copy-source-if-match` and `x-amz-copy-source-if-unmodified-since` headers are present in the request and evaluate as follows, Amazon S3 returns `200 OK` and copies the data:

- `x-amz-copy-source-if-match` condition evaluates to true
- `x-amz-copy-source-if-unmodified-since` condition evaluates to false

x-amz-copy-source-server-side-encryption-customer-algorithm

Specifies the algorithm to use when decrypting the source object (for example, `AES256`).

If the source object for the copy is stored in Amazon S3 using SSE-C, you must provide the necessary encryption information in your request so that Amazon S3 can decrypt the object for copying.

> **Note**
>
> This functionality is not supported when the source object is in a directory bucket.

x-amz-copy-source-server-side-encryption-customer-key

Specifies the customer-provided encryption key for Amazon S3 to use to decrypt the source object. The encryption key provided in this header must be the same one that was used when the source object was created.

If the source object for the copy is stored in Amazon S3 using SSE-C, you must provide the necessary encryption information in your request so that Amazon S3 can decrypt the object for copying.

> **Note**
>
> This functionality is not supported when the source object is in a directory bucket.

x-amz-copy-source-server-side-encryption-customer-key-MD5

Specifies the 128-bit MD5 digest of the encryption key according to RFC 1321. Amazon S3 uses this header for a message integrity check to ensure that the encryption key was transmitted without error.

If the source object for the copy is stored in Amazon S3 using SSE-C, you must provide the necessary encryption information in your request so that Amazon S3 can decrypt the object for copying.

> **Note**
>
> This functionality is not supported when the source object is in a directory bucket.

x-amz-expected-bucket-owner

The account ID of the expected destination bucket owner. If the account ID that you provide does not match the actual owner of the destination bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-grant-full-control

Gives the grantee READ, READ_ACP, and WRITE_ACP permissions on the object.

> **Note**
>
> - This functionality is not supported for directory buckets.
> - This functionality is not supported for Amazon S3 on Outposts.

x-amz-grant-read

Allows grantee to read the object data and its metadata.

> **Note**
>
> - This functionality is not supported for directory buckets.
> - This functionality is not supported for Amazon S3 on Outposts.

x-amz-grant-read-acp

Allows grantee to read the object ACL.

> **Note**
>
> - This functionality is not supported for directory buckets.
> - This functionality is not supported for Amazon S3 on Outposts.

x-amz-grant-write-acp

Allows grantee to write the ACL for the applicable object.

> **Note**
>
> - This functionality is not supported for directory buckets.
> - This functionality is not supported for Amazon S3 on Outposts.

x-amz-metadata-directive

Specifies whether the metadata is copied from the source object or replaced with metadata that's provided in the request. When copying an object, you can preserve all metadata (the default) or specify new metadata. If this header isn't specified, `COPY` is the default behavior.

General purpose bucket - For general purpose buckets, when you grant permissions, you can use the `s3:x-amz-metadata-directive` condition key to enforce certain metadata behavior when objects are uploaded. For more information, see Amazon S3 condition key examples in the *Amazon S3 User Guide*.

> **Note**
>
> `x-amz-website-redirect-location` is unique to each object and is not copied when using the `x-amz-metadata-directive` header. To copy the value, you must specify `x-amz-website-redirect-location` in the request header.

Valid Values: `COPY` | `REPLACE`

x-amz-object-lock-legal-hold

Specifies whether you want to apply a legal hold to the object copy.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `ON` | `OFF`

x-amz-object-lock-mode

The Object Lock mode that you want to apply to the object copy.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `GOVERNANCE` | `COMPLIANCE`

x-amz-object-lock-retain-until-date

The date and time when you want the Object Lock of the object copy to expire.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-server-side-encryption

The server-side encryption algorithm used when storing this object in Amazon S3. Unrecognized or unsupported values won't write a destination object and will receive a `400 Bad Request` response.

Amazon S3 automatically encrypts all new objects that are copied to an S3 bucket. When copying an object, if you don't specify encryption information in your copy request, the encryption setting of the target object is set to the default encryption configuration of the destination bucket. By default, all buckets have a base level of encryption configuration that uses server-side encryption with Amazon S3 managed keys (SSE-S3). If the destination bucket has a different default encryption configuration, Amazon S3 uses the corresponding encryption key to encrypt the target object copy.

With server-side encryption, Amazon S3 encrypts your data as it writes your data to disks in its data centers and decrypts the data when you access it. For more information about server-side encryption, see Using Server-Side Encryption in the *Amazon S3 User Guide*.

General purpose buckets

- For general purpose buckets, there are the following supported options for server-side encryption: server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS), dual-layer server-side encryption with AWS KMS keys (DSSE-KMS), and server-side encryption with customer-provided encryption keys (SSE-C). Amazon S3 uses the corresponding KMS key, or a customer-provided key to encrypt the target object copy.
- When you perform a `CopyObject` operation, if you want to use a different type of encryption setting for the target object, you can specify appropriate encryption-related headers to encrypt the target object with an Amazon S3 managed key, a KMS key, or a customer-provided key. If the encryption setting in your request is different from the default encryption configuration of the destination bucket, the encryption setting in your request takes precedence.

Directory buckets

- For directory buckets, there are only two supported options for server-side encryption: server-side encryption with Amazon S3 managed keys (SSE-S3) (`AES256`) and server-side encryption with AWS KMS keys (SSE-KMS) (`aws:kms`). We recommend that the bucket's default encryption uses the desired encryption configuration and you don't override the bucket default encryption in your `CreateSession` requests or PUT object requests. Then,

new objects are automatically encrypted with the desired encryption settings. For more information, see Protecting data with server-side encryption in the *Amazon S3 User Guide*. For more information about the encryption overriding behaviors in directory buckets, see Specifying server-side encryption with AWS KMS for new object uploads.

- To encrypt new object copies to a directory bucket with SSE-KMS, we recommend you specify SSE-KMS as the directory bucket's default encryption configuration with a KMS key (specifically, a customer managed key). The AWS managed key (`aws/s3`) isn't supported. Your SSE-KMS configuration can only support 1 customer managed key per directory bucket for the lifetime of the bucket. After you specify a customer managed key for SSE-KMS, you can't override the customer managed key for the bucket's SSE-KMS configuration. Then, when you perform a `CopyObject` operation and want to specify server-side encryption settings for new object copies with SSE-KMS in the encryption-related request headers, you must ensure the encryption key is the same customer managed key that you specified for the directory bucket's default encryption configuration.
- **S3 access points for Amazon FSx** - When accessing data stored in Amazon FSx file systems using S3 access points, the only valid server side encryption option is `aws:fsx`. All Amazon FSx file systems have encryption configured by default and are encrypted at rest. Data is automatically encrypted before being written to the file system, and automatically decrypted as it is read. These processes are handled transparently by Amazon FSx.

Valid Values: `AES256` | `aws:fsx` | `aws:kms` | `aws:kms:dsse`

x-amz-server-side-encryption-aws-kms-key-id

Specifies the AWS KMS key ID (Key ID, Key ARN, or Key Alias) to use for object encryption. All GET and PUT requests for an object protected by AWS KMS will fail if they're not made via SSL or using SigV4. For information about configuring any of the officially supported AWS SDKs and AWS CLI, see Specifying the Signature Version in Request Authentication in the *Amazon S3 User Guide*.

Directory buckets - To encrypt data using SSE-KMS, it's recommended to specify the `x-amz-server-side-encryption` header to `aws:kms`. Then, the `x-amz-server-side-encryption-aws-kms-key-id` header implicitly uses the bucket's default KMS customer managed key ID. If you want to explicitly set the `x-amz-server-side-encryption-aws-kms-key-id` header, it must match the bucket's default customer managed key (using key ID or ARN, not alias). Your SSE-KMS configuration can only support 1 customer managed key per directory bucket's lifetime. The AWS managed key (`aws/s3`) isn't supported. Incorrect key specification results in an HTTP `400 Bad Request` error.

x-amz-server-side-encryption-bucket-key-enabled

Specifies whether Amazon S3 should use an S3 Bucket Key for object encryption with server-side encryption using AWS Key Management Service (AWS KMS) keys (SSE-KMS). If a target object uses SSE-KMS, you can enable an S3 Bucket Key for the object.

Setting this header to `true` causes Amazon S3 to use an S3 Bucket Key for object encryption with SSE-KMS. Specifying this header with a COPY action doesn't affect bucket-level settings for S3 Bucket Key.

For more information, see Amazon S3 Bucket Keys in the *Amazon S3 User Guide*.

> **Note**
>
> **Directory buckets** - S3 Bucket Keys aren't supported, when you copy SSE-KMS encrypted objects from general purpose buckets to directory buckets, from directory buckets to general purpose buckets, or between directory buckets, through CopyObject. In this case, Amazon S3 makes a call to AWS KMS every time a copy request is made for a KMS-encrypted object.

x-amz-server-side-encryption-context

Specifies the AWS KMS Encryption Context as an additional encryption context to use for the destination object encryption. The value of this header is a base64-encoded UTF-8 string holding JSON with the encryption context key-value pairs.

General purpose buckets - This value must be explicitly added to specify encryption context for `CopyObject` requests if you want an additional encryption context for your destination object. The additional encryption context of the source object won't be copied to the destination object. For more information, see Encryption context in the *Amazon S3 User Guide*.

Directory buckets - You can optionally provide an explicit encryption context value. The value must match the default encryption context - the bucket Amazon Resource Name (ARN). An additional encryption context value is not supported.

x-amz-server-side-encryption-customer-algorithm

Specifies the algorithm to use when encrypting the object (for example, `AES256`).

When you perform a `CopyObject` operation, if you want to use a different type of encryption setting for the target object, you can specify appropriate encryption-related headers to encrypt

the target object with an Amazon S3 managed key, a KMS key, or a customer-provided key. If the encryption setting in your request is different from the default encryption configuration of the destination bucket, the encryption setting in your request takes precedence.

> **Note**
>
> This functionality is not supported when the destination bucket is a directory bucket.

x-amz-server-side-encryption-customer-key

Specifies the customer-provided encryption key for Amazon S3 to use in encrypting data. This value is used to store the object and then it is discarded. Amazon S3 does not store the encryption key. The key must be appropriate for use with the algorithm specified in the `x-amz-server-side-encryption-customer-algorithm` header.

> **Note**
>
> This functionality is not supported when the destination bucket is a directory bucket.

x-amz-server-side-encryption-customer-key-MD5

Specifies the 128-bit MD5 digest of the encryption key according to RFC 1321. Amazon S3 uses this header for a message integrity check to ensure that the encryption key was transmitted without error.

> **Note**
>
> This functionality is not supported when the destination bucket is a directory bucket.

x-amz-source-expected-bucket-owner

The account ID of the expected source bucket owner. If the account ID that you provide does not match the actual owner of the source bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-storage-class

If the `x-amz-storage-class` header is not used, the copied object will be stored in the `STANDARD` Storage Class by default. The `STANDARD` storage class provides high durability and high availability. Depending on performance needs, you can specify a different Storage Class.

> **Note**
>
> - **Directory buckets** - Directory buckets only support `EXPRESS_ONEZONE` (the S3 Express One Zone storage class) in Availability Zones and `ONEZONE_IA` (the S3 One Zone-Infrequent Access storage class) in Dedicated Local Zones. Unsupported storage class values won't write a destination object and will respond with the HTTP status code `400 Bad Request`.
> - **Amazon S3 on Outposts** - S3 on Outposts only uses the `OUTPOSTS` Storage Class.

You can use the `CopyObject` action to change the storage class of an object that is already stored in Amazon S3 by using the `x-amz-storage-class` header. For more information, see Storage Classes in the *Amazon S3 User Guide*.

Before using an object as a source object for the copy operation, you must restore a copy of it if it meets any of the following conditions:

- The storage class of the source object is `GLACIER` or `DEEP_ARCHIVE`.
- The storage class of the source object is `INTELLIGENT_TIERING` and it's S3 Intelligent-Tiering access tier is `Archive Access` or `Deep Archive Access`.

For more information, see RestoreObject and Copying Objects in the *Amazon S3 User Guide*.

Valid Values: `STANDARD | REDUCED_REDUNDANCY | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | GLACIER | DEEP_ARCHIVE | OUTPOSTS | GLACIER_IR | SNOW | EXPRESS_ONEZONE | FSX_OPENZFS`

x-amz-tagging

The tag-set for the object copy in the destination bucket. This value must be used in conjunction with the `x-amz-tagging-directive` if you choose `REPLACE` for the `x-amz-tagging-directive`. If you choose `COPY` for the `x-amz-tagging-directive`, you don't need to set the `x-amz-tagging` header, because the tag-set will be copied from the source object directly. The tag-set must be encoded as URL Query parameters.

The default value is the empty value.

> **Note**
>
> **Directory buckets** - For directory buckets in a `CopyObject` operation, only the empty tag-set is supported. Any requests that attempt to write non-empty tags into directory buckets will receive a `501 Not Implemented` status code. When the destination bucket is a directory bucket, you will receive a `501 Not Implemented` response in any of the following situations:
>
> - When you attempt to `COPY` the tag-set from an S3 source object that has non-empty tags.
> - When you attempt to `REPLACE` the tag-set of a source object and set a non-empty value to `x-amz-tagging`.
> - When you don't set the `x-amz-tagging-directive` header and the source object has non-empty tags. This is because the default value of `x-amz-tagging-directive` is `COPY`.
>
> Because only the empty tag-set is supported for directory buckets in a `CopyObject` operation, the following situations are allowed:
>
> - When you attempt to `COPY` the tag-set from a directory bucket source object that has no tags to a general purpose bucket. It copies an empty tag-set to the destination object.
> - When you attempt to `REPLACE` the tag-set of a directory bucket source object and set the `x-amz-tagging` value of the directory bucket destination object to empty.
> - When you attempt to `REPLACE` the tag-set of a general purpose bucket source object that has non-empty tags and set the `x-amz-tagging` value of the directory bucket destination object to empty.
> - When you attempt to `REPLACE` the tag-set of a directory bucket source object and don't set the `x-amz-tagging` value of the directory bucket destination object. This is because the default value of `x-amz-tagging` is the empty value.

x-amz-tagging-directive

Specifies whether the object tag-set is copied from the source object or replaced with the tag-set that's provided in the request.

The default value is COPY.

> **Note**
>
> **Directory buckets** - For directory buckets in a `CopyObject` operation, only the empty tag-set is supported. Any requests that attempt to write non-empty tags into directory buckets will receive a `501 Not Implemented` status code. When the destination bucket is a directory bucket, you will receive a `501 Not Implemented` response in any of the following situations:
>
> - When you attempt to COPY the tag-set from an S3 source object that has non-empty tags.
> - When you attempt to REPLACE the tag-set of a source object and set a non-empty value to `x-amz-tagging`.
> - When you don't set the `x-amz-tagging-directive` header and the source object has non-empty tags. This is because the default value of `x-amz-tagging-directive` is COPY.
>
> Because only the empty tag-set is supported for directory buckets in a `CopyObject` operation, the following situations are allowed:
>
> - When you attempt to COPY the tag-set from a directory bucket source object that has no tags to a general purpose bucket. It copies an empty tag-set to the destination object.
> - When you attempt to REPLACE the tag-set of a directory bucket source object and set the `x-amz-tagging` value of the directory bucket destination object to empty.
> - When you attempt to REPLACE the tag-set of a general purpose bucket source object that has non-empty tags and set the `x-amz-tagging` value of the directory bucket destination object to empty.
> - When you attempt to REPLACE the tag-set of a directory bucket source object and don't set the `x-amz-tagging` value of the directory bucket destination object. This is because the default value of `x-amz-tagging` is the empty value.

Valid Values: COPY | REPLACE

x-amz-website-redirect-location

If the destination bucket is configured as a website, redirects requests for this object copy to another object in the same bucket or to an external URL. Amazon S3 stores the value of this

header in the object metadata. This value is unique to each object and is not copied when using the `x-amz-metadata-directive` header. Instead, you may opt to provide this header in combination with the `x-amz-metadata-directive` header.

> **Note**
>
> This functionality is not supported for directory buckets.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-expiration: Expiration
x-amz-copy-source-version-id: CopySourceVersionId
x-amz-version-id: VersionId
x-amz-server-side-encryption: ServerSideEncryption
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-server-side-encryption-aws-kms-key-id: SSEKMSKeyId
x-amz-server-side-encryption-context: SSEKMSEncryptionContext
x-amz-server-side-encryption-bucket-key-enabled: BucketKeyEnabled
x-amz-request-charged: RequestCharged
<?xml version="1.0" encoding="UTF-8"?>
<CopyObjectResult>
   <ETag>string</ETag>
   <LastModified>timestamp</LastModified>
   <ChecksumType>string</ChecksumType>
   <ChecksumCRC32>string</ChecksumCRC32>
   <ChecksumCRC32C>string</ChecksumCRC32C>
   <ChecksumCRC64NVME>string</ChecksumCRC64NVME>
   <ChecksumSHA1>string</ChecksumSHA1>
   <ChecksumSHA256>string</ChecksumSHA256>
</CopyObjectResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-copy-source-version-id

Version ID of the source object that was copied.

> **Note**
>
> This functionality is not supported when the source object is in a directory bucket.

x-amz-expiration

If the object expiration is configured, the response includes this header.

> **Note**
>
> Object expiration information is not returned in directory buckets and this header returns the value "`NotImplemented`" in all responses for directory buckets.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-server-side-encryption

The server-side encryption algorithm used when you store this object in Amazon S3 or Amazon FSx.

> **Note**
>
> When accessing data stored in Amazon FSx file systems using S3 access points, the only valid server side encryption option is `aws:fsx`.

Valid Values: `AES256` | `aws:fsx` | `aws:kms` | `aws:kms:dsse`

x-amz-server-side-encryption-aws-kms-key-id

If present, indicates the ID of the KMS key that was used for object encryption.

x-amz-server-side-encryption-bucket-key-enabled

Indicates whether the copied object uses an S3 Bucket Key for server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS).

x-amz-server-side-encryption-context

If present, indicates the AWS KMS Encryption Context to use for object encryption. The value of this header is a Base64 encoded UTF-8 string holding JSON with the encryption context key-value pairs.

x-amz-server-side-encryption-customer-algorithm

If server-side encryption with a customer-provided encryption key was requested, the response will include this header to confirm the encryption algorithm that's used.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key-MD5

If server-side encryption with a customer-provided encryption key was requested, the response will include this header to provide the round-trip message integrity verification of the customer-provided encryption key.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-version-id

Version ID of the newly created copy.

> **Note**
>
> This functionality is not supported for directory buckets.

The following data is returned in XML format by the service.

CopyObjectResult

Root level tag for the CopyObjectResult parameters.

Required: Yes

ChecksumCRC32

The Base64 encoded, 32-bit CRC32 checksum of the object. This checksum is only present if the object was uploaded with the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

ChecksumCRC32C

The Base64 encoded, 32-bit CRC32C checksum of the object. This will only be present if the object was uploaded with the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

ChecksumCRC64NVME

The Base64 encoded, 64-bit CRC64NVME checksum of the object. This checksum is present if the object being copied was uploaded with the CRC64NVME checksum algorithm, or if the object was uploaded without a checksum (and Amazon S3 added the default checksum, CRC64NVME, to the uploaded object). For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

ChecksumSHA1

The Base64 encoded, 160-bit SHA1 digest of the object. This will only be present if the object was uploaded with the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

ChecksumSHA256

The Base64 encoded, 256-bit SHA256 digest of the object. This will only be present if the object was uploaded with the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

ChecksumType

The checksum type that is used to calculate the object's checksum value. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Valid Values: `COMPOSITE | FULL_OBJECT`

ETag

Returns the ETag of the new object. The ETag reflects only changes to the contents of an object, not its metadata.

Type: String

LastModified

Creation date of the object.

Type: Timestamp

Errors

ObjectNotInActiveTierError

The source object of the COPY action is not in the active tier and is only stored in Amazon S3 Glacier.

HTTP Status Code: 403

Examples

Sample Request for general purpose buckets

This example copies `my-image.jpg` into the `amzn-s3-demo-bucket` bucket, with the key name `my-second-image.jpg`.

```
PUT /my-second-image.jpg HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Wed, 28 Oct 2009 22:32:00 GMT
x-amz-copy-source: /amzn-s3-demo-bucket/my-image.jpg
Authorization: authorization string
```

Sample Response for general purpose buckets

This example illustrates one usage of CopyObject.

```
HTTP/1.1 200 OK
x-amz-id-2:
 eftixk72aD6Ap51TnqcoF8eFidJG9Z/2mkiDFu8yU9AS1ed4OpIszj7UDNEHGran
x-amz-request-id: 318BC8BC148832E5
x-amz-copy-source-version-id: 3/L4kqtJlcpXroDTDmJ+rmSpXd3dIbrHY
+MTRCxf3vjVBH40Nr8X8gdRQBpUMLUo
x-amz-version-id: QUpfdndhfd8438MNFDN93jdnJFkdmqnh893
Date: Wed, 28 Oct 2009 22:32:00 GMT
Connection: close
Server: AmazonS3

<CopyObjectResult>
   <LastModified>2009-10-12T17:50:30.000Z</LastModified>
   <ETag>"9b2cf535f27731c974343645a3985328"</ETag>
</CopyObjectResult>
```

Sample Request for general purpose buckets: Copying a specified version of an object

The following request copies the `my-image.jpg` key with the specified version ID, copies it into the `amzn-s3-demo-bucket` bucket, and gives it the `my-second-image.jpg` key.

```
                PUT /my-second-image.jpg HTTP/1.1
                Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
                Date: Wed, 28 Oct 2009 22:32:00 GMT
                x-amz-copy-source: /amzn-s3-demo-bucket/my-image.jpg?versionId=3/
L4kqtJlcpXroDTDmJ+rmSpXd3dIbrHY+MTRCxf3vjVBH40Nr8X8gdRQBpUMLUo
                Authorization: authorization string
```

Success Response for general purpose buckets: Copying a versioned object into a version-enabled bucket

The following response shows that an object was copied into a target bucket where versioning is enabled.

```
                HTTP/1.1 200 OK
                x-amz-id-2:
 eftixk72aD6Ap51TnqcoF8eFidJG9Z/2mkiDFu8yU9AS1ed4OpIszj7UDNEHGran
                x-amz-request-id: 318BC8BC148832E5
                x-amz-version-id: QUpfdndhfd8438MNFDN93jdnJFkdmqnh893
                x-amz-copy-source-version-id: 09df8234529fjs0dfi0w52935029wefdj
                Date: Wed, 28 Oct 2009 22:32:00 GMT
                Connection: close
                Server: AmazonS3

                <?xml version="1.0" encoding="UTF-8"?>
                <CopyObjectResult>
                  <LastModified>2009-10-12T17:50:30.000Z</LastModified>
                  <ETag>"9b2cf535f27731c974343645a3985328"</ETag>
                </CopyObjectResult>
```

Success Response for general purpose buckets: Copying a versioned object into a version-suspended bucket

The following response shows that an object was copied into a target bucket where versioning is suspended. The parameter `VersionId` does not appear.

```
               HTTP/1.1 200 OK
               x-amz-id-2:
 eftixk72aD6Ap51TnqcoF8eFidJG9Z/2mkiDFu8yU9AS1ed4OpIszj7UDNEHGran
```

```
                x-amz-request-id: 318BC8BC148832E5
                x-amz-copy-source-version-id: 3/L4kqtJlcpXroDTDmJ+rmSpXd3dIbrHY
+MTRCxf3vjVBH40Nr8X8gdRQBpUMLUo
                Date: Wed, 28 Oct 2009 22:32:00 GMT
                Connection: close
                Server: AmazonS3

                <?xml version="1.0" encoding="UTF-8"?>
                 <CopyObjectResult>
                   <LastModified>2009-10-28T22:32:00</LastModified>
                   <ETag>"9b2cf535f27731c974343645a3985328"</ETag>
                 </CopyObjectResult>
```

Sample Request for general purpose buckets: Copy from unencrypted object to an object encrypted with server-side encryption with customer-provided encryption keys

The following example specifies the HTTP PUT header to copy an unencrypted object to an object encrypted with server-side encryption with customer-provided encryption keys (SSE-C).

```
                 PUT /exampleDestinationObject HTTP/1.1
                 Host: amzn-s3-demo-destination-bucket.s3.<Region>.amazonaws.com
                 x-amz-server-side-encryption-customer-algorithm: AES256
                 x-amz-server-side-encryption-customer-key: Base64(YourKey)
                 x-amz-server-side-encryption-customer-key-MD5 : Base64(MD5(YourKey))
                 x-amz-metadata-directive: metadata_directive
                 x-amz-copy-source: /amzn-s3-demo-source-bucket/exampleSourceObject
                 x-amz-copy-source-if-match: etag
                 x-amz-copy-source-if-none-match: etag
                 x-amz-copy-source-if-unmodified-since: time_stamp
                 x-amz-copy-source-if-modified-since: time_stamp

                <request metadata>
                 Authorization: authorization string (see Authenticating Requests (AWS
 Signature Version 4))
                 Date: date
```

Sample Request for general purpose buckets: Copy from an object encrypted with SSE-C to an object encrypted with SSE-C

The following example specifies the HTTP PUT header to copy an object encrypted with server-side encryption with customer-provided encryption keys to an object encrypted with server-side encryption with customer-provided encryption keys for key rotation.

```
                PUT /exampleDestinationObject HTTP/1.1
                Host: amzn-s3-demo-destination-bucket.s3.<Region>.amazonaws.com
                x-amz-server-side-encryption-customer-algorithm: AES256
                x-amz-server-side-encryption-customer-key: Base64(NewKey)
                x-amz-server-side-encryption-customer-key-MD5: Base64(MD5(NewKey))
                x-amz-metadata-directive: metadata_directive
                x-amz-copy-source: /amzn-s3-demo-source-bucket/sourceObject
                x-amz-copy-source-if-match: etag
                x-amz-copy-source-if-none-match: etag
                x-amz-copy-source-if-unmodified-since: time_stamp
                x-amz-copy-source-if-modified-since: time_stamp
                x-amz-copy-source-server-side-encryption-customer-algorithm: AES256
                x-amz-copy-source-server-side-encryption-customer-key: Base64(OldKey)
                x-amz-copy-source-server-side-encryption-customer-key-MD5:
Base64(MD5(OldKey))

               <request metadata>
                Authorization: authorization string (see Authenticating Requests (AWS
Signature Version 4))
                Date: date
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2

- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateBucket

Service: Amazon S3

Important

End of support notice: Beginning October 1, 2025, Amazon S3 will discontinue support for creating new Email Grantee Access Control Lists (ACL). Email Grantee ACLs created prior to this date will continue to work and remain accessible through the AWS Management Console, Command Line Interface (CLI), SDKs, and REST API. However, you will no longer be able to create new Email Grantee ACLs.

Between July 15, 2025 and October 1, 2025, you will begin to see an increasing rate of `HTTP 405` errors for requests to Amazon S3 when attempting to create new Email Grantee ACLs.

This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

Important

End of support notice: Beginning November 21, 2025, Amazon S3 will stop returning `DisplayName`. Update your applications to use canonical IDs (unique identifier for AWS accounts), AWS account ID (12 digit identifier) or IAM ARNs (full resource naming) as a direct replacement of `DisplayName`.

Between July 15, 2025 and November 21, 2025, you will begin to see an increasing rate of missing `DisplayName` in the Owner object.

This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

> **Note**
>
> This action creates an Amazon S3 bucket. To create an Amazon S3 on Outposts bucket, see `CreateBucket`.

Creates a new S3 bucket. To create a bucket, you must set up Amazon S3 and have a valid AWS Access Key ID to authenticate requests. Anonymous requests are never allowed to create buckets. By creating the bucket, you become the bucket owner.

There are two types of buckets: general purpose buckets and directory buckets. For more information about these bucket types, see Creating, configuring, and working with Amazon S3 buckets in the *Amazon S3 User Guide*.

> **Note**
>
> - **General purpose buckets** - If you send your `CreateBucket` request to the `s3.amazonaws.com` global endpoint, the request goes to the `us-east-1` Region. So the signature calculations in Signature Version 4 must use `us-east-1` as the Region, even if the location constraint in the request specifies another Region where the bucket is to be created. If you create a bucket in a Region other than US East (N. Virginia), your application must be able to handle 307 redirect. For more information, see Virtual hosting of buckets in the *Amazon S3 User Guide*.
> - **Directory buckets** - For directory buckets, you must make requests for this API operation to the Regional endpoint. These endpoints support path-style requests in the format `https://s3express-control.`*`region-code`*`.amazonaws.com/`*`bucket-name`* . Virtual-hosted-style requests aren't supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Permissions

- **General purpose bucket permissions** - In addition to the `s3:CreateBucket` permission, the following permissions are required in a policy when your `CreateBucket` request includes specific headers:

- **Access control lists (ACLs)** - In your `CreateBucket` request, if you specify an access control list (ACL) and set it to `public-read`, `public-read-write`, `authenticated-read`, or if you explicitly specify any other custom ACLs, both `s3:CreateBucket` and `s3:PutBucketAcl` permissions are required. In your `CreateBucket` request, if you set the ACL to `private`, or if you don't specify any ACLs, only the `s3:CreateBucket` permission is required.
- **Object Lock** - In your `CreateBucket` request, if you set `x-amz-bucket-object-lock-enabled` to true, the `s3:PutBucketObjectLockConfiguration` and `s3:PutBucketVersioning` permissions are required.
- **S3 Object Ownership** - If your `CreateBucket` request includes the `x-amz-object-ownership` header, then the `s3:PutBucketOwnershipControls` permission is required.

  > **Important**
  >
  > To set an ACL on a bucket as part of a `CreateBucket` request, you must explicitly set S3 Object Ownership for the bucket to a different value than the default, `BucketOwnerEnforced`. Additionally, if your desired bucket ACL grants public access, you must first create the bucket (without the bucket ACL) and then explicitly disable Block Public Access on the bucket before using `PutBucketAcl` to set the ACL. If you try to create a bucket with a public ACL, the request will fail.
  > For the majority of modern use cases in S3, we recommend that you keep all Block Public Access settings enabled and keep ACLs disabled. If you would like to share data with users outside of your account, you can use bucket policies as needed. For more information, see Controlling ownership of objects and disabling ACLs for your bucket and Blocking public access to your Amazon S3 storage in the *Amazon S3 User Guide*.

- **S3 Block Public Access** - If your specific use case requires granting public access to your S3 resources, you can disable Block Public Access. Specifically, you can create a new bucket with Block Public Access enabled, then separately call the `DeletePublicAccessBlock` API. To use this operation, you must have the `s3:PutBucketPublicAccessBlock` permission. For more information about S3 Block Public Access, see Blocking public access to your Amazon S3 storage in the *Amazon S3 User Guide*.

- **Directory bucket permissions** - You must have the `s3express:CreateBucket` permission in an IAM identity-based policy instead of a bucket policy. Cross-account access to this API operation isn't supported. This operation can only be performed by the AWS account that

owns the resource. For more information about directory bucket policies and permissions, see AWS Identity and Access Management (IAM) for S3 Express One Zone in the *Amazon S3 User Guide*.

> **Important**
>
> The permissions for ACLs, Object Lock, S3 Object Ownership, and S3 Block Public Access are not supported for directory buckets. For directory buckets, all Block Public Access settings are enabled at the bucket level and S3 Object Ownership is set to Bucket owner enforced (ACLs disabled). These settings can't be modified.
> For more information about permissions for creating and working with directory buckets, see Directory buckets in the *Amazon S3 User Guide*. For more information about supported S3 features for directory buckets, see Features of S3 Express One Zone in the *Amazon S3 User Guide*.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `s3express-control.`*`region-code`*`.amazonaws.com`.

The following operations are related to `CreateBucket`:

- PutObject
- DeleteBucket

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT / HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-acl: ACL
x-amz-grant-full-control: GrantFullControl
```

```
x-amz-grant-read: GrantRead
x-amz-grant-read-acp: GrantReadACP
x-amz-grant-write: GrantWrite
x-amz-grant-write-acp: GrantWriteACP
x-amz-bucket-object-lock-enabled: ObjectLockEnabledForBucket
x-amz-object-ownership: ObjectOwnership
<?xml version="1.0" encoding="UTF-8"?>
<CreateBucketConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <LocationConstraint>string</LocationConstraint>
   <Location>
      <Name>string</Name>
      <Type>string</Type>
   </Location>
   <Bucket>
      <DataRedundancy>string</DataRedundancy>
      <Type>string</Type>
   </Bucket>
   <Tags>
      <Tag>
         <Key>string</Key>
         <Value>string</Value>
      </Tag>
   </Tags>
</CreateBucketConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket to create.

General purpose buckets - For information about bucket naming restrictions, see Bucket naming rules in the *Amazon S3 User Guide*.

Directory buckets - When you use this operation with a directory bucket, you must use path-style requests in the format `https://s3express-control.region-code.amazonaws.com/bucket-name` . Virtual-hosted-style requests aren't supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must also follow the format `bucket-base-name--zone-id--x-s3` (for example, `DOC-EXAMPLE-BUCKET--usw2-az1--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*

Required: Yes

x-amz-acl

The canned ACL to apply to the bucket.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `private | public-read | public-read-write | authenticated-read`

x-amz-bucket-object-lock-enabled

Specifies whether you want S3 Object Lock to be enabled for the new bucket.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-grant-full-control

Allows grantee the read, write, read ACP, and write ACP permissions on the bucket.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-grant-read

Allows grantee to list the objects in the bucket.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-grant-read-acp

Allows grantee to read the bucket ACL.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-grant-write

Allows grantee to create new objects in the bucket.

For the bucket and object owners of existing objects, also allows deletions and overwrites of those objects.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-grant-write-acp

Allows grantee to write the ACL for the applicable bucket.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-object-ownership

The container element for object ownership for a bucket's ownership controls.

`BucketOwnerPreferred` - Objects uploaded to the bucket change ownership to the bucket owner if the objects are uploaded with the `bucket-owner-full-control` canned ACL.

`ObjectWriter` - The uploading account will own the object if the object is uploaded with the `bucket-owner-full-control` canned ACL.

`BucketOwnerEnforced` - Access control lists (ACLs) are disabled and no longer affect permissions. The bucket owner automatically owns and has full control over every object in the bucket. The bucket only accepts PUT requests that don't specify an ACL or specify bucket

owner full control ACLs (such as the predefined `bucket-owner-full-control` canned ACL or a custom ACL in XML format that grants the same permissions).

By default, `ObjectOwnership` is set to `BucketOwnerEnforced` and ACLs are disabled. We recommend keeping ACLs disabled, except in uncommon use cases where you must control access for each object individually. For more information about S3 Object Ownership, see Controlling ownership of objects and disabling ACLs for your bucket in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets. Directory buckets use the bucket owner enforced setting for S3 Object Ownership.

Valid Values: `BucketOwnerPreferred | ObjectWriter | BucketOwnerEnforced`

Request Body

The request accepts the following data in XML format.

CreateBucketConfiguration

Root level tag for the CreateBucketConfiguration parameters.

Required: Yes

Bucket

Specifies the information about the bucket that will be created.

> **Note**
>
> This functionality is only supported by directory buckets.

Type: BucketInfo data type

Required: No

Location

Specifies the location where the bucket will be created.

Directory buckets - The location type is Availability Zone or Local Zone. To use the Local Zone location type, your account must be enabled for Local Zones. Otherwise, you get an HTTP `403 Forbidden` error with the error code `AccessDenied`. To learn more, see Enable accounts for Local Zones in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is only supported by directory buckets.

Type: LocationInfo data type

Required: No

LocationConstraint

Specifies the Region where the bucket will be created. You might choose a Region to optimize latency, minimize costs, or address regulatory requirements. For example, if you reside in Europe, you will probably find it advantageous to create buckets in the Europe (Ireland) Region.

If you don't specify a Region, the bucket is created in the US East (N. Virginia) Region (us-east-1) by default. Configurations using the value EU will create a bucket in `eu-west-1`.

For a list of the valid values for all of the AWS Regions, see Regions and Endpoints.

> **Note**
>
> This functionality is not supported for directory buckets.

Type: String

Valid Values: `af-south-1 | ap-east-1 | ap-northeast-1 | ap-northeast-2 | ap-northeast-3 | ap-south-1 | ap-south-2 | ap-southeast-1 | ap-southeast-2 | ap-southeast-3 | ap-southeast-4 | ap-southeast-5 | ca-central-1 | cn-north-1 | cn-northwest-1 | EU | eu-central-1 | eu-central-2 | eu-north-1 | eu-south-1 | eu-south-2 | eu-west-1 | eu-west-2 | eu-west-3 | il-`

`central-1 | me-central-1 | me-south-1 | sa-east-1 | us-east-2 | us-gov-east-1 | us-gov-west-1 | us-west-1 | us-west-2`

Required: No

Tags

An array of tags that you can apply to the bucket that you're creating. Tags are key-value pairs of metadata used to categorize and organize your buckets, track costs, and control access.

> **Note**
>
> - This parameter is only supported for S3 directory buckets. For more information, see Using tags with directory buckets.
> - You must have the `s3express:TagResource` permission to create a directory bucket with tags.

Type: Array of Tag data types

Required: No

Response Syntax

```
HTTP/1.1 200
Location: Location
x-amz-bucket-arn: BucketArn
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

Location

A forward slash followed by the name of the bucket.

x-amz-bucket-arn

The Amazon Resource Name (ARN) of the S3 bucket. ARNs uniquely identify AWS resources across all of AWS.

> **Note**
>
> This parameter is only supported for S3 directory buckets. For more information, see Using tags with directory buckets.

Length Constraints: Minimum length of 1. Maximum length of 128.

Pattern: `arn:[^:]+:(s3|s3express):.*`

Errors

BucketAlreadyExists

The requested bucket name is not available. The bucket namespace is shared by all users of the system. Select a different name and try again.

HTTP Status Code: 409

BucketAlreadyOwnedByYou

The bucket you tried to create already exists, and you own it. Amazon S3 returns this error in all AWS Regions except in the North Virginia Region. For legacy compatibility, if you re-create an existing bucket that you already own in the North Virginia Region, Amazon S3 returns 200 OK and resets the bucket access control lists (ACLs).

HTTP Status Code: 409

Examples

Sample Request for general purpose buckets

This request creates a bucket named `amzn-s3-demo-bucket`.

```
PUT / HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Content-Length: 0
Date: Wed, 01 Mar  2006 12:00:00 GMT
Authorization: authorization string
```

Sample Response for general purpose buckets

This example illustrates one usage of CreateBucket.

```
            HTTP/1.1 200 OK
            x-amz-id-2:
 YgIPIfBiKa2bj0KMg95r/0zo3emzU4dzsD4rcKCHQUAdQkf3ShJTOOpXUueF6QKo
            x-amz-request-id: 236A8905248E5A01
            Date: Wed, 01 Mar  2006 12:00:00 GMT

            Location: /amzn-s3-demo-bucket
            Content-Length: 0
            Connection: close
            Server: AmazonS3
```

Sample Request for general purpose buckets: Setting the Region of a bucket

The following request sets the Region for the bucket to Europe.

```
            PUT / HTTP/1.1
            Host: amzn-s3-demo-bucket.s3.amazonaws.com
            Date: Wed, 12 Oct 2009 17:50:00 GMT
            Authorization: authorization string
            Content-Type: text/plain
            Content-Length: 124

            <CreateBucketConfiguration xmlns="http://s3.amazonaws.com/
doc/2006-03-01/">
             <LocationConstraint>EU</LocationConstraint>
            </CreateBucketConfiguration >
```

Sample Request for general purpose buckets: Creating a bucket and applying the ObjectWriter setting for S3 Object Ownership.

This request creates a bucket and applies the `ObjectWriter` setting for Object Ownership.

```
            PUT / HTTP/1.1
```

```
            Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
            Content-Length: 0
            x-amz-object-ownership: ObjectWriter
            Date: Tue, 30 Nov  2021 12:00:00 GMT
            Authorization: authorization string
```

Sample Response for general purpose buckets

This example illustrates one usage of CreateBucket.

```
            HTTP/1.1 200 OK
            x-amz-id-2:
YgIPIfBiKa2bj0KMg95r/0zo3emzU4dzsD4rcKCHQUAdQkf3ShJTOOpXUueF6QKo
            x-amz-request-id: 236A8905248E5A01
            Date: Tue, 30 Nov  2021 12:00:00 GMT

            Location: /amzn-s3-demo-bucket
            Content-Length: 0
            Connection: close
            Server: AmazonS3
```

Sample Request for general purpose buckets: Creating a bucket and configuring access permissions explicitly

This request creates a bucket named `amzn-s3-demo-bucket` and grants WRITE permission to the AWS account identified by an email address.

```
            PUT HTTP/1.1
            Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
            x-amz-date: Sat, 07 Apr 2012 00:54:40 GMT
            Authorization: authorization string
            x-amz-grant-write: emailAddress="xyz@amazon.com",
emailAddress="abc@amazon.com"
```

Sample Response for general purpose buckets

This example illustrates one usage of CreateBucket.

```
HTTP/1.1 200 OK
```

Sample Request for general purpose buckets: Creating a bucket and configuring access permission using a canned ACL

This request creates a bucket named `amzn-s3-demo-bucket` and sets the ACL to private.

```
PUT / HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Content-Length: 0
x-amz-acl: private
Date: Wed, 01 Mar  2006 12:00:00 GMT
Authorization: authorization string
```

Sample Response for general purpose buckets

This example illustrates one usage of CreateBucket.

```
HTTP/1.1 200 OK
x-amz-id-2:
YgIPIfBiKa2bj0KMg95r/0zo3emzU4dzsD4rcKCHQUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 236A8905248E5A01
Date: Wed, 01 Mar  2006 12:00:00 GMT

Location: /amzn-s3-demo-bucket
Content-Length: 0
Connection: close
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface

- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateBucketMetadataConfiguration

Service: Amazon S3

Creates an S3 Metadata V2 metadata configuration for a general purpose bucket. For more information, see Accelerating data discovery with S3 Metadata in the *Amazon S3 User Guide*.

Permissions

To use this operation, you must have the following permissions. For more information, see Setting up permissions for configuring metadata tables in the *Amazon S3 User Guide*.

If you want to encrypt your metadata tables with server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS), you need additional permissions in your KMS key policy. For more information, see Setting up permissions for configuring metadata tables in the *Amazon S3 User Guide*.

If you also want to integrate your table bucket with AWS analytics services so that you can query your metadata table, you need additional permissions. For more information, see Integrating Amazon S3 Tables with AWS analytics services in the *Amazon S3 User Guide*.

To query your metadata tables, you need additional permissions. For more information, see Permissions for querying metadata tables in the *Amazon S3 User Guide*.

- `s3:CreateBucketMetadataTableConfiguration`

  > **Note**
  >
  > The IAM policy action name is the same for the V1 and V2 API operations.

- `s3tables:CreateTableBucket`
- `s3tables:CreateNamespace`
- `s3tables:GetTable`
- `s3tables:CreateTable`
- `s3tables:PutTablePolicy`
- `s3tables:PutTableEncryption`
- `kms:DescribeKey`

The following operations are related to `CreateBucketMetadataConfiguration`:

- DeleteBucketMetadataConfiguration
- GetBucketMetadataConfiguration
- UpdateBucketMetadataInventoryTableConfiguration
- UpdateBucketMetadataJournalTableConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /?metadataConfiguration HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<MetadataConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <JournalTableConfiguration>
      <EncryptionConfiguration>
         <KmsKeyArn>string</KmsKeyArn>
         <SseAlgorithm>string</SseAlgorithm>
      </EncryptionConfiguration>
      <RecordExpiration>
         <Days>integer</Days>
         <Expiration>string</Expiration>
      </RecordExpiration>
   </JournalTableConfiguration>
   <InventoryTableConfiguration>
      <ConfigurationState>string</ConfigurationState>
      <EncryptionConfiguration>
         <KmsKeyArn>string</KmsKeyArn>
         <SseAlgorithm>string</SseAlgorithm>
      </EncryptionConfiguration>
   </InventoryTableConfiguration>
</MetadataConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The general purpose bucket that you want to create the metadata configuration for.

Required: Yes

Content-MD5

The `Content-MD5` header for the metadata configuration.

x-amz-expected-bucket-owner

The expected owner of the general purpose bucket that corresponds to your metadata configuration.

x-amz-sdk-checksum-algorithm

The checksum algorithm to use with your metadata configuration.

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

Request Body

The request accepts the following data in XML format.

MetadataConfiguration

Root level tag for the MetadataConfiguration parameters.

Required: Yes

InventoryTableConfiguration

The inventory table configuration for a metadata configuration.

Type: InventoryTableConfiguration data type

Required: No

JournalTableConfiguration

The journal table configuration for a metadata configuration.

Type: JournalTableConfiguration data type

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateBucketMetadataTableConfiguration

Service: Amazon S3

> **Important**
>
> We recommend that you create your S3 Metadata configurations by using the V2 CreateBucketMetadataConfiguration API operation. We no longer recommend using the V1 `CreateBucketMetadataTableConfiguration` API operation.
> If you created your S3 Metadata configuration before July 15, 2025, we recommend that you delete and re-create your configuration by using CreateBucketMetadataConfiguration so that you can expire journal table records and create a live inventory table.

Creates a V1 S3 Metadata configuration for a general purpose bucket. For more information, see Accelerating data discovery with S3 Metadata in the *Amazon S3 User Guide*.

Permissions

To use this operation, you must have the following permissions. For more information, see Setting up permissions for configuring metadata tables in the *Amazon S3 User Guide*.

If you want to encrypt your metadata tables with server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS), you need additional permissions. For more information, see Setting up permissions for configuring metadata tables in the *Amazon S3 User Guide*.

If you also want to integrate your table bucket with AWS analytics services so that you can query your metadata table, you need additional permissions. For more information, see Integrating Amazon S3 Tables with AWS analytics services in the *Amazon S3 User Guide*.

- `s3:CreateBucketMetadataTableConfiguration`
- `s3tables:CreateNamespace`
- `s3tables:GetTable`
- `s3tables:CreateTable`
- `s3tables:PutTablePolicy`

The following operations are related to `CreateBucketMetadataTableConfiguration`:

- DeleteBucketMetadataTableConfiguration

- GetBucketMetadataTableConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /?metadataTable HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<MetadataTableConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <S3TablesDestination>
      <TableBucketArn>string</TableBucketArn>
      <TableName>string</TableName>
   </S3TablesDestination>
</MetadataTableConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The general purpose bucket that you want to create the metadata table configuration for.

Required: Yes

Content-MD5

The `Content-MD5` header for the metadata table configuration.

x-amz-expected-bucket-owner

The expected owner of the general purpose bucket that corresponds to your metadata table configuration.

x-amz-sdk-checksum-algorithm

The checksum algorithm to use with your metadata table configuration.

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

Request Body

The request accepts the following data in XML format.

MetadataTableConfiguration

Root level tag for the MetadataTableConfiguration parameters.

Required: Yes

S3TablesDestination

The destination information for the metadata table configuration. The destination table bucket must be in the same Region and AWS account as the general purpose bucket. The specified metadata table name must be unique within the `aws_s3_metadata` namespace in the destination table bucket.

Type: S3TablesDestination data type

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface

- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateMultipartUpload

Service: Amazon S3

> **Important**
>
> End of support notice: Beginning October 1, 2025, Amazon S3 will discontinue support for creating new Email Grantee Access Control Lists (ACL). Email Grantee ACLs created prior to this date will continue to work and remain accessible through the AWS Management Console, Command Line Interface (CLI), SDKs, and REST API. However, you will no longer be able to create new Email Grantee ACLs.
>
> Between July 15, 2025 and October 1, 2025, you will begin to see an increasing rate of `HTTP 405` errors for requests to Amazon S3 when attempting to create new Email Grantee ACLs.
>
> This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

This action initiates a multipart upload and returns an upload ID. This upload ID is used to associate all of the parts in the specific multipart upload. You specify this upload ID in each of your subsequent upload part requests (see UploadPart). You also include this upload ID in the final request to either complete or abort the multipart upload request. For more information about multipart uploads, see Multipart Upload Overview in the *Amazon S3 User Guide*.

> **Note**
>
> After you initiate a multipart upload and upload one or more parts, to stop being charged for storing the uploaded parts, you must either complete or abort the multipart upload. Amazon S3 frees up the space used to store the parts and stops charging you for storing them only after you either complete or abort a multipart upload.

If you have configured a lifecycle rule to abort incomplete multipart uploads, the created multipart upload must be completed within the number of days specified in the bucket lifecycle configuration. Otherwise, the incomplete multipart upload becomes eligible for an abort action

and Amazon S3 aborts the multipart upload. For more information, see Aborting Incomplete Multipart Uploads Using a Bucket Lifecycle Configuration.

> **Note**
>
> - **Directory buckets** - S3 Lifecycle is not supported by directory buckets.
> - **Directory buckets** - For directory buckets, you must make requests for this API operation to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://amzn-s3-demo-bucket.s3express-zone-id.region-code.amazonaws.com/key-name` . Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Request signing

For request signing, multipart upload is just a series of regular requests. You initiate a multipart upload, send one or more requests to upload parts, and then complete the multipart upload process. You sign each request individually. There is nothing special about signing multipart upload requests. For more information about signing, see Authenticating Requests (AWS Signature Version 4) in the *Amazon S3 User Guide*.

Permissions

- **General purpose bucket permissions** - To perform a multipart upload with encryption using an AWS Key Management Service (AWS KMS) KMS key, the requester must have permission to the `kms:Decrypt` and `kms:GenerateDataKey` actions on the key. The requester must also have permissions for the `kms:GenerateDataKey` action for the `CreateMultipartUpload` API. Then, the requester needs permissions for the `kms:Decrypt` action on the `UploadPart` and `UploadPartCopy` APIs. These permissions are required because Amazon S3 must decrypt and read data from the encrypted file parts before it completes the multipart upload. For more information, see Multipart upload API and permissions and Protecting data using server-side encryption with AWS KMS in the *Amazon S3 User Guide*.
- **Directory bucket permissions** - To grant access to this API operation on a directory bucket, we recommend that you use the `CreateSession` API operation for session-based authorization. Specifically, you grant the `s3express:CreateSession` permission to the

directory bucket in a bucket policy or an IAM identity-based policy. Then, you make the `CreateSession` API call on the bucket to obtain a session token. With the session token in your request header, you can make API requests to this operation. After the session token expires, you make another `CreateSession` API call to generate a new session token for use. AWS CLI or SDKs create session and refresh the session token automatically to avoid service interruptions when a session expires. For more information about authorization, see `CreateSession`.

Encryption

- **General purpose buckets** - Server-side encryption is for data encryption at rest. Amazon S3 encrypts your data as it writes it to disks in its data centers and decrypts it when you access it. Amazon S3 automatically encrypts all new objects that are uploaded to an S3 bucket. When doing a multipart upload, if you don't specify encryption information in your request, the encryption setting of the uploaded parts is set to the default encryption configuration of the destination bucket. By default, all buckets have a base level of encryption configuration that uses server-side encryption with Amazon S3 managed keys (SSE-S3). If the destination bucket has a default encryption configuration that uses server-side encryption with an AWS Key Management Service (AWS KMS) key (SSE-KMS), or a customer-provided encryption key (SSE-C), Amazon S3 uses the corresponding KMS key, or a customer-provided key to encrypt the uploaded parts. When you perform a CreateMultipartUpload operation, if you want to use a different type of encryption setting for the uploaded parts, you can request that Amazon S3 encrypts the object with a different encryption key (such as an Amazon S3 managed key, a KMS key, or a customer-provided key). When the encryption setting in your request is different from the default encryption configuration of the destination bucket, the encryption setting in your request takes precedence. If you choose to provide your own encryption key, the request headers you provide in UploadPart and UploadPartCopy requests must match the headers you used in the `CreateMultipartUpload` request.
  - Use KMS keys (SSE-KMS) that include the AWS managed key (`aws/s3`) and AWS KMS customer managed keys stored in AWS Key Management Service (AWS KMS) – If you want AWS to manage the keys used to encrypt data, specify the following headers in the request.
    - `x-amz-server-side-encryption`
    - `x-amz-server-side-encryption-aws-kms-key-id`
    - `x-amz-server-side-encryption-context`

Note

- If you specify `x-amz-server-side-encryption:aws:kms`, but don't provide `x-amz-server-side-encryption-aws-kms-key-id`, Amazon S3 uses the AWS managed key (`aws/s3` key) in AWS KMS to protect the data.
- To perform a multipart upload with encryption by using an AWS KMS key, the requester must have permission to the `kms:Decrypt` and `kms:GenerateDataKey*` actions on the key. These permissions are required because Amazon S3 must decrypt and read data from the encrypted file parts before it completes the multipart upload. For more information, see Multipart upload API and permissions and Protecting data using server-side encryption with AWS KMS in the *Amazon S3 User Guide*.
- If your AWS Identity and Access Management (IAM) user or role is in the same AWS account as the KMS key, then you must have these permissions on the key policy. If your IAM user or role is in a different account from the key, then you must have the permissions on both the key policy and your IAM user or role.
- All `GET` and `PUT` requests for an object protected by AWS KMS fail if you don't make them by using Secure Sockets Layer (SSL), Transport Layer Security (TLS), or Signature Version 4. For information about configuring any of the officially supported AWS SDKs and AWS CLI, see Specifying the Signature Version in Request Authentication in the *Amazon S3 User Guide*.

For more information about server-side encryption with AWS KMS keys (SSE-KMS), see Protecting Data Using Server-Side Encryption with KMS keys in the *Amazon S3 User Guide*.

- Use customer-provided encryption keys (SSE-C) – If you want to manage your own encryption keys, provide all the following headers in the request.
  - `x-amz-server-side-encryption-customer-algorithm`
  - `x-amz-server-side-encryption-customer-key`
  - `x-amz-server-side-encryption-customer-key-MD5`

  For more information about server-side encryption with customer-provided encryption keys (SSE-C), see Protecting data using server-side encryption with customer-provided encryption keys (SSE-C) in the *Amazon S3 User Guide*.

- **Directory buckets** - For directory buckets, there are only two supported options for server-side encryption: server-side encryption with Amazon S3 managed keys (SSE-S3) (`AES256`) and server-side encryption with AWS KMS keys (SSE-KMS) (`aws:kms`). We recommend that the bucket's default encryption uses the desired encryption configuration and you don't override the bucket default encryption in your `CreateSession` requests or PUT object requests. Then, new objects are automatically encrypted with the desired encryption settings. For more information, see Protecting data with server-side encryption in the *Amazon S3 User Guide*. For more information about the encryption overriding behaviors in directory buckets, see Specifying server-side encryption with AWS KMS for new object uploads.

  In the Zonal endpoint API calls (except CopyObject and UploadPartCopy) using the REST API, the encryption request headers must match the encryption settings that are specified in the `CreateSession` request. You can't override the values of the encryption settings (`x-amz-server-side-encryption`, `x-amz-server-side-encryption-aws-kms-key-id`, `x-amz-server-side-encryption-context`, and `x-amz-server-side-encryption-bucket-key-enabled`) that are specified in the `CreateSession` request. You don't need to explicitly specify these encryption settings values in Zonal endpoint API calls, and Amazon S3 will use the encryption settings values from the `CreateSession` request to protect new objects in the directory bucket.

  > **Note**
  >
  > When you use the CLI or the AWS SDKs, for `CreateSession`, the session token refreshes automatically to avoid service interruptions when a session expires. The CLI or the AWS SDKs use the bucket's default encryption configuration for the `CreateSession` request. It's not supported to override the encryption settings values in the `CreateSession` request. So in the Zonal endpoint API calls (except CopyObject and UploadPartCopy), the encryption request headers must match the default encryption configuration of the directory bucket.

  > **Note**
  >
  > For directory buckets, when you perform a `CreateMultipartUpload` operation and an `UploadPartCopy` operation, the request headers you provide in the

> `CreateMultipartUpload` request must match the default encryption configuration of the destination bucket.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is *`Bucket-name`*`.s3express-`*`zone-id`*`.`*`region-code`*`.amazonaws.com`.

The following operations are related to `CreateMultipartUpload`:

- UploadPart
- CompleteMultipartUpload
- AbortMultipartUpload
- ListParts
- ListMultipartUploads

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /{Key+}?uploads HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-acl: ACL
Cache-Control: CacheControl
Content-Disposition: ContentDisposition
Content-Encoding: ContentEncoding
Content-Language: ContentLanguage
Content-Type: ContentType
Expires: Expires
x-amz-grant-full-control: GrantFullControl
x-amz-grant-read: GrantRead
x-amz-grant-read-acp: GrantReadACP
x-amz-grant-write-acp: GrantWriteACP
```

```
x-amz-server-side-encryption: ServerSideEncryption
x-amz-storage-class: StorageClass
x-amz-website-redirect-location: WebsiteRedirectLocation
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key: SSECustomerKey
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-server-side-encryption-aws-kms-key-id: SSEKMSKeyId
x-amz-server-side-encryption-context: SSEKMSEncryptionContext
x-amz-server-side-encryption-bucket-key-enabled: BucketKeyEnabled
x-amz-request-payer: RequestPayer
x-amz-tagging: Tagging
x-amz-object-lock-mode: ObjectLockMode
x-amz-object-lock-retain-until-date: ObjectLockRetainUntilDate
x-amz-object-lock-legal-hold: ObjectLockLegalHoldStatus
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-checksum-algorithm: ChecksumAlgorithm
x-amz-checksum-type: ChecksumType
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket where the multipart upload is initiated and where the object is uploaded.

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format `Bucket-name.s3express-zone-id.region-code.amazonaws.com`. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format `bucket-base-name--zone-id--x-s3` (for example, `amzn-s3-demo-bucket--usw2-az1--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this

action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

Cache-Control

Specifies caching behavior along the request/reply chain.

Content-Disposition

Specifies presentational information for the object.

Content-Encoding

Specifies what content encodings have been applied to the object and thus what decoding mechanisms must be applied to obtain the media-type referenced by the Content-Type header field.

> **Note**
>
> For directory buckets, only the `aws-chunked` value is supported in this header field.

Content-Language

The language that the content is in.

Content-Type

A standard MIME type describing the format of the object data.

Expires

The date and time at which the object is no longer cacheable.

Key

Object key for which the multipart upload is to be initiated.

Length Constraints: Minimum length of 1.

Required: Yes

x-amz-acl

The canned ACL to apply to the object. Amazon S3 supports a set of predefined ACLs, known as *canned ACLs*. Each canned ACL has a predefined set of grantees and permissions. For more information, see Canned ACL in the *Amazon S3 User Guide*.

By default, all objects are private. Only the owner has full access control. When uploading an object, you can grant access permissions to individual AWS accounts or to predefined groups defined by Amazon S3. These permissions are then added to the access control list (ACL) on the new object. For more information, see Using ACLs. One way to grant the permissions using the request headers is to specify a canned ACL with the `x-amz-acl` request header.

> **Note**
>
> - This functionality is not supported for directory buckets.
> - This functionality is not supported for Amazon S3 on Outposts.

Valid Values: `private | public-read | public-read-write | authenticated-read | aws-exec-read | bucket-owner-read | bucket-owner-full-control`

x-amz-checksum-algorithm

Indicates the algorithm that you want Amazon S3 to use to create the checksum for the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

x-amz-checksum-type

Indicates the checksum type that you want Amazon S3 to use to calculate the object's checksum value. For more information, see Checking object integrity in the Amazon S3 User Guide.

Valid Values: `COMPOSITE | FULL_OBJECT`

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-grant-full-control

Specify access permissions explicitly to give the grantee READ, READ_ACP, and WRITE_ACP permissions on the object.

By default, all objects are private. Only the owner has full access control. When uploading an object, you can use this header to explicitly grant access permissions to specific AWS accounts or groups. This header maps to specific permissions that Amazon S3 supports in an ACL. For more information, see Access Control List (ACL) Overview in the *Amazon S3 User Guide*.

You specify each grantee as a type=value pair, where the type is one of the following:

- `id` – if the value specified is the canonical user ID of an AWS account
- `uri` – if you are granting permissions to a predefined group
- `emailAddress` – if the value specified is the email address of an AWS account

> **Note**
>
> Using email addresses to specify a grantee is only supported in the following AWS Regions:
>
> - US East (N. Virginia)
> - US West (N. California)
> - US West (Oregon)
> - Asia Pacific (Singapore)
> - Asia Pacific (Sydney)
> - Asia Pacific (Tokyo)

- Europe (Ireland)
- South America (São Paulo)

For a list of all the Amazon S3 supported Regions and endpoints, see Regions and Endpoints in the AWS General Reference.

For example, the following `x-amz-grant-read` header grants the AWS accounts identified by account IDs permissions to read object data and its metadata:

```
x-amz-grant-read: id="11112222333", id="444455556666"
```

Note

- This functionality is not supported for directory buckets.
- This functionality is not supported for Amazon S3 on Outposts.

x-amz-grant-read

Specify access permissions explicitly to allow grantee to read the object data and its metadata.

By default, all objects are private. Only the owner has full access control. When uploading an object, you can use this header to explicitly grant access permissions to specific AWS accounts or groups. This header maps to specific permissions that Amazon S3 supports in an ACL. For more information, see Access Control List (ACL) Overview in the *Amazon S3 User Guide*.

You specify each grantee as a type=value pair, where the type is one of the following:

- `id` – if the value specified is the canonical user ID of an AWS account
- `uri` – if you are granting permissions to a predefined group
- `emailAddress` – if the value specified is the email address of an AWS account

Note

Using email addresses to specify a grantee is only supported in the following AWS Regions:

- US East (N. Virginia)
- US West (N. California)
- US West (Oregon)

- Asia Pacific (Singapore)
- Asia Pacific (Sydney)
- Asia Pacific (Tokyo)
- Europe (Ireland)
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For a list of all the Amazon S3 supported Regions and endpoints, see Regions and Endpoints in the AWS General Reference.

For example, the following `x-amz-grant-read` header grants the AWS accounts identified by account IDs permissions to read object data and its metadata:

```
x-amz-grant-read: id="11112222333", id="444455556666"
```

Note

- This functionality is not supported for directory buckets.
- This functionality is not supported for Amazon S3 on Outposts.

x-amz-grant-read-acp

Specify access permissions explicitly to allows grantee to read the object ACL.

By default, all objects are private. Only the owner has full access control. When uploading an object, you can use this header to explicitly grant access permissions to specific AWS accounts or groups. This header maps to specific permissions that Amazon S3 supports in an ACL. For more information, see Access Control List (ACL) Overview in the *Amazon S3 User Guide*.

You specify each grantee as a type=value pair, where the type is one of the following:

- `id` – if the value specified is the canonical user ID of an AWS account
- `uri` – if you are granting permissions to a predefined group
- `emailAddress` – if the value specified is the email address of an AWS account

Note

Using email addresses to specify a grantee is only supported in the following AWS Regions:

- US East (N. Virginia)
- US West (N. California)
- US West (Oregon)
- Asia Pacific (Singapore)
- Asia Pacific (Sydney)
- Asia Pacific (Tokyo)
- Europe (Ireland)
- South America (São Paulo)

For a list of all the Amazon S3 supported Regions and endpoints, see Regions and Endpoints in the AWS General Reference.

For example, the following `x-amz-grant-read` header grants the AWS accounts identified by account IDs permissions to read object data and its metadata:

```
x-amz-grant-read: id="11112222333", id="444455556666"
```

Note

- This functionality is not supported for directory buckets.
- This functionality is not supported for Amazon S3 on Outposts.

x-amz-grant-write-acp

Specify access permissions explicitly to allows grantee to allow grantee to write the ACL for the applicable object.

By default, all objects are private. Only the owner has full access control. When uploading an object, you can use this header to explicitly grant access permissions to specific AWS accounts or groups. This header maps to specific permissions that Amazon S3 supports in an ACL. For more information, see Access Control List (ACL) Overview in the *Amazon S3 User Guide*.

You specify each grantee as a type=value pair, where the type is one of the following:

- `id` – if the value specified is the canonical user ID of an AWS account
- `uri` – if you are granting permissions to a predefined group

- `emailAddress` – if the value specified is the email address of an AWS account

> **Note**
>
> Using email addresses to specify a grantee is only supported in the following AWS Regions:
>
> - US East (N. Virginia)
> - US West (N. California)
> - US West (Oregon)
> - Asia Pacific (Singapore)
> - Asia Pacific (Sydney)
> - Asia Pacific (Tokyo)
> - Europe (Ireland)
> - South America (São Paulo)
>
> For a list of all the Amazon S3 supported Regions and endpoints, see Regions and Endpoints in the AWS General Reference.

For example, the following `x-amz-grant-read` header grants the AWS accounts identified by account IDs permissions to read object data and its metadata:

```
x-amz-grant-read: id="11112222333", id="444455556666"
```

> **Note**
>
> - This functionality is not supported for directory buckets.
> - This functionality is not supported for Amazon S3 on Outposts.

x-amz-object-lock-legal-hold

Specifies whether you want to apply a legal hold to the uploaded object.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `ON` | `OFF`

x-amz-object-lock-mode

Specifies the Object Lock mode that you want to apply to the uploaded object.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `GOVERNANCE` | `COMPLIANCE`

x-amz-object-lock-retain-until-date

Specifies the date and time when you want the Object Lock to expire.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-server-side-encryption

The server-side encryption algorithm used when you store this object in Amazon S3 or Amazon FSx.

- **Directory buckets** - For directory buckets, there are only two supported options for server-side encryption: server-side encryption with Amazon S3 managed keys (SSE-S3) (`AES256`) and server-side encryption with AWS KMS keys (SSE-KMS) (`aws:kms`). We recommend that the bucket's default encryption uses the desired encryption configuration and you don't override the bucket default encryption in your `CreateSession` requests or PUT object requests. Then, new objects are automatically encrypted with the desired encryption settings. For more information, see Protecting data with server-side encryption in the *Amazon S3 User Guide*. For more information about the encryption overriding behaviors in directory buckets, see Specifying server-side encryption with AWS KMS for new object uploads.

  In the Zonal endpoint API calls (except CopyObject and UploadPartCopy) using the REST API, the encryption request headers must match the encryption settings that are specified in the `CreateSession` request. You can't override the values of the encryption settings (`x-amz-server-side-encryption`, `x-amz-server-side-encryption-aws-kms-key-id`, `x-amz-server-side-encryption-context`, and `x-amz-server-side-encryption-bucket-key-enabled`) that are specified in the `CreateSession` request. You don't need to explicitly specify these encryption settings values in Zonal endpoint API calls, and Amazon S3 will use the encryption settings values from the `CreateSession` request to protect new objects in the directory bucket.

  > **Note**
  >
  > When you use the CLI or the AWS SDKs, for `CreateSession`, the session token refreshes automatically to avoid service interruptions when a session expires. The CLI or the AWS SDKs use the bucket's default encryption configuration for the `CreateSession` request. It's not supported to override the encryption settings values in the `CreateSession` request. So in the Zonal endpoint API calls (except CopyObject and UploadPartCopy), the encryption request headers must match the default encryption configuration of the directory bucket.

- **S3 access points for Amazon FSx** - When accessing data stored in Amazon FSx file systems using S3 access points, the only valid server side encryption option is `aws:fsx`. All Amazon FSx file systems have encryption configured by default and are encrypted at rest. Data is automatically encrypted before being written to the file system, and automatically decrypted as it is read. These processes are handled transparently by Amazon FSx.

Valid Values: `AES256` | `aws:fsx` | `aws:kms` | `aws:kms:dsse`

x-amz-server-side-encryption-aws-kms-key-id

Specifies the AWS KMS key ID (Key ID, Key ARN, or Key Alias) to use for object encryption. If the KMS key doesn't exist in the same account that's issuing the command, you must use the full Key ARN not the Key ID.

General purpose buckets - If you specify `x-amz-server-side-encryption` with `aws:kms` or `aws:kms:dsse`, this header specifies the ID (Key ID, Key ARN, or Key Alias) of the AWS KMS key to use. If you specify `x-amz-server-side-encryption:aws:kms` or `x-amz-server-side-encryption:aws:kms:dsse`, but do not provide `x-amz-server-side-encryption-aws-kms-key-id`, Amazon S3 uses the AWS managed key (`aws/s3`) to protect the data.

Directory buckets - To encrypt data using SSE-KMS, it's recommended to specify the `x-amz-server-side-encryption` header to `aws:kms`. Then, the `x-amz-server-side-encryption-aws-kms-key-id` header implicitly uses the bucket's default KMS customer managed key ID. If you want to explicitly set the `x-amz-server-side-encryption-aws-kms-key-id` header, it must match the bucket's default customer managed key (using key ID or ARN, not alias). Your SSE-KMS configuration can only support 1 customer managed key per directory bucket's lifetime. The AWS managed key (`aws/s3`) isn't supported. Incorrect key specification results in an HTTP `400 Bad Request` error.

x-amz-server-side-encryption-bucket-key-enabled

Specifies whether Amazon S3 should use an S3 Bucket Key for object encryption with server-side encryption using AWS Key Management Service (AWS KMS) keys (SSE-KMS).

General purpose buckets - Setting this header to `true` causes Amazon S3 to use an S3 Bucket Key for object encryption with SSE-KMS. Also, specifying this header with a PUT action doesn't affect bucket-level settings for S3 Bucket Key.

Directory buckets - S3 Bucket Keys are always enabled for `GET` and `PUT` operations in a directory bucket and can’t be disabled. S3 Bucket Keys aren't supported, when you copy SSE-KMS encrypted objects from general purpose buckets to directory buckets, from directory buckets to general purpose buckets, or between directory buckets, through CopyObject, UploadPartCopy, the Copy operation in Batch Operations, or the import jobs. In this case, Amazon S3 makes a call to AWS KMS every time a copy request is made for a KMS-encrypted object.

x-amz-server-side-encryption-context

Specifies the AWS KMS Encryption Context to use for object encryption. The value of this header is a Base64 encoded string of a UTF-8 encoded JSON, which contains the encryption context as key-value pairs.

Directory buckets - You can optionally provide an explicit encryption context value. The value must match the default encryption context - the bucket Amazon Resource Name (ARN). An additional encryption context value is not supported.

x-amz-server-side-encryption-customer-algorithm

Specifies the algorithm to use when encrypting the object (for example, AES256).

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key

Specifies the customer-provided encryption key for Amazon S3 to use in encrypting data. This value is used to store the object and then it is discarded; Amazon S3 does not store the encryption key. The key must be appropriate for use with the algorithm specified in the `x-amz-server-side-encryption-customer-algorithm` header.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key-MD5

Specifies the 128-bit MD5 digest of the customer-provided encryption key according to RFC 1321. Amazon S3 uses this header for a message integrity check to ensure that the encryption key was transmitted without error.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-storage-class

By default, Amazon S3 uses the STANDARD Storage Class to store newly created objects. The STANDARD storage class provides high durability and high availability. Depending on performance needs, you can specify a different Storage Class. For more information, see Storage Classes in the *Amazon S3 User Guide*.

> **Note**
>
> - Directory buckets only support `EXPRESS_ONEZONE` (the S3 Express One Zone storage class) in Availability Zones and `ONEZONE_IA` (the S3 One Zone-Infrequent Access storage class) in Dedicated Local Zones.
> - Amazon S3 on Outposts only uses the OUTPOSTS Storage Class.

Valid Values: `STANDARD | REDUCED_REDUNDANCY | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | GLACIER | DEEP_ARCHIVE | OUTPOSTS | GLACIER_IR | SNOW | EXPRESS_ONEZONE | FSX_OPENZFS`

x-amz-tagging

The tag-set for the object. The tag-set must be encoded as URL Query parameters.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-website-redirect-location

If the bucket is configured as a website, redirects requests for this object to another object in the same bucket or to an external URL. Amazon S3 stores the value of this header in the object metadata.

> **Note**
>
> This functionality is not supported for directory buckets.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-abort-date: AbortDate
x-amz-abort-rule-id: AbortRuleId
x-amz-server-side-encryption: ServerSideEncryption
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-server-side-encryption-aws-kms-key-id: SSEKMSKeyId
x-amz-server-side-encryption-context: SSEKMSEncryptionContext
x-amz-server-side-encryption-bucket-key-enabled: BucketKeyEnabled
x-amz-request-charged: RequestCharged
x-amz-checksum-algorithm: ChecksumAlgorithm
x-amz-checksum-type: ChecksumType
<?xml version="1.0" encoding="UTF-8"?>
<InitiateMultipartUploadResult>
   <Bucket>string</Bucket>
   <Key>string</Key>
   <UploadId>string</UploadId>
</InitiateMultipartUploadResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-abort-date

If the bucket has a lifecycle rule configured with an action to abort incomplete multipart uploads and the prefix in the lifecycle rule matches the object name in the request, the response includes this header. The header indicates when the initiated multipart upload becomes eligible for an abort operation. For more information, see Aborting Incomplete Multipart Uploads Using a Bucket Lifecycle Configuration in the *Amazon S3 User Guide*.

The response also includes the `x-amz-abort-rule-id` header that provides the ID of the lifecycle configuration rule that defines the abort action.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-abort-rule-id

This header is returned along with the `x-amz-abort-date` header. It identifies the applicable lifecycle configuration rule that defines the action to abort incomplete multipart uploads.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-checksum-algorithm

The algorithm that was used to create a checksum of the object.

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

x-amz-checksum-type

Indicates the checksum type that you want Amazon S3 to use to calculate the object's checksum value. For more information, see Checking object integrity in the Amazon S3 User Guide.

Valid Values: `COMPOSITE | FULL_OBJECT`

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-server-side-encryption

The server-side encryption algorithm used when you store this object in Amazon S3 or Amazon FSx.

> **Note**
>
> When accessing data stored in Amazon FSx file systems using S3 access points, the only valid server side encryption option is `aws:fsx`.

Valid Values: `AES256` | `aws:fsx` | `aws:kms` | `aws:kms:dsse`

x-amz-server-side-encryption-aws-kms-key-id

If present, indicates the ID of the KMS key that was used for object encryption.

x-amz-server-side-encryption-bucket-key-enabled

Indicates whether the multipart upload uses an S3 Bucket Key for server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS).

x-amz-server-side-encryption-context

If present, indicates the AWS KMS Encryption Context to use for object encryption. The value of this header is a Base64 encoded string of a UTF-8 encoded JSON, which contains the encryption context as key-value pairs.

x-amz-server-side-encryption-customer-algorithm

If server-side encryption with a customer-provided encryption key was requested, the response will include this header to confirm the encryption algorithm that's used.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key-MD5

If server-side encryption with a customer-provided encryption key was requested, the response will include this header to provide the round-trip message integrity verification of the customer-provided encryption key.

> **Note**
>
> This functionality is not supported for directory buckets.

The following data is returned in XML format by the service.

InitiateMultipartUploadResult

Root level tag for the InitiateMultipartUploadResult parameters.

Required: Yes

Bucket

The name of the bucket to which the multipart upload was initiated. Does not return the access point ARN or access point alias if used.

> **Note**
>
> Access points are not supported by directory buckets.

Type: String

Key

Object key for which the multipart upload was initiated.

Type: String

Length Constraints: Minimum length of 1.

UploadId

ID for the initiated multipart upload.

Type: String

Examples

Sample Request for general purpose buckets

This action initiates a multipart upload for the `amzn-s3-demo-bucket` object.

```
POST /example-object?uploads HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Mon, 1 Nov 2010 20:34:56 GMT
Authorization: authorization string
```

Sample Response for general purpose buckets

This example illustrates one usage of CreateMultipartUpload.

```
HTTP/1.1 200 OK
x-amz-id-2: Uuag1LuByRx9e6j5Onimru9pO4ZVKnJ2Qz7/C1NPcfTWAtRPfTaOFg==
x-amz-request-id: 656c76696e6727732072657175657374
Date:  Mon, 1 Nov 2010 20:34:56 GMT
Transfer-Encoding: chunked
Connection: keep-alive
Server: AmazonS3

<?xml version="1.0" encoding="UTF-8"?>
<InitiateMultipartUploadResult xmlns="http://s3.amazonaws.com/
doc/2006-03-01/">
  <Bucket>amzn-s3-demo-bucket</Bucket>
  <Key>example-object</Key>
  <UploadId>VXBsb2FkIElEIGZvciA2aWWpbmcncyBteS1tb3ZpZS5tMnRzIHVwbG9hZA</
UploadId>
</InitiateMultipartUploadResult>
```

Example for general purpose buckets: Initiate a multipart upload using server-side encryption with customer-provided encryption keys

This example, which initiates a multipart upload request, specifies server-side encryption with customer-provided encryption keys by adding relevant headers.

```
POST /example-object?uploads HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Authorization:authorization string
Date: Wed, 28 May 2014 19:34:57 +0000
```

```
            x-amz-server-side-encryption-customer-key:
 g0lCfA3Dv40jZz5SQJ1ZukLRFqtI5WorC/8SEEXAMPLE
            x-amz-server-side-encryption-customer-key-MD5: ZjQrne1X/iTcskbY2example
            x-amz-server-side-encryption-customer-algorithm: AES256
```

Sample Response for general purpose buckets

In the response, Amazon S3 returns an `UploadId`. In addition, Amazon S3 returns the encryption algorithm and the MD5 digest of the encryption key that you provided in the request.

```
           HTTP/1.1 200 OK
            x-amz-id-2:
 36HRCaIGp57F1FvWvVRrvd3hNn9WoBGfEaCVHTCt8QWf00qxdHazQUgfoXAbhFWD
            x-amz-request-id: 50FA1D691B62CA43
            Date: Wed, 28 May 2014 19:34:58 GMT
            x-amz-server-side-encryption-customer-algorithm: AES256
            x-amz-server-side-encryption-customer-key-MD5: ZjQrne1X/iTcskbY2m3tFg==
            Transfer-Encoding: chunked

            <?xml version="1.0" encoding="UTF-8"?>
            <InitiateMultipartUploadResult
            xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
              <Bucket>amzn-s3-demo-bucket</Bucket>
              <Key>example-object</Key>

 <UploadId>EXAMPLEJZ6e0YupT2h66iePQCc9IEbYbDUy4RTpMeoSMLPRp8Z5o1u8feSRonpvnWsKKG35tI2LB9VDPiCgT
</UploadId>
</InitiateMultipartUploadResult>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2

- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateSession

Service: Amazon S3

Creates a session that establishes temporary security credentials to support fast authentication and authorization for the Zonal endpoint API operations on directory buckets. For more information about Zonal endpoint API operations that include the Availability Zone in the request endpoint, see S3 Express One Zone APIs in the *Amazon S3 User Guide*.

To make Zonal endpoint API requests on a directory bucket, use the `CreateSession` API operation. Specifically, you grant `s3express:CreateSession` permission to a bucket in a bucket policy or an IAM identity-based policy. Then, you use IAM credentials to make the `CreateSession` API request on the bucket, which returns temporary security credentials that include the access key ID, secret access key, session token, and expiration. These credentials have associated permissions to access the Zonal endpoint API operations. After the session is created, you don't need to use other policies to grant permissions to each Zonal endpoint API individually. Instead, in your Zonal endpoint API requests, you sign your requests by applying the temporary security credentials of the session to the request headers and following the SigV4 protocol for authentication. You also apply the session token to the `x-amz-s3session-token` request header for authorization. Temporary security credentials are scoped to the bucket and expire after 5 minutes. After the expiration time, any calls that you make with those credentials will fail. You must use IAM credentials again to make a `CreateSession` API request that generates a new set of temporary credentials for use. Temporary credentials cannot be extended or refreshed beyond the original specified interval.

If you use AWS SDKs, SDKs handle the session token refreshes automatically to avoid service interruptions when a session expires. We recommend that you use the AWS SDKs to initiate and manage requests to the CreateSession API. For more information, see Performance guidelines and design patterns in the *Amazon S3 User Guide*.

Note

- You must make requests for this API operation to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://`*`bucket-name`*`.s3express-`*`zone-id`*`.`*`region-code`*`.amazonaws.com`. Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

- **`CopyObject` API operation** - Unlike other Zonal endpoint API operations, the `CopyObject` API operation doesn't use the temporary security credentials returned from the `CreateSession` API operation for authentication and authorization. For information about authentication and authorization of the `CopyObject` API operation on directory buckets, see CopyObject.
- **`HeadBucket` API operation** - Unlike other Zonal endpoint API operations, the `HeadBucket` API operation doesn't use the temporary security credentials returned from the `CreateSession` API operation for authentication and authorization. For information about authentication and authorization of the `HeadBucket` API operation on directory buckets, see HeadBucket.

Permissions

To obtain temporary security credentials, you must create a bucket policy or an IAM identity-based policy that grants `s3express:CreateSession` permission to the bucket. In a policy, you can have the `s3express:SessionMode` condition key to control who can create a `ReadWrite` or `ReadOnly` session. For more information about `ReadWrite` or `ReadOnly` sessions, see `x-amz-create-session-mode`. For example policies, see Example bucket policies for S3 Express One Zone and AWS Identity and Access Management (IAM) identity-based policies for S3 Express One Zone in the *Amazon S3 User Guide*.

To grant cross-account access to Zonal endpoint API operations, the bucket policy should also grant both accounts the `s3express:CreateSession` permission.

If you want to encrypt objects with SSE-KMS, you must also have the `kms:GenerateDataKey` and the `kms:Decrypt` permissions in IAM identity-based policies and AWS KMS key policies for the target AWS KMS key.

Encryption

For directory buckets, there are only two supported options for server-side encryption: server-side encryption with Amazon S3 managed keys (SSE-S3) (`AES256`) and server-side encryption with AWS KMS keys (SSE-KMS) (`aws:kms`). We recommend that the bucket's default encryption uses the desired encryption configuration and you don't override the bucket default encryption in your `CreateSession` requests or PUT object requests. Then, new objects are automatically encrypted with the desired encryption settings. For more information, see Protecting data with server-side encryption in the *Amazon S3 User Guide*. For more information about the encryption

overriding behaviors in directory buckets, see Specifying server-side encryption with AWS KMS for new object uploads.

For Zonal endpoint (object-level) API operations except CopyObject and UploadPartCopy, you authenticate and authorize requests through CreateSession for low latency. To encrypt new objects in a directory bucket with SSE-KMS, you must specify SSE-KMS as the directory bucket's default encryption configuration with a KMS key (specifically, a customer managed key). Then, when a session is created for Zonal endpoint API operations, new objects are automatically encrypted and decrypted with SSE-KMS and S3 Bucket Keys during the session.

> **Note**
>
> Only 1 customer managed key is supported per directory bucket for the lifetime of the bucket. The AWS managed key (`aws/s3`) isn't supported. After you specify SSE-KMS as your bucket's default encryption configuration with a customer managed key, you can't change the customer managed key for the bucket's SSE-KMS configuration.

In the Zonal endpoint API calls (except CopyObject and UploadPartCopy) using the REST API, you can't override the values of the encryption settings (`x-amz-server-side-encryption`, `x-amz-server-side-encryption-aws-kms-key-id`, `x-amz-server-side-encryption-context`, and `x-amz-server-side-encryption-bucket-key-enabled`) from the `CreateSession` request. You don't need to explicitly specify these encryption settings values in Zonal endpoint API calls, and Amazon S3 will use the encryption settings values from the `CreateSession` request to protect new objects in the directory bucket.

> **Note**
>
> When you use the CLI or the AWS SDKs, for `CreateSession`, the session token refreshes automatically to avoid service interruptions when a session expires. The CLI or the AWS SDKs use the bucket's default encryption configuration for the `CreateSession` request. It's not supported to override the encryption settings values in the `CreateSession` request. Also, in the Zonal endpoint API calls (except CopyObject and UploadPartCopy), it's not supported to override the values of the encryption settings from the `CreateSession` request.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is *Bucket-name*.s3express-*zone-id*.*region-code*.amazonaws.com.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?session HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-create-session-mode: SessionMode
x-amz-server-side-encryption: ServerSideEncryption
x-amz-server-side-encryption-aws-kms-key-id: SSEKMSKeyId
x-amz-server-side-encryption-context: SSEKMSEncryptionContext
x-amz-server-side-encryption-bucket-key-enabled: BucketKeyEnabled
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket that you create a session for.

Required: Yes

x-amz-create-session-mode

Specifies the mode of the session that will be created, either `ReadWrite` or `ReadOnly`. By default, a `ReadWrite` session is created. A `ReadWrite` session is capable of executing all the Zonal endpoint API operations on a directory bucket. A `ReadOnly` session is constrained to execute the following Zonal endpoint API operations: `GetObject`, `HeadObject`, `ListObjectsV2`, `GetObjectAttributes`, `ListParts`, and `ListMultipartUploads`.

Valid Values: `ReadOnly` | `ReadWrite`

x-amz-server-side-encryption

The server-side encryption algorithm to use when you store objects in the directory bucket.

For directory buckets, there are only two supported options for server-side encryption: server-side encryption with Amazon S3 managed keys (SSE-S3) (`AES256`) and server-side encryption with AWS KMS keys (SSE-KMS) (`aws:kms`). By default, Amazon S3 encrypts data with SSE-S3. For more information, see Protecting data with server-side encryption in the *Amazon S3 User Guide*.

S3 access points for Amazon FSx - When accessing data stored in Amazon FSx file systems using S3 access points, the only valid server side encryption option is `aws:fsx`. All Amazon FSx file systems have encryption configured by default and are encrypted at rest. Data is automatically encrypted before being written to the file system, and automatically decrypted as it is read. These processes are handled transparently by Amazon FSx.

Valid Values: `AES256` | `aws:fsx` | `aws:kms` | `aws:kms:dsse`

x-amz-server-side-encryption-aws-kms-key-id

If you specify `x-amz-server-side-encryption` with `aws:kms`, you must specify the `x-amz-server-side-encryption-aws-kms-key-id` header with the ID (Key ID or Key ARN) of the AWS KMS symmetric encryption customer managed key to use. Otherwise, you get an HTTP `400 Bad Request` error. Only use the key ID or key ARN. The key alias format of the KMS key isn't supported. Also, if the KMS key doesn't exist in the same account that't issuing the command, you must use the full Key ARN not the Key ID.

Your SSE-KMS configuration can only support 1 customer managed key per directory bucket's lifetime. The AWS managed key (`aws/s3`) isn't supported.

x-amz-server-side-encryption-bucket-key-enabled

Specifies whether Amazon S3 should use an S3 Bucket Key for object encryption with server-side encryption using AWS KMS keys (SSE-KMS).

S3 Bucket Keys are always enabled for `GET` and `PUT` operations in a directory bucket and can’t be disabled. S3 Bucket Keys aren't supported, when you copy SSE-KMS encrypted objects from general purpose buckets to directory buckets, from directory buckets to general purpose buckets, or between directory buckets, through CopyObject, UploadPartCopy, the Copy operation in Batch Operations, or the import jobs. In this case, Amazon S3 makes a call to AWS KMS every time a copy request is made for a KMS-encrypted object.

x-amz-server-side-encryption-context

Specifies the AWS KMS Encryption Context as an additional encryption context to use for object encryption. The value of this header is a Base64 encoded string of a UTF-8 encoded JSON, which contains the encryption context as key-value pairs. This value is stored as object metadata and automatically gets passed on to AWS KMS for future `GetObject` operations on this object.

General purpose buckets - This value must be explicitly added during `CopyObject` operations if you want an additional encryption context for your object. For more information, see Encryption context in the *Amazon S3 User Guide*.

Directory buckets - You can optionally provide an explicit encryption context value. The value must match the default encryption context - the bucket Amazon Resource Name (ARN). An additional encryption context value is not supported.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-server-side-encryption: ServerSideEncryption
x-amz-server-side-encryption-aws-kms-key-id: SSEKMSKeyId
x-amz-server-side-encryption-context: SSEKMSEncryptionContext
x-amz-server-side-encryption-bucket-key-enabled: BucketKeyEnabled
<?xml version="1.0" encoding="UTF-8"?>
<CreateSessionResult>
   <Credentials>
      <AccessKeyId>string</AccessKeyId>
      <Expiration>timestamp</Expiration>
      <SecretAccessKey>string</SecretAccessKey>
      <SessionToken>string</SessionToken>
   </Credentials>
</CreateSessionResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-server-side-encryption

The server-side encryption algorithm used when you store objects in the directory bucket.

> **Note**
>
> When accessing data stored in Amazon FSx file systems using S3 access points, the only valid server side encryption option is `aws:fsx`.

Valid Values: `AES256` | `aws:fsx` | `aws:kms` | `aws:kms:dsse`

x-amz-server-side-encryption-aws-kms-key-id

If you specify `x-amz-server-side-encryption` with `aws:kms`, this header indicates the ID of the AWS KMS symmetric encryption customer managed key that was used for object encryption.

x-amz-server-side-encryption-bucket-key-enabled

Indicates whether to use an S3 Bucket Key for server-side encryption with AWS KMS keys (SSE-KMS).

x-amz-server-side-encryption-context

If present, indicates the AWS KMS Encryption Context to use for object encryption. The value of this header is a Base64 encoded string of a UTF-8 encoded JSON, which contains the encryption context as key-value pairs. This value is stored as object metadata and automatically gets passed on to AWS KMS for future `GetObject` operations on this object.

The following data is returned in XML format by the service.

CreateSessionResult

Root level tag for the CreateSessionResult parameters.

Required: Yes

Credentials

The established temporary security credentials for the created session.

Type: SessionCredentials data type

Errors

NoSuchBucket

The specified bucket does not exist.

HTTP Status Code: 404

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucket

Service: Amazon S3

Deletes the S3 bucket. All objects (including all object versions and delete markers) in the bucket must be deleted before the bucket itself can be deleted.

> **Note**
>
> - **Directory buckets** - If multipart uploads in a directory bucket are in progress, you can't delete the bucket until all the in-progress multipart uploads are aborted or completed.
> - **Directory buckets** - For directory buckets, you must make requests for this API operation to the Regional endpoint. These endpoints support path-style requests in the format `https://s3express-control.`*`region-code`*`.amazonaws.com/`*`bucket-name`* . Virtual-hosted-style requests aren't supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Permissions

- **General purpose bucket permissions** - You must have the `s3:DeleteBucket` permission on the specified bucket in a policy.
- **Directory bucket permissions** - You must have the `s3express:DeleteBucket` permission in an IAM identity-based policy instead of a bucket policy. Cross-account access to this API operation isn't supported. This operation can only be performed by the AWS account that owns the resource. For more information about directory bucket policies and permissions, see AWS Identity and Access Management (IAM) for S3 Express One Zone in the *Amazon S3 User Guide*.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `s3express-control.`*`region-code`*`.amazonaws.com`.

The following operations are related to `DeleteBucket`:

- CreateBucket

- DeleteObject

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE / HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

Specifies the bucket being deleted.

Directory buckets - When you use this operation with a directory bucket, you must use path-style requests in the format `https://s3express-control.`*`region-code`*`.amazonaws.com/`*`bucket-name`*. Virtual-hosted-style requests aren't supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must also follow the format *`bucket-base-name--zone-id--x-s3`* (for example, *`DOC-EXAMPLE-BUCKET--usw2-az1--x-s3`*). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

> **Note**
>
> For directory buckets, this header is not supported in this API operation. If you specify this header, the request fails with the HTTP status code `501 Not Implemented`.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Examples

Sample Request for general purpose buckets

This request deletes the bucket named `amzn-s3-demo-bucket`.

```
DELETE / HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Wed, 01 Mar  2006 12:00:00 GMT
Authorization: authorization string
```

Sample Response for general purpose buckets

```
HTTP/1.1 204 No Content
x-amz-id-2: JuKZqmXuiwFeDQxhD7M8KtsKobSzWA1QEjLbTMTagkKdBX2z7Il/jGhDeJ3j6s80
x-amz-request-id: 32FE2CEB32F5EE25
Date: Wed, 01 Mar  2006 12:00:00 GMT
Connection: close
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketAnalyticsConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Deletes an analytics configuration for the bucket (specified by the analytics configuration ID).

To use this operation, you must have permissions to perform the `s3:PutAnalyticsConfiguration` action. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources.

For information about the Amazon S3 analytics feature, see Amazon S3 Analytics – Storage Class Analysis.

The following operations are related to `DeleteBucketAnalyticsConfiguration`:

- GetBucketAnalyticsConfiguration
- ListBucketAnalyticsConfigurations
- PutBucketAnalyticsConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /?analytics&id=Id HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket from which an analytics configuration is deleted.

Required: Yes

id

The ID that identifies the analytics configuration.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Examples

Sample Request

The following DELETE request deletes the analytics configuration with the ID `list1`.

```
DELETE ?/analytics&id=list1 HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
```

```
            Date: Wed, 14 May 2014 02:11:22 GMT
            Authorization: signatureValue
```

Sample Response

The following successful response shows Amazon S3 returning a `204 No Content` response. The analytics configuration with the ID `list1` for the bucket has been removed.

```
            HTTP/1.1 204 No Content
            x-amz-id-2: 0FmFIWsh/
PpBuzZ0JFRC55ZGVmQW4SHJ7xVDqKwhEdJmf3q63RtrvH8ZuxW1Bol5
            x-amz-request-id: 0CF038E9BCF63097
            Date: Wed, 14 May 2014 02:11:22 GMT
            Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketCors

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Deletes the `cors` configuration information set for the bucket.

To use this operation, you must have permission to perform the `s3:PutBucketCORS` action. The bucket owner has this permission by default and can grant this permission to others.

For information about `cors`, see Enabling Cross-Origin Resource Sharing in the *Amazon S3 User Guide*.

Related Resources

- PutBucketCors
- RESTOPTIONSobject

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /?cors HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

Specifies the bucket whose `cors` configuration is being deleted.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Examples

Sample Request

This example illustrates one usage of `DeleteBucketCors`.

```
DELETE /?cors HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Tue, 13 Dec 2011 19:14:42 GMT
Authorization: signatureValue
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketEncryption

Service: Amazon S3

This implementation of the DELETE action resets the default encryption for the bucket as server-side encryption with Amazon S3 managed keys (SSE-S3).

> **Note**
>
> - **General purpose buckets** - For information about the bucket default encryption feature, see Amazon S3 Bucket Default Encryption in the *Amazon S3 User Guide*.
> - **Directory buckets** - For directory buckets, there are only two supported options for server-side encryption: SSE-S3 and SSE-KMS. For information about the default encryption configuration in directory buckets, see Setting default server-side encryption behavior for directory buckets.

Permissions

- **General purpose bucket permissions** - The `s3:PutEncryptionConfiguration` permission is required in a policy. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Operations and Managing Access Permissions to Your Amazon S3 Resources.
- **Directory bucket permissions** - To grant access to this API operation, you must have the `s3express:PutEncryptionConfiguration` permission in an IAM identity-based policy instead of a bucket policy. Cross-account access to this API operation isn't supported. This operation can only be performed by the AWS account that owns the resource. For more information about directory bucket policies and permissions, see AWS Identity and Access Management (IAM) for S3 Express One Zone in the *Amazon S3 User Guide*.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `s3express-control.`*`region-code`*`.amazonaws.com`.

The following operations are related to `DeleteBucketEncryption`:

- PutBucketEncryption

- GetBucketEncryption

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /?encryption HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket containing the server-side encryption configuration to delete.

Directory buckets - When you use this operation with a directory bucket, you must use path-style requests in the format `https://s3express-control.region-code.amazonaws.com/bucket-name` . Virtual-hosted-style requests aren't supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must also follow the format `bucket-base-name--zone-id--x-s3` (for example, `DOC-EXAMPLE-BUCKET--usw2-az1--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

> **Note**
>
> For directory buckets, this header is not supported in this API operation. If you specify this header, the request fails with the HTTP status code `501 Not Implemented`.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Examples

Sample Request for a general purpose bucket

The following `DELETE` request resets the default encryption for the bucket as server-side encryption with Amazon S3 managed keys (SSE-S3).

```
DELETE ?/encryption HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Wed, 06 Sep 2017 12:00:00 GMT
Authorization: signatureValue
```

Sample Response for a general purpose bucket

The following successful response shows Amazon S3 returning a `204 No Content` response confirming that default encryption for the bucket has been reset as server-side encryption with Amazon S3 managed keys (SSE-S3).

```
HTTP/1.1 204 No Content
x-amz-id-2: 0FmFIWsh/PpBuzZ0JFRC55ZGVmQW4SHJ7xVDqKwhEdJmf3q63RtrvH8ZuxW1Bol5
x-amz-request-id: 0CF038E9BCF63097
Date: Wed, 06 Sep 2017 12:00:00 GMT
```

```
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketIntelligentTieringConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Deletes the S3 Intelligent-Tiering configuration from the specified bucket.

The S3 Intelligent-Tiering storage class is designed to optimize storage costs by automatically moving data to the most cost-effective storage access tier, without performance impact or operational overhead. S3 Intelligent-Tiering delivers automatic cost savings in three low latency and high throughput access tiers. To get the lowest storage cost on data that can be accessed in minutes to hours, you can choose to activate additional archiving capabilities.

The S3 Intelligent-Tiering storage class is the ideal storage class for data with unknown, changing, or unpredictable access patterns, independent of object size or retention period. If the size of an object is less than 128 KB, it is not monitored and not eligible for auto-tiering. Smaller objects can be stored, but they are always charged at the Frequent Access tier rates in the S3 Intelligent-Tiering storage class.

For more information, see Storage class for automatically optimizing frequently and infrequently accessed objects.

Operations related to `DeleteBucketIntelligentTieringConfiguration` include:

- GetBucketIntelligentTieringConfiguration
- PutBucketIntelligentTieringConfiguration
- ListBucketIntelligentTieringConfigurations

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /?intelligent-tiering&id=Id HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the Amazon S3 bucket whose configuration you want to modify or retrieve.

Required: Yes

id

The ID used to identify the S3 Intelligent-Tiering configuration.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketInventoryConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Deletes an S3 Inventory configuration (identified by the inventory ID) from the bucket.

To use this operation, you must have permissions to perform the `s3:PutInventoryConfiguration` action. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources.

For information about the Amazon S3 inventory feature, see Amazon S3 Inventory.

Operations related to `DeleteBucketInventoryConfiguration` include:

- GetBucketInventoryConfiguration
- PutBucketInventoryConfiguration
- ListBucketInventoryConfigurations

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /?inventory&id=Id HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket containing the inventory configuration to delete.

Required: Yes

id

The ID used to identify the inventory configuration.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Examples

Sample Request

The following DELETE request deletes the inventory configuration with the ID `list1`.

```
        DELETE ?/inventory&id=list1 HTTP/1.1
        Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
```

```
Date: Wed, 14 May 2014 02:11:22 GMT
Authorization: signatureValue
```

Sample Response

The following successful response shows Amazon S3 returning a `204 No Content` response. The inventory configuration with the ID `list1` for the bucket has been removed.

```
HTTP/1.1 204 No Content
x-amz-id-2: 0FmFIWsh/PpBuzZ0JFRC55ZGVmQW4SHJ7xVDqKwhEdJmf3q63RtrvH8ZuxW1Bol5
x-amz-request-id: 0CF038E9BCF63097
Date: Wed, 14 May 2014 02:11:22 GMT
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketLifecycle

Service: Amazon S3

Deletes the lifecycle configuration from the specified bucket. Amazon S3 removes all the lifecycle configuration rules in the lifecycle subresource associated with the bucket. Your objects never expire, and Amazon S3 no longer automatically deletes any objects on the basis of rules contained in the deleted lifecycle configuration.

Permissions

- **General purpose bucket permissions** - By default, all Amazon S3 resources are private, including buckets, objects, and related subresources (for example, lifecycle configuration and website configuration). Only the resource owner (that is, the AWS account that created it) can access the resource. The resource owner can optionally grant access permissions to others by writing an access policy. For this operation, a user must have the `s3:PutLifecycleConfiguration` permission.

  For more information about permissions, see Managing Access Permissions to Your Amazon S3 Resources.

- **Directory bucket permissions** - You must have the `s3express:PutLifecycleConfiguration` permission in an IAM identity-based policy to use this operation. Cross-account access to this API operation isn't supported. The resource owner can optionally grant access permissions to others by creating a role or user for them as long as they are within the same account as the owner and resource.

  For more information about directory bucket policies and permissions, see Authorizing Regional endpoint APIs with IAM in the *Amazon S3 User Guide*.

  > **Note**
  >
  > **Directory buckets** - For directory buckets, you must make requests for this API operation to the Regional endpoint. These endpoints support path-style requests in the format `https://s3express-control.`*`region-code`*`.amazonaws.com/`*`bucket-name`* . Virtual-hosted-style requests aren't supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `s3express-control.region.amazonaws.com`.

For more information about the object expiration, see Elements to Describe Lifecycle Actions.

Related actions include:

- PutBucketLifecycleConfiguration
- GetBucketLifecycleConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /?lifecycle HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name of the lifecycle to delete.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

> **Note**
>
> This parameter applies to general purpose buckets only. It is not supported for directory bucket lifecycle configurations.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Examples

Sample Request

The following DELETE request deletes the lifecycle subresource from the specified general purpose bucket. This removes lifecycle configuration stored in the subresource.

```
DELETE /?lifecycle HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Wed, 14 Dec 2011 05:37:16 GMT
Authorization: signatureValue
```

Sample Response

The following successful response shows Amazon S3 returning a 204 No Content response. Objects in your general purpose bucket no longer expire.

```
HTTP/1.1 204 No Content
x-amz-id-2: Uuag1LuByRx9e6j5OnimrSAMPLEtRPfTaOAa==
x-amz-request-id: 656c76696e672SAMPLE5657374
Date: Wed, 14 Dec 2011 05:37:16 GMT
```

```
            Connection: keep-alive
            Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketMetadataConfiguration

Service: Amazon S3

Deletes an S3 Metadata configuration from a general purpose bucket. For more information, see Accelerating data discovery with S3 Metadata in the *Amazon S3 User Guide*.

> **Note**
>
> You can use the V2 `DeleteBucketMetadataConfiguration` API operation with V1 or V2 metadata configurations. However, if you try to use the V1 `DeleteBucketMetadataTableConfiguration` API operation with V2 configurations, you will receive an HTTP `405 Method Not Allowed` error.

Permissions

To use this operation, you must have the `s3:DeleteBucketMetadataTableConfiguration` permission. For more information, see Setting up permissions for configuring metadata tables in the *Amazon S3 User Guide*.

> **Note**
>
> The IAM policy action name is the same for the V1 and V2 API operations.

The following operations are related to `DeleteBucketMetadataConfiguration`:

- CreateBucketMetadataConfiguration
- GetBucketMetadataConfiguration
- UpdateBucketMetadataInventoryTableConfiguration
- UpdateBucketMetadataJournalTableConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /?metadataConfiguration HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The general purpose bucket that you want to remove the metadata configuration from.

Required: Yes

x-amz-expected-bucket-owner

The expected bucket owner of the general purpose bucket that you want to remove the metadata table configuration from.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++

- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketMetadataTableConfiguration

Service: Amazon S3

> **Important**
>
> We recommend that you delete your S3 Metadata configurations by using the V2 DeleteBucketMetadataTableConfiguration API operation. We no longer recommend using the V1 `DeleteBucketMetadataTableConfiguration` API operation.
> If you created your S3 Metadata configuration before July 15, 2025, we recommend that you delete and re-create your configuration by using CreateBucketMetadataConfiguration so that you can expire journal table records and create a live inventory table.

Deletes a V1 S3 Metadata configuration from a general purpose bucket. For more information, see Accelerating data discovery with S3 Metadata in the *Amazon S3 User Guide*.

> **Note**
>
> You can use the V2 `DeleteBucketMetadataConfiguration` API operation with V1 or V2 metadata table configurations. However, if you try to use the V1 `DeleteBucketMetadataTableConfiguration` API operation with V2 configurations, you will receive an HTTP `405 Method Not Allowed` error.
> Make sure that you update your processes to use the new V2 API operations (`CreateBucketMetadataConfiguration`, `GetBucketMetadataConfiguration`, and `DeleteBucketMetadataConfiguration`) instead of the V1 API operations.

Permissions

To use this operation, you must have the `s3:DeleteBucketMetadataTableConfiguration` permission. For more information, see Setting up permissions for configuring metadata tables in the *Amazon S3 User Guide*.

The following operations are related to `DeleteBucketMetadataTableConfiguration`:

- CreateBucketMetadataTableConfiguration
- GetBucketMetadataTableConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /?metadataTable HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The general purpose bucket that you want to remove the metadata table configuration from.

Required: Yes

x-amz-expected-bucket-owner

The expected bucket owner of the general purpose bucket that you want to remove the metadata table configuration from.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketMetricsConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Deletes a metrics configuration for the Amazon CloudWatch request metrics (specified by the metrics configuration ID) from the bucket. Note that this doesn't include the daily storage metrics.

To use this operation, you must have permissions to perform the `s3:PutMetricsConfiguration` action. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources.

For information about CloudWatch request metrics for Amazon S3, see Monitoring Metrics with Amazon CloudWatch.

The following operations are related to `DeleteBucketMetricsConfiguration`:

- GetBucketMetricsConfiguration
- PutBucketMetricsConfiguration
- ListBucketMetricsConfigurations
- Monitoring Metrics with Amazon CloudWatch

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /?metrics&id=Id HTTP/1.1
Host: Bucket.s3.amazonaws.com
```

```
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket containing the metrics configuration to delete.

Required: Yes

id

The ID used to identify the metrics configuration. The ID has a 64 character limit and can only contain letters, numbers, periods, dashes, and underscores.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Examples

Sample Request

Delete the metric configuration with a specified ID, which disables the CloudWatch metrics with the `ExampleMetrics` value for the `FilterId` dimension.

```
DELETE /?metrics&id=ExampleMetrics HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
x-amz-date: Thu, 15 Nov 2016 00:17:21 GMT
Authorization: signatureValue
```

Sample Response

Delete the metric configuration with a specified ID, which disables the CloudWatch metrics with the `ExampleMetrics` value for the `FilterId` dimension.

```
HTTP/1.1 204 No Content
x-amz-id-2:
ITnGT1y4REXAMPLEPi4hklTXouTf0hccUjo0iCPEXAMPLEutBj3M7fPGlWO2SEWp
x-amz-request-id: 51991EXAMPLE5321
Date: Thu, 15 Nov 2016 00:17:22 GMT
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketOwnershipControls

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Removes `OwnershipControls` for an Amazon S3 bucket. To use this operation, you must have the `s3:PutBucketOwnershipControls` permission. For more information about Amazon S3 permissions, see Specifying Permissions in a Policy.

For information about Amazon S3 Object Ownership, see Using Object Ownership.

The following operations are related to `DeleteBucketOwnershipControls`:

- GetBucketOwnershipControls
- PutBucketOwnershipControls

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /?ownershipControls HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The Amazon S3 bucket whose `OwnershipControls` you want to delete.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Examples

Sample DeleteBucketOwnershipControls Request

This example illustrates one usage of DeleteBucketOwnershipControls.

```
          DELETE /example-bucket?/ownershipControls HTTP/1.1
          Host: examplebucket.s3.<Region>.amazonaws.com
          Date: Thu, 18 Jun 2017 00:17:22 GMT
          Authorization: signatureValue;
```

Sample DeleteBucketOwnershipControls Response

This example illustrates one usage of DeleteBucketOwnershipControls.

```
          HTTP/1.1 204 No Content
          x-amz-id-2: dVrxJD3XHDcjZHFtd7eSB+ovpY8hQ6kSe9jPzyRVkWp27cij05qV1pTIvz/
hjlsrupiy9gEkSdw=
          x-amz-request-id: 4BFC0B777B448C97
```

```
Date: Thu, 18 Jun 2020 22:54:03 GMT
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketPolicy

Service: Amazon S3

Deletes the policy of a specified bucket.

> **Note**
>
> **Directory buckets** - For directory buckets, you must make requests for this API operation to the Regional endpoint. These endpoints support path-style requests in the format `https://s3express-control.`*`region-code`*`.amazonaws.com/`*`bucket-name`* . Virtual-hosted-style requests aren't supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Permissions

If you are using an identity other than the root user of the AWS account that owns the bucket, the calling identity must both have the `DeleteBucketPolicy` permissions on the specified bucket and belong to the bucket owner's account in order to use this operation.

If you don't have `DeleteBucketPolicy` permissions, Amazon S3 returns a `403 Access Denied` error. If you have the correct permissions, but you're not using an identity that belongs to the bucket owner's account, Amazon S3 returns a `405 Method Not Allowed` error.

> **Important**
>
> To ensure that bucket owners don't inadvertently lock themselves out of their own buckets, the root principal in a bucket owner's AWS account can perform the `GetBucketPolicy`, `PutBucketPolicy`, and `DeleteBucketPolicy` API actions, even if their bucket policy explicitly denies the root principal's access. Bucket owner root principals can only be blocked from performing these API actions by VPC endpoint policies and AWS Organizations policies.

- **General purpose bucket permissions** - The `s3:DeleteBucketPolicy` permission is required in a policy. For more information about general purpose buckets bucket policies, see Using Bucket Policies and User Policies in the *Amazon S3 User Guide*.

- **Directory bucket permissions** - To grant access to this API operation, you must have the `s3express:DeleteBucketPolicy` permission in an IAM identity-based policy instead of a bucket policy. Cross-account access to this API operation isn't supported. This operation can only be performed by the AWS account that owns the resource. For more information about directory bucket policies and permissions, see AWS Identity and Access Management (IAM) for S3 Express One Zone in the *Amazon S3 User Guide*.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `s3express-control.`*`region-code`*`.amazonaws.com`.

The following operations are related to `DeleteBucketPolicy`

- CreateBucket
- DeleteObject

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /?policy HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name.

Directory buckets - When you use this operation with a directory bucket, you must use path-style requests in the format `https://s3express-control.`*`region-`*

code.amazonaws.com/*bucket-name* . Virtual-hosted-style requests aren't supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must also follow the format *bucket-base-name--zone-id*--x-s3 (for example, *DOC-EXAMPLE-BUCKET--usw2-az1*--x-s3). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

> **Note**
>
> For directory buckets, this header is not supported in this API operation. If you specify this header, the request fails with the HTTP status code `501 Not Implemented`.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Examples

Sample Request for general purpose buckets

This request deletes the bucket named `amzn-s3-demo-bucket`.

```
DELETE /?policy HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
```

```
Date: Tue, 04 Apr 2010 20:34:56 GMT
Authorization: signatureValue
```

Sample Response for general purpose buckets

This example illustrates one usage of DeleteBucketPolicy.

```
HTTP/1.1 204 No Content
x-amz-id-2: Uuag1LuByRx9e6j5OnimrSAMPLEtRPfTaOFg==
x-amz-request-id: 656c76696e672SAMPLE5657374
Date: Tue, 04 Apr 2010 20:34:56 GMT
Connection: keep-alive
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketReplication

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Deletes the replication configuration from the bucket.

To use this operation, you must have permissions to perform the `s3:PutReplicationConfiguration` action. The bucket owner has these permissions by default and can grant it to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources.

> **Note**
>
> It can take a while for the deletion of a replication configuration to fully propagate.

For information about replication configuration, see Replication in the *Amazon S3 User Guide*.

The following operations are related to `DeleteBucketReplication`:

- PutBucketReplication
- GetBucketReplication

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /?replication HTTP/1.1
Host: Bucket.s3.amazonaws.com
```

```
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Examples

Sample Request

The following DELETE request deletes the `replication` subresource from the specified bucket. This removes the replication configuration that is set for the bucket.

```
DELETE /?replication HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Wed, 11 Feb 2015 05:37:16 GMT
20150211T171320Z
```

```
Authorization: authorization string
```

Sample Response

When the `replication` subresource has been deleted, Amazon S3 returns a `204 No Content` response. It will not replicate new objects that are stored in the `examplebucket` bucket.

```
HTTP/1.1 204 No Content
x-amz-id-2: Uuag1LuByRx9e6j5OnimrSAMPLEtRPfTaOAa==
x-amz-request-id: 656c76696e672example
Date: Wed, 11 Feb 2015 05:37:16 GMT
Connection: keep-alive
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketTagging

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Deletes the tags from the bucket.

To use this operation, you must have permission to perform the `s3:PutBucketTagging` action. By default, the bucket owner has this permission and can grant this permission to others.

The following operations are related to `DeleteBucketTagging`:

- GetBucketTagging
- PutBucketTagging

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /?tagging HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket that has the tag set to be removed.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Examples

Sample Request

The following DELETE request deletes the tag set from the specified bucket.

```
DELETE /?tagging HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Wed, 14 Dec 2011 05:37:16 GMT
Authorization: signatureValue
```

Sample Response

The following successful response shows Amazon S3 returning a `204 No Content` response. The tag set for the bucket has been removed.

```
HTTP/1.1 204 No Content
Date: Wed, 25 Nov 2009 12:00:00 GMT
Connection: close
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketWebsite

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

This action removes the website configuration for a bucket. Amazon S3 returns a `200 OK` response upon successfully deleting a website configuration on the specified bucket. You will get a `200 OK` response if the website configuration you are trying to delete does not exist on the bucket. Amazon S3 returns a `404` response if the bucket specified in the request does not exist.

This DELETE action requires the `S3:DeleteBucketWebsite` permission. By default, only the bucket owner can delete the website configuration attached to a bucket. However, bucket owners can grant other users permission to delete the website configuration by writing a bucket policy granting them the `S3:DeleteBucketWebsite` permission.

For more information about hosting websites, see Hosting Websites on Amazon S3.

The following operations are related to `DeleteBucketWebsite`:

- GetBucketWebsite
- PutBucketWebsite

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /?website HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name for which you want to remove the website configuration.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Examples

Sample Request

This request deletes the website configuration on the specified bucket.

```
            DELETE ?website HTTP/1.1
            Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
            Date: Thu, 27 Jan 2011 12:00:00 GMT
            Authorization: signatureValue
```

Sample Response

This example illustrates one usage of DeleteBucketWebsite.

```
HTTP/1.1 204 No Content
x-amz-id-2: aws-s3integ-s3ws-31008.sea31.amazon.com
x-amz-request-id: AF1DD829D3B49707
Date: Thu, 03 Feb 2011 22:10:26 GMT
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteObject

Service: Amazon S3

Removes an object from a bucket. The behavior depends on the bucket's versioning state:

- If bucket versioning is not enabled, the operation permanently deletes the object.
- If bucket versioning is enabled, the operation inserts a delete marker, which becomes the current version of the object. To permanently delete an object in a versioned bucket, you must include the object's `versionId` in the request. For more information about versioning-enabled buckets, see Deleting object versions from a versioning-enabled bucket.
- If bucket versioning is suspended, the operation removes the object that has a null `versionId`, if there is one, and inserts a delete marker that becomes the current version of the object. If there isn't an object with a null `versionId`, and all versions of the object have a `versionId`, Amazon S3 does not remove the object and only inserts a delete marker. To permanently delete an object that has a `versionId`, you must include the object's `versionId` in the request. For more information about versioning-suspended buckets, see Deleting objects from versioning-suspended buckets.

Note

- **Directory buckets** - S3 Versioning isn't enabled and supported for directory buckets. For this API operation, only the `null` value of the version ID is supported by directory buckets. You can only specify `null` to the `versionId` query parameter in the request.
- **Directory buckets** - For directory buckets, you must make requests for this API operation to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://amzn-s3-demo-bucket.s3express-zone-id.region-code.amazonaws.com/key-name` . Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

To remove a specific version, you must use the `versionId` query parameter. Using this query parameter permanently deletes the version. If the object deleted is a delete marker, Amazon S3 sets the response header `x-amz-delete-marker` to true.

If the object you want to delete is in a bucket where the bucket versioning configuration is MFA Delete enabled, you must include the `x-amz-mfa` request header in the DELETE `versionId` request. Requests that include `x-amz-mfa` must use HTTPS. For more information about MFA Delete, see Using MFA Delete in the *Amazon S3 User Guide*. To see sample requests that use versioning, see Sample Request.

> **Note**
>
> **Directory buckets** - MFA delete is not supported by directory buckets.

You can delete objects by explicitly calling DELETE Object or calling (PutBucketLifecycle) to enable Amazon S3 to remove them for you. If you want to block users or accounts from removing or deleting objects from your bucket, you must deny them the `s3:DeleteObject`, `s3:DeleteObjectVersion`, and `s3:PutLifeCycleConfiguration` actions.

> **Note**
>
> **Directory buckets** - S3 Lifecycle is not supported by directory buckets.

Permissions

- **General purpose bucket permissions** - The following permissions are required in your policies when your `DeleteObjects` request includes specific headers.
  - **`s3:DeleteObject`** - To delete an object from a bucket, you must always have the `s3:DeleteObject` permission.
  - **`s3:DeleteObjectVersion`** - To delete a specific version of an object from a versioning-enabled bucket, you must have the `s3:DeleteObjectVersion` permission.
- **Directory bucket permissions** - To grant access to this API operation on a directory bucket, we recommend that you use the `CreateSession` API operation for session-based authorization. Specifically, you grant the `s3express:CreateSession` permission to the directory bucket in a bucket policy or an IAM identity-based policy. Then, you make the `CreateSession` API call on the bucket to obtain a session token. With the session token in your request header, you can make API requests to this operation. After the session token expires, you make another `CreateSession` API call to generate a new session token for use. AWS CLI or SDKs create session and refresh the session token automatically to avoid

service interruptions when a session expires. For more information about authorization, see `CreateSession`.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is *`Bucket-name`*`.s3express-`*`zone-id`*`.`*`region-code`*`.amazonaws.com`.

The following action is related to `DeleteObject`:

- PutObject

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /Key+?versionId=VersionId HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-mfa: MFA
x-amz-request-payer: RequestPayer
x-amz-bypass-governance-retention: BypassGovernanceRetention
x-amz-expected-bucket-owner: ExpectedBucketOwner
If-Match: IfMatch
x-amz-if-match-last-modified-time: IfMatchLastModifiedTime
x-amz-if-match-size: IfMatchSize
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name of the bucket containing the object.

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format *`Bucket-name`*`.s3express-`*`zone-id`*`.`*`region-`

code.amazonaws.com. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format *bucket-base-name--zone-id*--x-s3 (for example, *amzn-s3-demo-bucket--usw2-az1*--x-s3). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form *AccessPointName-AccountId*.*outpostID*.s3-outposts.*Region*.amazonaws.com. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

If-Match

The `If-Match` header field makes the request method conditional on ETags. If the ETag value does not match, the operation returns a `412 Precondition Failed` error. If the ETag matches or if the object doesn't exist, the operation will return a `204 Success (No Content) response`.

For more information about conditional requests, see RFC 7232.

> **Note**
>
> This functionality is only supported for directory buckets.

Key

Key name of the object to delete.

Length Constraints: Minimum length of 1.

Required: Yes

versionId

Version ID used to reference a specific version of the object.

> **Note**
>
> For directory buckets in this API operation, only the `null` value of the version ID is supported.

x-amz-bypass-governance-retention

Indicates whether S3 Object Lock should bypass Governance-mode restrictions to process this operation. To use this header, you must have the `s3:BypassGovernanceRetention` permission.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-if-match-last-modified-time

If present, the object is deleted only if its modification times matches the provided `Timestamp`. If the `Timestamp` values do not match, the operation returns a `412 Precondition Failed` error. If the `Timestamp` matches or if the object doesn't exist, the operation returns a `204 Success (No Content)` response.

> **Note**
>
> This functionality is only supported for directory buckets.

x-amz-if-match-size

If present, the object is deleted only if its size matches the provided size in bytes. If the `Size` value does not match, the operation returns a `412 Precondition Failed` error. If the `Size` matches or if the object doesn't exist, the operation returns a `204 Success (No Content)` response.

> **Note**
>
> This functionality is only supported for directory buckets.

> **Important**
>
> You can use the `If-Match`, `x-amz-if-match-last-modified-time` and `x-amz-if-match-size` conditional headers in conjunction with each-other or individually.

x-amz-mfa

The concatenation of the authentication device's serial number, a space, and the value that is displayed on your authentication device. Required to permanently delete a versioned object if versioning is configured with MFA delete enabled.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
x-amz-delete-marker: DeleteMarker
x-amz-version-id: VersionId
x-amz-request-charged: RequestCharged
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response.

The response returns the following HTTP headers.

x-amz-delete-marker

Indicates whether the specified object version that was permanently deleted was (true) or was not (false) a delete marker before deletion. In a simple DELETE, this header indicates whether (true) or not (false) the current version of the object is a delete marker. To learn more about delete markers, see Working with delete markers.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-version-id

Returns the version ID of the delete marker created as a result of the DELETE operation.

> **Note**
>
> This functionality is not supported for directory buckets.

Examples

Sample Request for general purpose buckets

The following request deletes the object `my-second-image.jpg`.

```
DELETE /my-second-image.jpg HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Wed, 12 Oct 2009 17:50:00 GMT
Authorization: authorization string
Content-Type: text/plain
```

Sample Response for general purpose buckets

This example illustrates one usage of DeleteObject.

```
HTTP/1.1 204 NoContent
x-amz-id-2: LriYPLdmOdAiIfgSm/F1YsViT1LW94/xUQxMsF7xiEb1a0wiIOIxl+zbwZ163pt7
x-amz-request-id: 0A49CE4060975EAC
Date: Wed, 12 Oct 2009 17:50:00 GMT
Content-Length: 0
Connection: close
Server: AmazonS3
```

Sample Request for general purpose buckets: Deleting a specified version of an object

The following request deletes the specified version of the object `my-third-image.jpg`.

```
DELETE /my-third-image.jpg?
versionId=UIORUnfndfiufdisojhr398493jfdkjFJjkndnqUifhnw89493jJFJ HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Wed, 12 Oct 2009 17:50:00 GMT
Authorization: authorization string
Content-Type: text/plain
Content-Length: 0
```

Sample Response for general purpose buckets

This example illustrates one usage of DeleteObject.

```
HTTP/1.1 204 NoContent
x-amz-id-2: LriYPLdmOdAiIfgSm/F1YsViT1LW94/xUQxMsF7xiEb1a0wiIOIxl+zbwZ163pt7
x-amz-request-id: 0A49CE4060975EAC
x-amz-version-id: UIORUnfndfiufdisojhr398493jfdkjFJjkndnqUifhnw89493jJFJ
Date: Wed, 12 Oct 2009 17:50:00 GMT
Content-Length: 0
Connection: close
Server: AmazonS3
```

Sample Response for general purpose buckets: If the object deleted is a delete marker

This example illustrates one usage of DeleteObject.

```
            HTTP/1.1 204 NoContent
            x-amz-id-2: LriYPLdmOdAiIfgSm/F1YsViT1LW94/xUQxMsF7xiEb1a0wiIOIxl
+zbwZ163pt7
            x-amz-request-id: 0A49CE4060975EAC
            x-amz-version-id: 3/L4kqtJlcpXroDTDmJ+rmSpXd3dIbrHY
+MTRCxf3vjVBH40Nr8X8gdRQBpUMLUo
            x-amz-delete-marker: true
            Date: Wed, 12 Oct 2009 17:50:00 GMT
            Content-Length: 0
            Connection: close
            Server: AmazonS3
```

Sample Request for general purpose buckets: Deleting a specified version of an object in an MFA-enabled bucket

The following request deletes the specified version of the object `my-third-image.jpg`, which is stored in an MFA-enabled bucket.

```
            DELETE /my-third-image.jpg?versionId=UIORUnfndfiuf HTTP/1.1
            Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
            Date: Wed, 12 Oct 2009 17:50:00 GMT
            x-amz-mfa:[SerialNumber] [AuthenticationCode]
            Authorization: authorization string
            Content-Type: text/plain
            Content-Length: 0
```

Sample Response for general purpose buckets

This example illustrates one usage of DeleteObject.

```
            HTTP/1.1 204 NoContent
            x-amz-id-2: LriYPLdmOdAiIfgSm/F1YsViT1LW94/xUQxMsF7xiEb1a0wiIOIxl
+zbwZ163pt7
```

```
x-amz-request-id: 0A49CE4060975EAC
x-amz-version-id: UIORUnfndfiuf
Date: Wed, 12 Oct 2009 17:50:00 GMT
Content-Length: 0
Connection: close
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteObjects

Service: Amazon S3

This operation enables you to delete multiple objects from a bucket using a single HTTP request. If you know the object keys that you want to delete, then this operation provides a suitable alternative to sending individual delete requests, reducing per-request overhead.

The request can contain a list of up to 1,000 keys that you want to delete. In the XML, you provide the object key names, and optionally, version IDs if you want to delete a specific version of the object from a versioning-enabled bucket. For each key, Amazon S3 performs a delete operation and returns the result of that delete, success or failure, in the response. If the object specified in the request isn't found, Amazon S3 confirms the deletion by returning the result as deleted.

> **Note**
>
> - **Directory buckets** - S3 Versioning isn't enabled and supported for directory buckets.
> - **Directory buckets** - For directory buckets, you must make requests for this API operation to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://amzn-s3-demo-bucket.s3express-zone-id.region-code.amazonaws.com/key-name` . Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

The operation supports two modes for the response: verbose and quiet. By default, the operation uses verbose mode in which the response includes the result of deletion of each key in your request. In quiet mode the response includes only keys where the delete operation encountered an error. For a successful deletion in a quiet mode, the operation does not return any information about the delete in the response body.

When performing this action on an MFA Delete enabled bucket, that attempts to delete any versioned objects, you must include an MFA token. If you do not provide one, the entire request will fail, even if there are non-versioned objects you are trying to delete. If you provide an invalid token, whether there are versioned keys in the request or not, the entire Multi-Object Delete request will fail. For information about MFA Delete, see MFA Delete in the *Amazon S3 User Guide*.

> **Note**
>
> **Directory buckets** - MFA delete is not supported by directory buckets.

Permissions

- **General purpose bucket permissions** - The following permissions are required in your policies when your `DeleteObjects` request includes specific headers.
  - **`s3:DeleteObject`** - To delete an object from a bucket, you must always specify the `s3:DeleteObject` permission.
  - **`s3:DeleteObjectVersion`** - To delete a specific version of an object from a versioning-enabled bucket, you must specify the `s3:DeleteObjectVersion` permission.
- **Directory bucket permissions** - To grant access to this API operation on a directory bucket, we recommend that you use the `CreateSession` API operation for session-based authorization. Specifically, you grant the `s3express:CreateSession` permission to the directory bucket in a bucket policy or an IAM identity-based policy. Then, you make the `CreateSession` API call on the bucket to obtain a session token. With the session token in your request header, you can make API requests to this operation. After the session token expires, you make another `CreateSession` API call to generate a new session token for use. AWS CLI or SDKs create session and refresh the session token automatically to avoid service interruptions when a session expires. For more information about authorization, see `CreateSession`.

Content-MD5 request header

- **General purpose bucket** - The Content-MD5 request header is required for all Multi-Object Delete requests. Amazon S3 uses the header value to ensure that your request body has not been altered in transit.
- **Directory bucket** - The Content-MD5 request header or a additional checksum request header (including `x-amz-checksum-crc32`, `x-amz-checksum-crc32c`, `x-amz-checksum-sha1`, or `x-amz-checksum-sha256`) is required for all Multi-Object Delete requests.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is *`Bucket-name`*`.s3express-`*`zone-id`*`.`*`region-code`*`.amazonaws.com`.

The following operations are related to `DeleteObjects`:

- CreateMultipartUpload
- UploadPart
- CompleteMultipartUpload
- ListParts
- AbortMultipartUpload

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /?delete HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-mfa: MFA
x-amz-request-payer: RequestPayer
x-amz-bypass-governance-retention: BypassGovernanceRetention
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
<?xml version="1.0" encoding="UTF-8"?>
<Delete xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Object>
      <ETag>string</ETag>
      <Key>string</Key>
      <LastModifiedTime>timestamp</LastModifiedTime>
      <Size>long</Size>
      <VersionId>string</VersionId>
   </Object>
   ...
   <Quiet>boolean</Quiet>
</Delete>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name containing the objects to delete.

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format `Bucket-name.s3express-zone-id.region-code.amazonaws.com`. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format `bucket-base-name--zone-id--x-s3` (for example, `amzn-s3-demo-bucket--usw2-az1--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

x-amz-bypass-governance-retention

Specifies whether you want to delete this object even if it has a Governance-type Object Lock in place. To use this header, you must have the `s3:BypassGovernanceRetention` permission.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-mfa

The concatenation of the authentication device's serial number, a space, and the value that is displayed on your authentication device. Required to permanently delete a versioned object if versioning is configured with MFA delete enabled.

When performing the `DeleteObjects` operation on an MFA delete enabled bucket, which attempts to delete the specified versioned objects, you must include an MFA token. If you don't provide an MFA token, the entire request will fail, even if there are non-versioned objects that you are trying to delete. If you provide an invalid token, whether there are versioned object keys in the request or not, the entire Multi-Object Delete request will fail. For information about MFA Delete, see MFA Delete in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the object when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum-`*`algorithm`* or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`.

For the `x-amz-checksum-`*`algorithm`* header, replace *`algorithm`* with the supported algorithm from the following list:

- `CRC32`
- `CRC32C`
- `CRC64NVME`
- `SHA1`
- `SHA256`

For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If the individual checksum value you provide through `x-amz-checksum-`*`algorithm`* doesn't match the checksum algorithm you set through `x-amz-sdk-checksum-algorithm`, Amazon S3 fails the request with a `BadDigest` error.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

Request Body

The request accepts the following data in XML format.

Delete

Root level tag for the Delete parameters.

Required: Yes

Object

The object to delete.

> **Note**
>
> **Directory buckets** - For directory buckets, an object that's composed entirely of whitespace characters is not supported by the `DeleteObjects` API operation. The request will receive a `400 Bad Request` error and none of the objects in the request will be deleted.

Type: Array of ObjectIdentifier data types

Required: Yes

Quiet

Element to enable quiet mode for the request. When you add this element, you must set its value to `true`.

Type: Boolean

Required: No

Response Syntax

```
HTTP/1.1 200
x-amz-request-charged: RequestCharged
<?xml version="1.0" encoding="UTF-8"?>
<DeleteResult>
   <Deleted>
      <DeleteMarker>boolean</DeleteMarker>
      <DeleteMarkerVersionId>string</DeleteMarkerVersionId>
      <Key>string</Key>
      <VersionId>string</VersionId>
   </Deleted>
   ...
   <Error>
      <Code>string</Code>
      <Key>string</Key>
      <Message>string</Message>
```

```
      <VersionId>string</VersionId>
    </Error>
    ...
</DeleteResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

The following data is returned in XML format by the service.

DeleteResult

Root level tag for the DeleteResult parameters.

Required: Yes

Deleted

Container element for a successful delete. It identifies the object that was successfully deleted.

Type: Array of DeletedObject data types

Error

Container for a failed delete action that describes the object that Amazon S3 attempted to delete and the error it encountered.

Type: Array of Error data types

Examples

Sample Request for general purpose buckets: Multi-object delete resulting in mixed success/error response

This example illustrates a Multi-Object Delete request to delete objects that result in mixed success and errors response. The following request deletes two objects from a bucket (`amzn-s3-demo-bucket`). In this example, the requester does not have permission to delete the `sample2.txt` object.

```
POST /?delete HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Accept: */*
x-amz-date: Wed, 30 Nov 2011 03:39:05 GMT
Content-MD5: p5/WA/oEr30qrEEl21PAqw==
Authorization: AWS AKIAIOSFODNN7EXAMPLE:W0qPYCLe6JwkZAD1ei6hp9XZIee=
Content-Length: 125
Connection: Keep-Alive

<Delete>
<Object>
<Key>sample1.txt</Key>
</Object>
<Object>
<Key>sample2.txt</Key>
</Object>
</Delete>
```

Sample Response for general purpose buckets

The response includes a `DeleteResult` element that includes a `Deleted` element for the item that Amazon S3 successfully deleted and an `Error` element that Amazon S3 did not delete because you didn't have permission to delete the object.

```
HTTP/1.1 200 OK
x-amz-id-2: 5h4FxSNCUS7wP5z92eGCWDshNpMnRuXvETa4HH3LvvH6VAIr0jU7tH9kM7X+njXx
x-amz-request-id: A437B3B641629AEE
Date: Fri, 02 Dec 2011 01:53:42 GMT
Content-Type: application/xml
Server: AmazonS3
Content-Length: 251
```

```
<?xml version="1.0" encoding="UTF-8"?>
<DeleteResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
<Deleted>
  <Key>sample1.txt</Key>
</Deleted>
<Error>
<Key>sample2.txt</Key>
<Code>AccessDenied</Code>
<Message>Access Denied</Message>
</Error>
</DeleteResult>
```

Sample Request for general purpose buckets: Deleting an object from a versioned bucket

If you delete an item from a versioning enabled bucket, all versions of that object remain in the bucket. However, Amazon S3 inserts a delete marker. For more information, see Object Versioning.

The following scenarios describe the behavior of a multi-object Delete request when versioning is enabled for your bucket.

Case 1 - Simple Delete: In the following sample request, the multi-object delete request specifies only one key.

```
POST /?delete HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Accept: */*
x-amz-date: Wed, 30 Nov 2011 03:39:05 GMT
Content-MD5: p5/WA/oEr30qrEEl21PAqw==
Authorization: AWS AKIAIOSFODNN7EXAMPLE:W0qPYCLe6JwkZAD1ei6hp9XZIee=
Content-Length: 79
Connection: Keep-Alive

<Delete>
  <Object>
    <Key>SampleDocument.txt</Key>
  </Object>
</Delete>
```

Sample Response for general purpose buckets

Because versioning is enabled on the bucket, Amazon S3 does not delete the object. Instead, it adds a delete marker for this object. The following response indicates that a delete marker was

added (the `DeleteMarker` element in the response as a value of true) and the version number of the delete marker it added.

```
HTTP/1.1 200 OK
x-amz-id-2: P3xqrhuhYxlrefdw3rEzmJh8z5KDtGzb+/FB7oiQaScI9Yaxd8olYXc7d1111ab+
x-amz-request-id: 264A17BF16E9E80A
Date: Wed, 30 Nov 2011 03:39:32 GMT
Content-Type: application/xml
Server: AmazonS3
Content-Length: 276

<?xml version="1.0" encoding="UTF-8"?>
<DeleteResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Deleted>
  <Key>SampleDocument.txt</Key>
    <DeleteMarker>true</DeleteMarker>
    <DeleteMarkerVersionId>NeQt5xeFTfgPJD8B4CGWnkSLtluMr11s</DeleteMarkerVersionId>
  </Deleted>
</DeleteResult>
```

Case 2 for general purpose buckets - Versioned Delete

The following request attempts to delete a specific version of an object.

```
POST /?delete HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Accept: */*
x-amz-date: Wed, 30 Nov 2011 03:39:05 GMT
Content-MD5: p5/WA/oEr30qrEEl21PAqw==
Authorization: AWS AKIAIOSFODNN7EXAMPLE:W0qPYCLe6JwkZAD1ei6hp9XZIxx=
Content-Length: 140
Connection: Keep-Alive

<Delete>
  <Object>
    <Key>SampleDocument.txt</Key>
    <VersionId>OYcLXagmS.WaD..oyH4KRguB95_YhLs7</VersionId>
  </Object>
</Delete>
```

Sample Response for general purpose buckets

In this case, Amazon S3 deletes the specific object version from the bucket and returns the following response. In the response, Amazon S3 returns the key and version ID of the object deleted.

```
HTTP/1.1 400 Bad Request
x-amz-id-2: P3xqrhuhYxlrefdw3rEzmJh8z5KDtGzb+/FB7oiQaScI9Yaxd8olYXc7d1111xx+
x-amz-request-id: 264A17BF16E9E80A
Date: Wed, 30 Nov 2011 03:39:32 GMT
Content-Type: application/xml
Server: AmazonS3
Content-Length: 219

<?xml version="1.0" encoding="UTF-8"?>
<DeleteResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Deleted>
    <Key>SampleDocument.txt</Key>
    <VersionId>OYcLXagmS.WaD..oyH4KRguB95_YhLs7</VersionId>
  </Deleted>
</DeleteResult>
```

Case 3 for general purpose buckets - Versioned delete of a delete marker

In the preceding example, the request refers to a delete marker (instead of an object), then Amazon S3 deletes the delete marker. The effect of this action is to make your object reappear in your bucket. Amazon S3 returns a response that indicates the delete marker it deleted (`DeleteMarker` element with value true) and the version ID of the delete marker.

```
HTTP/1.1 200 OK
x-amz-id-2: IIPUZrtolxDEmWsKOae9JlSZe6yWfTye3HQ3T2iAe0ZE4XHa6NKvAJcPp51zZaBr
x-amz-request-id: D6B284CEC9B05E4E
Date: Wed, 30 Nov 2011 03:43:25 GMT
Content-Type: application/xml
Server: AmazonS3
Content-Length: 331

<?xml version="1.0" encoding="UTF-8"?>
<DeleteResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
<Deleted>
<Key>SampleDocument.txt</Key>
<VersionId>NeQt5xeFTfgPJD8B4CGWnkSLtluMr11s</VersionId>
```

```
<DeleteMarker>true</DeleteMarker>
<DeleteMarkerVersionId>NeQt5xeFTfgPJD8B4CGWnkSLtluMr11s</DeleteMarkerVersionId>
</Deleted>
</DeleteResult>
```

Sample Response for general purpose buckets

In general, when a multi-object Delete request results in Amazon S3 either adding a delete marker or removing a delete marker, the response returns the following elements.

```
<DeleteMarker>true</DeleteMarker>
<DeleteMarkerVersionId>NeQt5xeFTfgPJD8B4CGWnkSLtluMr11s</DeleteMarkerVersionId>
```

Sample Request for general purpose buckets: Malformed XML in the request

This example shows how Amazon S3 responds to a request that includes a malformed XML document. The following request sends a malformed XML document (missing the Delete end element).

```
POST /?delete HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Accept: */*
x-amz-date: Wed, 30 Nov 2011 03:39:05 GMT
Content-MD5: p5/WA/oEr30qrEEl21PAqw==
Authorization: AWS AKIAIOSFODNN7EXAMPLE:W0qPYCLe6JwkZAD1ei6hp9XZIee=
Content-Length: 104
Connection: Keep-Alive

<Delete>
  <Object>
    <Key>404.txt</Key>
  </Object>
  <Object>
    <Key>a.txt</Key>
  </Object>
```

Sample Response for general purpose buckets

The response returns the error messages that describe the error.

```
HTTP/1.1 200 OK
```

```
x-amz-id-2: P3xqrhuhYxlrefdw3rEzmJh8z5KDtGzb+/FB7oiQaScI9Yaxd8olYXc7d1111ab+
x-amz-request-id: 264A17BF16E9E80A
Date: Wed, 30 Nov 2011 03:39:32 GMT
Content-Type: application/xml
Server: AmazonS3
Content-Length: 207

<?xml version="1.0" encoding="UTF-8"?>
<Error>
<Code>MalformedXML</Code>
<Message>The XML you provided was not well-formed or did not
        validate against our published schema</Message>
<RequestId>264A17BF16E9E80A</RequestId>
<HostId>P3xqrhuhYxlrefdw3rEzmJh8z5KDtGzb+/FB7oiQaScI9Yaxd8olYXc7d1111ab+</HostId>
</Error>
```

Sample Request for general purpose buckets: DeleteObjects containing a carriage return

The following example illustrates the use of an XML entity code as a substitution for a carriage return. This `DeleteObjects` request deletes an object with the `key` parameter: `/some/prefix/objectwith\rcarriagereturn` (where the `\r` is the carriage return).

```
<Delete xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
<Object>
<Key>/some/prefix/objectwith&#13;carriagereturn</Key>
</Object>
</Delete>
```

Sample Request for directory buckets: Conditional deletes

The following example shows a multi-object delete request. Each object sub-section in the XML also includes one or more preconditions around that object's `Etag`, `Last-Modified-Time` and `Size` that need to hold true for its deletion to succeed.

```
POST /?delete HTTP/1.1
Host: amzn-s3-demo-bucket.s3express-az_id.Region.amazonaws.com
Accept: */*
x-amz-date: Wed, 30 Nov 2011 03:39:05 GMT
Content-MD5: p5/WA/oEr30qrEEl21PAqw==
Authorization: AWS AKIAIOSFODNN7EXAMPLE:W0qPYCLe6JwkZAD1ei6hp9XZIee=
Content-Length: 125
Connection: Keep-Alive
```

```
<Delete>
<Object>
<ETag>a0e05e3566754e04b1e0f18c6b1abe1d
<LastModifiedTime>Tue, 15 Oct 2024 15:04:05 GMT</LastModifiedTime>
<Size>50</Size>
<Key>keyname1</Key>
</Object>
<Object>
<Key>keyname2</Key>
<ETag>a0e05e3566754e04b1e0f18c6b1abe1d
</Object>
<Object>
<Key>keyname3</Key>
</Object>
<Delete>
```

Sample Response for directory buckets: Conditional deletes

The response returns acknowledgments of the deleted objects.

```
HTTP/1.1 204 Success (No Content)
Content-Type: application/xml
Server: AmazonS3
x-amz-request-id: 264A17BF16E9E80A
x-amz-id-2: swzHZOuhs7DpyZEDu
transfer-encoding: chunked
date: Wed, 30 Nov 2011 03:39:11 GMT
<?xml version="1.0" encoding="UTF-8"?>
<DeleteResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
<Deleted>
<Key>keyname1</Key>
</Deleted>
<Deleted>
<Key>keyname2</Key>
</Deleted>
<Deleted>
<Key>keyname3</Key>
</Deleted>
</DeletedResult>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteObjectTagging

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Removes the entire tag set from the specified object. For more information about managing object tags, see Object Tagging.

To use this operation, you must have permission to perform the `s3:DeleteObjectTagging` action.

To delete tags of a specific object version, add the `versionId` query parameter in the request. You will need permission for the `s3:DeleteObjectVersionTagging` action.

The following operations are related to `DeleteObjectTagging`:

- PutObjectTagging
- GetObjectTagging

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /{Key+}?tagging&versionId=VersionId HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name containing the objects from which to remove the tags.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

Key

The key that identifies the object in the bucket from which to remove all tags.

Length Constraints: Minimum length of 1.

Required: Yes

versionId

The versionId of the object that the tag-set will be removed from.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
x-amz-version-id: VersionId
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response.

The response returns the following HTTP headers.

x-amz-version-id

The versionId of the object the tag-set was removed from.

Examples

Sample Request

The following DELETE request deletes the tag set from the specified object.

```
 DELETE /exampleobject?tagging HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Wed, 25 Nov 2016 12:00:00 GMT
Authorization: signatureValue
```

Sample Response

The following successful response shows Amazon S3 returning a 204 No Content response. The tag set for the object has been removed.

```
HTTP/1.1 204 No Content
x-amz-version-id: VersionId
Date: Wed, 25 Nov 2016 12:00:00 GMT
```

```
            Connection: close
            Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeletePublicAccessBlock

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Removes the `PublicAccessBlock` configuration for an Amazon S3 bucket. To use this operation, you must have the `s3:PutBucketPublicAccessBlock` permission. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources.

The following operations are related to `DeletePublicAccessBlock`:

- Using Amazon S3 Block Public Access
- GetPublicAccessBlock
- PutPublicAccessBlock
- GetBucketPolicyStatus

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /?publicAccessBlock HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The Amazon S3 bucket whose `PublicAccessBlock` configuration you want to delete.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketAccelerateConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

This implementation of the GET action uses the `accelerate` subresource to return the Transfer Acceleration state of a bucket, which is either `Enabled` or `Suspended`. Amazon S3 Transfer Acceleration is a bucket-level feature that enables you to perform faster data transfers to and from Amazon S3.

To use this operation, you must have permission to perform the `s3:GetAccelerateConfiguration` action. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to your Amazon S3 Resources in the *Amazon S3 User Guide*.

You set the Transfer Acceleration state of an existing bucket to `Enabled` or `Suspended` by using the PutBucketAccelerateConfiguration operation.

A GET `accelerate` request does not return a state value for a bucket that has no transfer acceleration state. A bucket has no Transfer Acceleration state if a state has never been set on the bucket.

For more information about transfer acceleration, see Transfer Acceleration in the Amazon S3 User Guide.

The following operations are related to `GetBucketAccelerateConfiguration`:

- PutBucketAccelerateConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?accelerate HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-request-payer: RequestPayer
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket for which the accelerate configuration is retrieved.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-request-charged: RequestCharged
<?xml version="1.0" encoding="UTF-8"?>
<AccelerateConfiguration>
   <Status>string</Status>
</AccelerateConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

The following data is returned in XML format by the service.

AccelerateConfiguration

Root level tag for the AccelerateConfiguration parameters.

Required: Yes

Status

The accelerate configuration of the bucket.

Type: String

Valid Values: `Enabled` | `Suspended`

Examples

This implementation of the GET action returns the following responses.

Example

If the transfer acceleration state is set to `Enabled` on a bucket, the response is as follows:

```
<AccelerateConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Status>Enabled</Status>
</AccelerateConfiguration>
```

Example

If the transfer acceleration state is set to `Suspended` on a bucket, the response is as follows:

```
<AccelerateConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Status>Suspended</Status>
</AccelerateConfiguration>
```

Example

If the transfer acceleration state on a bucket has never been set to `Enabled` or `Suspended`, the response is as follows:

```
<AccelerateConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/" />
```

Retrieve the transfer acceleration configuration for a bucket

The following example shows a GET /?`accelerate` request to retrieve the transfer acceleration state of the bucket named `amzn-s3-demo-bucket`.

```
GET /?accelerate HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Mon, 11 Apr 2016 12:00:00 GMT
Authorization: authorization string
Content-Type: text/plain
```

Example

The following is a sample of the response body (only) that shows bucket transfer acceleration is enabled.

```
<AccelerateConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Status>Enabled</Status>
</AccelerateConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketAcl

Service: Amazon S3

Important

End of support notice: Beginning November 21, 2025, Amazon S3 will stop returning `DisplayName`. Update your applications to use canonical IDs (unique identifier for AWS accounts), AWS account ID (12 digit identifier) or IAM ARNs (full resource naming) as a direct replacement of `DisplayName`.

Between July 15, 2025 and November 21, 2025, you will begin to see an increasing rate of missing `DisplayName` in the Owner object.

This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

Note

This operation is not supported for directory buckets.

This implementation of the `GET` action uses the `acl` subresource to return the access control list (ACL) of a bucket. To use `GET` to return the ACL of the bucket, you must have the `READ_ACP` access to the bucket. If `READ_ACP` permission is granted to the anonymous user, you can return the ACL of the bucket without using an authorization header.

When you use this API operation with an access point, provide the alias of the access point in place of the bucket name.

When you use this API operation with an Object Lambda access point, provide the alias of the Object Lambda access point in place of the bucket name. If the Object Lambda access point alias in a request is not valid, the error code `InvalidAccessPointAliasError` is returned. For more information about `InvalidAccessPointAliasError`, see List of Error Codes.

> **Note**
>
> If your bucket uses the bucket owner enforced setting for S3 Object Ownership, requests to read ACLs are still supported and return the `bucket-owner-full-control` ACL with the owner being the account that created the bucket. For more information, see Controlling object ownership and disabling ACLs in the *Amazon S3 User Guide*.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

The following operations are related to `GetBucketAcl`:

- ListObjects

Request Syntax

```
GET /?acl HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

Specifies the S3 bucket whose ACL is being requested.

When you use this API operation with an access point, provide the alias of the access point in place of the bucket name.

When you use this API operation with an Object Lambda access point, provide the alias of the Object Lambda access point in place of the bucket name. If the Object Lambda access point

alias in a request is not valid, the error code `InvalidAccessPointAliasError` is returned. For more information about `InvalidAccessPointAliasError`, see List of Error Codes.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<AccessControlPolicy>
   <Owner>
      <DisplayName>string</DisplayName>
      <ID>string</ID>
   </Owner>
   <AccessControlList>
      <Grant>
         <Grantee>
            <DisplayName>string</DisplayName>
            <EmailAddress>string</EmailAddress>
            <ID>string</ID>
            <xsi:type>string</xsi:type>
            <URI>string</URI>
         </Grantee>
         <Permission>string</Permission>
      </Grant>
   </AccessControlList>
</AccessControlPolicy>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

AccessControlPolicy

Root level tag for the AccessControlPolicy parameters.

Required: Yes

Grants

A list of grants.

Type: Array of Grant data types

Owner

Container for the bucket owner's display name and ID.

Type: Owner data type

Examples

Sample Request

The following request returns the ACL of the specified bucket.

```
GET ?acl HTTP/1.1
Host: bucket.s3.<Region>.amazonaws.com
Date: Wed, 28 Oct 2009 22:32:00 GMT
Authorization: authorization string
```

Sample Response

```
HTTP/1.1 200 OK
x-amz-id-2: eftixk72aD6Ap51TnqcoF8eFidJG9Z/2mkiDFu8yU9AS1ed4OpIszj7UDNEHGran
x-amz-request-id: 318BC8BC148832E5
Date: Wed, 28 Oct 2009 22:32:00 GMT
Last-Modified: Sun, 1 Jan 2006 12:00:00 GMT
Content-Length: 124
Content-Type: text/plain
Connection: close
Server: AmazonS3
<AccessControlPolicy>
  <Owner>
```

```
    <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
    <DisplayName>CustomersName@amazon.com</DisplayName>
  </Owner>
  <AccessControlList>
    <Grant>
      <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
   xsi:type="CanonicalUser">
        <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
        <DisplayName>CustomersName@amazon.com</DisplayName>
      </Grantee>
      <Permission>FULL_CONTROL</Permission>
    </Grant>
  </AccessControlList>
</AccessControlPolicy>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketAnalyticsConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

This implementation of the GET action returns an analytics configuration (identified by the analytics configuration ID) from the bucket.

To use this operation, you must have permissions to perform the `s3:GetAnalyticsConfiguration` action. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources in the *Amazon S3 User Guide*.

For information about Amazon S3 analytics feature, see Amazon S3 Analytics – Storage Class Analysis in the *Amazon S3 User Guide*.

The following operations are related to `GetBucketAnalyticsConfiguration`:

- DeleteBucketAnalyticsConfiguration
- ListBucketAnalyticsConfigurations
- PutBucketAnalyticsConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?analytics&id=Id HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket from which an analytics configuration is retrieved.

Required: Yes

id

The ID that identifies the analytics configuration.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<AnalyticsConfiguration>
   <Id>string</Id>
   <Filter>
      <And>
         <Prefix>string</Prefix>
         <Tag>
            <Key>string</Key>
            <Value>string</Value>
         </Tag>
         ...
      </And>
      <Prefix>string</Prefix>
      <Tag>
```

```
            <Key>string</Key>
            <Value>string</Value>
         </Tag>
      </Filter>
      <StorageClassAnalysis>
         <DataExport>
            <Destination>
               <S3BucketDestination>
                  <Bucket>string</Bucket>
                  <BucketAccountId>string</BucketAccountId>
                  <Format>string</Format>
                  <Prefix>string</Prefix>
               </S3BucketDestination>
            </Destination>
            <OutputSchemaVersion>string</OutputSchemaVersion>
         </DataExport>
      </StorageClassAnalysis>
   </AnalyticsConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

AnalyticsConfiguration

Root level tag for the AnalyticsConfiguration parameters.

Required: Yes

Filter

The filter used to describe a set of objects for analyses. A filter must have exactly one prefix, one tag, or one conjunction (AnalyticsAndOperator). If no filter is provided, all objects will be considered in any analysis.

Type: AnalyticsFilter data type

Id

The ID that identifies the analytics configuration.

Type: String

StorageClassAnalysis

Contains data related to access patterns to be collected and made available to analyze the tradeoffs between different storage classes.

Type: StorageClassAnalysis data type

Examples

Configure an Analytics Report

The following GET request for the bucket `amzn-s3-demo-bucket` returns the inventory configuration with the ID `list1`:

```
GET /?analytics&id=list1 HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Mon, 31 Oct 2016 12:00:00 GMT
Authorization: authorization string
```

Example

The following is a sample response to the preceding GET request.

```
HTTP/1.1 200 OK
x-amz-id-2: YgIPIfBiKa2bj0KMgUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 236A8905248E5A02
Date: Mon, 31 Oct 2016 12:00:00 GMT
Server: AmazonS3
Content-Length: length

<?xml version="1.0" encoding="UTF-8"?>
<AnalyticsConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Id>list1</Id>
  <Filter>
    <And>
      <Prefix>images/</Prefix>
      <Tag>
        <Key>dog</Key>
        <Value>corgi</Value>
```

```
      </Tag>
    </And>
  </Filter>
  <StorageClassAnalysis>
    <DataExport>
      <OutputSchemaVersion>V_1</OutputSchemaVersion>
      <Destination>
        <S3BucketDestination>
          <Format>CSV</Format>
          <BucketAccountId>123456789012</BucketAccountId>
          <Bucket>arn:aws:s3:::destination-bucket</Bucket>
          <Prefix>destination-prefix</Prefix>
        </S3BucketDestination>
      </Destination>
    </DataExport>
  </StorageClassAnalysis>
</AnalyticsConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketCors

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Returns the Cross-Origin Resource Sharing (CORS) configuration information set for the bucket.

To use this operation, you must have permission to perform the `s3:GetBucketCORS` action. By default, the bucket owner has this permission and can grant it to others.

When you use this API operation with an access point, provide the alias of the access point in place of the bucket name.

When you use this API operation with an Object Lambda access point, provide the alias of the Object Lambda access point in place of the bucket name. If the Object Lambda access point alias in a request is not valid, the error code `InvalidAccessPointAliasError` is returned. For more information about `InvalidAccessPointAliasError`, see List of Error Codes.

For more information about CORS, see Enabling Cross-Origin Resource Sharing.

The following operations are related to `GetBucketCors`:

- PutBucketCors
- DeleteBucketCors

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?cors HTTP/1.1
Host: Bucket.s3.amazonaws.com
```

```
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name for which to get the cors configuration.

When you use this API operation with an access point, provide the alias of the access point in place of the bucket name.

When you use this API operation with an Object Lambda access point, provide the alias of the Object Lambda access point in place of the bucket name. If the Object Lambda access point alias in a request is not valid, the error code `InvalidAccessPointAliasError` is returned. For more information about `InvalidAccessPointAliasError`, see List of Error Codes.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<CORSConfiguration>
   <CORSRule>
      <AllowedHeader>string</AllowedHeader>
      ...
      <AllowedMethod>string</AllowedMethod>
      ...
      <AllowedOrigin>string</AllowedOrigin>
      ...
```

```
      <ExposeHeader>string</ExposeHeader>
      ...
      <ID>string</ID>
      <MaxAgeSeconds>integer</MaxAgeSeconds>
   </CORSRule>
   ...
</CORSConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

CORSConfiguration

Root level tag for the CORSConfiguration parameters.

Required: Yes

CORSRule

A set of origins and methods (cross-origin access that you want to allow). You can add up to 100 rules to the configuration.

Type: Array of CORSRule data types

Examples

Configure CORS Sample Request

The following PUT request adds the `cors` subresource to a bucket (`amzn-s3-demo-bucket`).

```
PUT /?cors HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
x-amz-date: Tue, 21 Aug 2012 17:54:50 GMT
Content-MD5: 8dYiLewFWZyGgV2Q5FNI4W==
Authorization: authorization string
Content-Length: 216

<CORSConfiguration>
 <CORSRule>
   <AllowedOrigin>http://www.example.com</AllowedOrigin>
```

```
    <AllowedMethod>PUT</AllowedMethod>
    <AllowedMethod>POST</AllowedMethod>
    <AllowedMethod>DELETE</AllowedMethod>
    <AllowedHeader>*</AllowedHeader>
    <MaxAgeSeconds>3000</MaxAgeSec>
    <ExposeHeader>x-amz-server-side-encryption</ExposeHeader>
  </CORSRule>
  <CORSRule>
    <AllowedOrigin>*</AllowedOrigin>
    <AllowedMethod>GET</AllowedMethod>
    <AllowedHeader>*</AllowedHeader>
    <MaxAgeSeconds>3000</MaxAgeSeconds>
  </CORSRule>
</CORSConfiguration>
```

Example

This is the sample response to the preceding request.

```
HTTP/1.1 200 OK
x-amz-id-2: CCshOvbOPfxzhwOADyC4qHj/Ck3F9Q0viXKw3rivZ+GcBoZSOOahvEJfPisZB7B
x-amz-request-id: BDC4B83DF5096BBE
Date: Tue, 21 Aug 2012 17:54:50 GMT
Server: AmazonS3
```

Sample Request: Retrieve cors subresource

The following example gets the cors subresource of a bucket.

```
            GET /?cors HTTP/1.1
            Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
            Date: Tue, 13 Dec 2011 19:14:42 GMT
            Authorization: signatureValue
```

Example

Sample Response

```
            HTTP/1.1 200 OK
            x-amz-id-2: 0FmFIWsh/
PpBuzZ0JFRC55ZGVmQW4SHJ7xVDqKwhEdJmf3q63RtrvH8ZuxW1Bol5
            x-amz-request-id: 0CF038E9BCF63097
            Date: Tue, 13 Dec 2011 19:14:42 GMT
            Server: AmazonS3
            Content-Length: 280
            <CORSConfiguration>
                 <CORSRule>
                   <AllowedOrigin>http://www.example.com</AllowedOrigin>
                   <AllowedMethod>GET</AllowedMethod>
                   <MaxAgeSeconds>3000</MaxAgeSec>
                  <ExposeHeader>x-amz-server-side-encryption</ExposeHeader>
                </CORSRule>
            </CORSConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketEncryption

Service: Amazon S3

Returns the default encryption configuration for an Amazon S3 bucket. By default, all buckets have a default encryption configuration that uses server-side encryption with Amazon S3 managed keys (SSE-S3).

> **Note**
>
> - **General purpose buckets** - For information about the bucket default encryption feature, see Amazon S3 Bucket Default Encryption in the *Amazon S3 User Guide*.
> - **Directory buckets** - For directory buckets, there are only two supported options for server-side encryption: SSE-S3 and SSE-KMS. For information about the default encryption configuration in directory buckets, see Setting default server-side encryption behavior for directory buckets.

Permissions

- **General purpose bucket permissions** - The `s3:GetEncryptionConfiguration` permission is required in a policy. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Operations and Managing Access Permissions to Your Amazon S3 Resources.
- **Directory bucket permissions** - To grant access to this API operation, you must have the `s3express:GetEncryptionConfiguration` permission in an IAM identity-based policy instead of a bucket policy. Cross-account access to this API operation isn't supported. This operation can only be performed by the AWS account that owns the resource. For more information about directory bucket policies and permissions, see AWS Identity and Access Management (IAM) for S3 Express One Zone in the *Amazon S3 User Guide*.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `s3express-control.`*`region-code`*`.amazonaws.com`.

The following operations are related to `GetBucketEncryption`:

- PutBucketEncryption

- DeleteBucketEncryption

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?encryption HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket from which the server-side encryption configuration is retrieved.

Directory buckets - When you use this operation with a directory bucket, you must use path-style requests in the format `https://s3express-control.region-code.amazonaws.com/bucket-name` . Virtual-hosted-style requests aren't supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must also follow the format `bucket-base-name--zone-id--x-s3` (for example, `DOC-EXAMPLE-BUCKET--usw2-az1--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

> **Note**
>
> For directory buckets, this header is not supported in this API operation. If you specify this header, the request fails with the HTTP status code `501 Not Implemented`.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ServerSideEncryptionConfiguration>
   <Rule>
      <ApplyServerSideEncryptionByDefault>
         <KMSMasterKeyID>string</KMSMasterKeyID>
         <SSEAlgorithm>string</SSEAlgorithm>
      </ApplyServerSideEncryptionByDefault>
      <BucketKeyEnabled>boolean</BucketKeyEnabled>
   </Rule>
   ...
</ServerSideEncryptionConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ServerSideEncryptionConfiguration

Root level tag for the ServerSideEncryptionConfiguration parameters.

Required: Yes

Rule

Container for information about a particular server-side encryption configuration rule.

Type: Array of ServerSideEncryptionRule data types

Examples

Sample Request: Retrieve the encryption configuration for an S3 general purpose bucket

The following example shows a GET /?encryption request.

```
GET /?encryption HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Wed, 06 Sep 2017 12:00:00 GMT
Authorization: authorization string
Content-Length: length
```

Sample Response for a general purpose bucket

This example illustrates one usage of GetBucketEncryption.

```
HTTP/1.1 200 OK
 x-amz-id-2: kDmqsuw5FDmgLmxQaUkd9A4NJ/PIiE0c1rAU/ue2Yp60toXs4I5k5fqlwZsA6fV
+wJQCzRRwygQ=
 x-amz-request-id: 5D8706FCB2673B7D
 Date: Wed, 06 Sep 2017 12:00:00 GMT
 Transfer-Encoding: chunked
 Server: AmazonS3

 <ServerSideEncryptionConfiguration xmlns="http://s3.amazonaws.com/
doc/2006-03-01/">
  <Rule>
    <ApplyServerSideEncryptionByDefault>
        <SSEAlgorithm>aws:kms</SSEAlgorithm>
        <KMSKeyID>arn:aws:kms:us-east-1:1234/5678example</KMSKeyID>
    </ApplyServerSideEncryptionByDefault>
 </Rule>
 </ServerSideEncryptionConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketIntelligentTieringConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Gets the S3 Intelligent-Tiering configuration from the specified bucket.

The S3 Intelligent-Tiering storage class is designed to optimize storage costs by automatically moving data to the most cost-effective storage access tier, without performance impact or operational overhead. S3 Intelligent-Tiering delivers automatic cost savings in three low latency and high throughput access tiers. To get the lowest storage cost on data that can be accessed in minutes to hours, you can choose to activate additional archiving capabilities.

The S3 Intelligent-Tiering storage class is the ideal storage class for data with unknown, changing, or unpredictable access patterns, independent of object size or retention period. If the size of an object is less than 128 KB, it is not monitored and not eligible for auto-tiering. Smaller objects can be stored, but they are always charged at the Frequent Access tier rates in the S3 Intelligent-Tiering storage class.

For more information, see Storage class for automatically optimizing frequently and infrequently accessed objects.

Operations related to `GetBucketIntelligentTieringConfiguration` include:

- DeleteBucketIntelligentTieringConfiguration
- PutBucketIntelligentTieringConfiguration
- ListBucketIntelligentTieringConfigurations

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?intelligent-tiering&id=Id HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the Amazon S3 bucket whose configuration you want to modify or retrieve.

Required: Yes

id

The ID used to identify the S3 Intelligent-Tiering configuration.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<IntelligentTieringConfiguration>
   <Id>string</Id>
   <Filter>
      <And>
         <Prefix>string</Prefix>
         <Tag>
            <Key>string</Key>
```

```
            <Value>string</Value>
         </Tag>
         ...
      </And>
      <Prefix>string</Prefix>
      <Tag>
         <Key>string</Key>
         <Value>string</Value>
      </Tag>
   </Filter>
   <Status>string</Status>
   <Tiering>
      <AccessTier>string</AccessTier>
      <Days>integer</Days>
   </Tiering>
   ...
</IntelligentTieringConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

IntelligentTieringConfiguration

Root level tag for the IntelligentTieringConfiguration parameters.

Required: Yes

Filter

Specifies a bucket filter. The configuration only includes objects that meet the filter's criteria.

Type: IntelligentTieringFilter data type

Id

The ID used to identify the S3 Intelligent-Tiering configuration.

Type: String

Status

Specifies the status of the configuration.

Type: String

Valid Values: `Enabled | Disabled`

Tiering

Specifies the S3 Intelligent-Tiering storage class tier of the configuration.

Type: Array of Tiering data types

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketInventoryConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Returns an S3 Inventory configuration (identified by the inventory configuration ID) from the bucket.

To use this operation, you must have permissions to perform the `s3:GetInventoryConfiguration` action. The bucket owner has this permission by default and can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources.

For information about the Amazon S3 inventory feature, see Amazon S3 Inventory.

The following operations are related to `GetBucketInventoryConfiguration`:

- DeleteBucketInventoryConfiguration
- ListBucketInventoryConfigurations
- PutBucketInventoryConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?inventory&id=Id HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket containing the inventory configuration to retrieve.

Required: Yes

id

The ID used to identify the inventory configuration.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<InventoryConfiguration>
   <Destination>
      <S3BucketDestination>
         <AccountId>string</AccountId>
         <Bucket>string</Bucket>
         <Encryption>
            <SSE-KMS>
               <KeyId>string</KeyId>
            </SSE-KMS>
            <SSE-S3>
            </SSE-S3>
         </Encryption>
         <Format>string</Format>
```

```
          <Prefix>string</Prefix>
       </S3BucketDestination>
    </Destination>
    <IsEnabled>boolean</IsEnabled>
    <Filter>
       <Prefix>string</Prefix>
    </Filter>
    <Id>string</Id>
    <IncludedObjectVersions>string</IncludedObjectVersions>
    <OptionalFields>
       <Field>string</Field>
    </OptionalFields>
    <Schedule>
       <Frequency>string</Frequency>
    </Schedule>
</InventoryConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

InventoryConfiguration

Root level tag for the InventoryConfiguration parameters.

Required: Yes

Destination

Contains information about where to publish the inventory results.

Type: InventoryDestination data type

Filter

Specifies an inventory filter. The inventory only includes objects that meet the filter's criteria.

Type: InventoryFilter data type

Id

The ID used to identify the inventory configuration.

Type: String

IncludedObjectVersions

Object versions to include in the inventory list. If set to `All`, the list includes all the object versions, which adds the version-related fields `VersionId`, `IsLatest`, and `DeleteMarker` to the list. If set to `Current`, the list does not contain these version-related fields.

Type: String

Valid Values: `All | Current`

IsEnabled

Specifies whether the inventory is enabled or disabled. If set to `True`, an inventory list is generated. If set to `False`, no inventory list is generated.

Type: Boolean

OptionalFields

Contains the optional fields that are included in the inventory results.

Type: Array of strings

Valid Values: `Size | LastModifiedDate | StorageClass | ETag | IsMultipartUploaded | ReplicationStatus | EncryptionStatus | ObjectLockRetainUntilDate | ObjectLockMode | ObjectLockLegalHoldStatus | IntelligentTieringAccessTier | BucketKeyStatus | ChecksumAlgorithm | ObjectAccessControlList | ObjectOwner`

Schedule

Specifies the schedule for generating inventory results.

Type: InventorySchedule data type

Examples

Sample Request: Configure an inventory report

The following GET request for the bucket `examplebucket` returns the inventory configuration with the ID `list1`.

```
GET /?inventory&id=list1 HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
Date: Mon, 31 Oct 2016 12:00:00 GMT
Authorization: authorization string
```

Sample Response

This example illustrates one usage of GetBucketInventoryConfiguration.

```
HTTP/1.1 200 OK
x-amz-id-2: YgIPIfBiKa2bj0KMgUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 236A8905248E5A02
Date: Mon, 31 Oct 2016 12:00:00 GMT
Server: AmazonS3
Content-Length: length

<?xml version="1.0" encoding="UTF-8"?>
<InventoryConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Id>report1</Id>
  <IsEnabled>true</IsEnabled>
  <Destination>
     <S3BucketDestination>
        <Format>CSV</Format>
         <AccountId>123456789012</AccountId>
         <Bucket>arn:aws:s3:::destination-bucket</Bucket>
        <Prefix>prefix1</Prefix>
        <SSE-S3/>
      </S3BucketDestination>
   </Destination>
   <Schedule>
      <Frequency>Daily</Frequency>
  </Schedule>
  <Filter>
    <Prefix>myprefix/</Prefix>
  </Filter>
  <IncludedObjectVersions>All</IncludedObjectVersions>
  <OptionalFields>
    <Field>Size</Field>
    <Field>LastModifiedDate</Field>
      <Field>ETag</Field>
```

```
            <Field>StorageClass</Field>
            <Field>IsMultipartUploaded</Field>
          <Field>ReplicationStatus</Field>
            <Field>ObjectLockRetainUntilDate</Field>
            <Field>ObjectLockMode</Field>
          <Field>ObjectLockLegalHoldStatus</Field>
        </OptionalFields>
      </InventoryConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketLifecycle

Service: Amazon S3

> **Important**
>
> For an updated version of this API, see GetBucketLifecycleConfiguration. If you configured a bucket lifecycle using the `filter` element, you should see the updated version of this topic. This topic is provided for backward compatibility.

> **Note**
>
> This operation is not supported for directory buckets.

Returns the lifecycle configuration information set on the bucket. For information about lifecycle configuration, see Object Lifecycle Management.

To use this operation, you must have permission to perform the `s3:GetLifecycleConfiguration` action. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources.

`GetBucketLifecycle` has the following special error:

- Error code: `NoSuchLifecycleConfiguration`
  - Description: The lifecycle configuration does not exist.
  - HTTP Status Code: 404 Not Found
  - SOAP Fault Code Prefix: Client

The following operations are related to `GetBucketLifecycle`:

- GetBucketLifecycleConfiguration
- PutBucketLifecycle
- DeleteBucketLifecycle

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?lifecycle HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket for which to get the lifecycle information.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<LifecycleConfiguration>
   <Rule>
      <AbortIncompleteMultipartUpload>
         <DaysAfterInitiation>integer</DaysAfterInitiation>
```

```
      </AbortIncompleteMultipartUpload>
      <Expiration>
         <Date>timestamp</Date>
         <Days>integer</Days>
         <ExpiredObjectDeleteMarker>boolean</ExpiredObjectDeleteMarker>
      </Expiration>
      <ID>string</ID>
      <NoncurrentVersionExpiration>
         <NewerNoncurrentVersions>integer</NewerNoncurrentVersions>
         <NoncurrentDays>integer</NoncurrentDays>
      </NoncurrentVersionExpiration>
      <NoncurrentVersionTransition>
         <NewerNoncurrentVersions>integer</NewerNoncurrentVersions>
         <NoncurrentDays>integer</NoncurrentDays>
         <StorageClass>string</StorageClass>
      </NoncurrentVersionTransition>
      <Prefix>string</Prefix>
      <Status>string</Status>
      <Transition>
         <Date>timestamp</Date>
         <Days>integer</Days>
         <StorageClass>string</StorageClass>
      </Transition>
   </Rule>
   ...
</LifecycleConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

LifecycleConfiguration

Root level tag for the LifecycleConfiguration parameters.

Required: Yes

Rule

Container for a lifecycle rule.

Type: Array of Rule data types

Examples

Sample Request: Retrieve a lifecycle subresource

This example is a GET request to retrieve the lifecycle subresource from the specified bucket, and an example response with the returned lifecycle configuration.

```
GET /?lifecycle HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
x-amz-date: Thu, 15 Nov 2012 00:17:21 GMT
Authorization: signatureValue
```

Sample Response

This example illustrates one usage of GetBucketLifecycle.

```
HTTP/1.1 200 OK
x-amz-id-2:
ITnGT1y4RyTmXa3rPi4hklTXouTf0hccUjo0iCPjz6FnfIutBj3M7fPGlWO2SEWp
x-amz-request-id: 51991C342C575321
Date: Thu, 15 Nov 2012 00:17:23 GMT
Server: AmazonS3
Content-Length: 358

<?xml version="1.0" encoding="UTF-8"?>
<LifecycleConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Rule>
        <ID>Archive and then delete rule</ID>
        <Prefix>projectdocs/</Prefix>
       <Status>Enabled</Status>
      <Transition>
           <Days>30</Days>
           <StorageClass>STANDARD_IA</StorageClass>
      </Transition>
      <Transition>
         <Days>365</Days>
          <StorageClass>GLACIER</StorageClass>
       </Transition>
       <Expiration>
          <Days>3650</Days>
```

```
                    </Expiration>
                </Rule>
            </LifecycleConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketLifecycleConfiguration

Service: Amazon S3

Returns the lifecycle configuration information set on the bucket. For information about lifecycle configuration, see Object Lifecycle Management.

Bucket lifecycle configuration now supports specifying a lifecycle rule using an object key name prefix, one or more object tags, object size, or any combination of these. Accordingly, this section describes the latest API, which is compatible with the new functionality. The previous version of the API supported filtering based only on an object key name prefix, which is supported for general purpose buckets for backward compatibility. For the related API description, see GetBucketLifecycle.

> **Note**
>
> Lifecyle configurations for directory buckets only support expiring objects and cancelling multipart uploads. Expiring of versioned objects, transitions and tag filters are not supported.

Permissions

- **General purpose bucket permissions** - By default, all Amazon S3 resources are private, including buckets, objects, and related subresources (for example, lifecycle configuration and website configuration). Only the resource owner (that is, the AWS account that created it) can access the resource. The resource owner can optionally grant access permissions to others by writing an access policy. For this operation, a user must have the `s3:GetLifecycleConfiguration` permission.

  For more information about permissions, see Managing Access Permissions to Your Amazon S3 Resources.
- **Directory bucket permissions** - You must have the `s3express:GetLifecycleConfiguration` permission in an IAM identity-based policy to use this operation. Cross-account access to this API operation isn't supported. The resource owner can optionally grant access permissions to others by creating a role or user for them as long as they are within the same account as the owner and resource.

  For more information about directory bucket policies and permissions, see Authorizing Regional endpoint APIs with IAM in the *Amazon S3 User Guide*.

> **Note**
>
> **Directory buckets** - For directory buckets, you must make requests for this API operation to the Regional endpoint. These endpoints support path-style requests in the format `https://s3express-control.region-code.amazonaws.com/bucket-name` . Virtual-hosted-style requests aren't supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `s3express-control.region.amazonaws.com`.

`GetBucketLifecycleConfiguration` has the following special error:

- Error code: `NoSuchLifecycleConfiguration`
  - Description: The lifecycle configuration does not exist.
  - HTTP Status Code: 404 Not Found
  - SOAP Fault Code Prefix: Client

The following operations are related to `GetBucketLifecycleConfiguration`:

- GetBucketLifecycle
- PutBucketLifecycle
- DeleteBucketLifecycle

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?lifecycle HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket for which to get the lifecycle information.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

> **Note**
>
> This parameter applies to general purpose buckets only. It is not supported for directory bucket lifecycle configurations.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-transition-default-minimum-object-size: TransitionDefaultMinimumObjectSize
<?xml version="1.0" encoding="UTF-8"?>
<LifecycleConfiguration>
   <Rule>
      <AbortIncompleteMultipartUpload>
         <DaysAfterInitiation>integer</DaysAfterInitiation>
      </AbortIncompleteMultipartUpload>
      <Expiration>
```

```
            <Date>timestamp</Date>
            <Days>integer</Days>
            <ExpiredObjectDeleteMarker>boolean</ExpiredObjectDeleteMarker>
        </Expiration>
        <Filter>
            <And>
                <ObjectSizeGreaterThan>long</ObjectSizeGreaterThan>
                <ObjectSizeLessThan>long</ObjectSizeLessThan>
                <Prefix>string</Prefix>
                <Tag>
                    <Key>string</Key>
                    <Value>string</Value>
                </Tag>
                ...
            </And>
            <ObjectSizeGreaterThan>long</ObjectSizeGreaterThan>
            <ObjectSizeLessThan>long</ObjectSizeLessThan>
            <Prefix>string</Prefix>
            <Tag>
                <Key>string</Key>
                <Value>string</Value>
            </Tag>
        </Filter>
        <ID>string</ID>
        <NoncurrentVersionExpiration>
            <NewerNoncurrentVersions>integer</NewerNoncurrentVersions>
            <NoncurrentDays>integer</NoncurrentDays>
        </NoncurrentVersionExpiration>
        <NoncurrentVersionTransition>
            <NewerNoncurrentVersions>integer</NewerNoncurrentVersions>
            <NoncurrentDays>integer</NoncurrentDays>
            <StorageClass>string</StorageClass>
        </NoncurrentVersionTransition>
        ...
        <Prefix>string</Prefix>
        <Status>string</Status>
        <Transition>
            <Date>timestamp</Date>
            <Days>integer</Days>
            <StorageClass>string</StorageClass>
        </Transition>
        ...
    </Rule>
    ...
```

```
</LifecycleConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-transition-default-minimum-object-size

Indicates which default minimum object size behavior is applied to the lifecycle configuration.

> **Note**
>
> This parameter applies to general purpose buckets only. It isn't supported for directory bucket lifecycle configurations.

- `all_storage_classes_128K` - Objects smaller than 128 KB will not transition to any storage class by default.
- `varies_by_storage_class` - Objects smaller than 128 KB will transition to Glacier Flexible Retrieval or Glacier Deep Archive storage classes. By default, all other storage classes will prevent transitions smaller than 128 KB.

To customize the minimum object size for any transition you can add a filter that specifies a custom `ObjectSizeGreaterThan` or `ObjectSizeLessThan` in the body of your transition rule. Custom filters always take precedence over the default transition behavior.

Valid Values: `varies_by_storage_class | all_storage_classes_128K`

The following data is returned in XML format by the service.

LifecycleConfiguration

Root level tag for the LifecycleConfiguration parameters.

Required: Yes

Rule

Container for a lifecycle rule.

Type: Array of LifecycleRule data types

Examples

Example 1: Get lifecycle configuration - general purpose bucket

This example illustrates how to use `GetBucketLifecycleConfiguration` to retrieve the lifecycle configuration for a general purpose bucket:

```
GET /?lifecycle HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
x-amz-date: Thu, 15 Nov 2012 00:17:21 GMT
Authorization: signatureValue
```

Sample Response

This example shows the response from the preceeding `GetBucketLifecycleConfiguration` request:

```
HTTP/1.1 200 OK
x-amz-id-2: ITnGT1y4RyTmXa3rPi4hklTXouTf0hccUjo0iCPjz6FnfIutBj3M7fPGlWO2SEWp
x-amz-request-id: 51991C342C575321
Date: Thu, 15 Nov 2012 00:17:23 GMT
Server: AmazonS3
Content-Length: 358

<?xml version="1.0" encoding="UTF-8"?>
<LifecycleConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Rule>
      <ID>Archive and then delete rule</ID>
      <Prefix>projectdocs/</Prefix>
      <Status>Enabled</Status>
      <Transition>
         <Days>30</Days>
         <StorageClass>STANDARD_IA</StorageClass>
      </Transition>
      <Transition>
         <Days>365</Days>
         <StorageClass>GLACIER</StorageClass>
      </Transition>
      <Expiration>
```

```
         <Days>3650</Days>
      </Expiration>
   </Rule>
</LifecycleConfiguration>
```

Example 2: Get lifecycle configuration - directory bucket

This example illustrates how to use `GetBucketLifecycleConfiguration` to retrieve the lifecycle configuration for a directory bucket:

```
GET /?lifecycle HTTP/1.1
Host:s3express-control.us-west-2.amazonaws.com
```

Sample Response

This example shows the response from the preceeding `GetBucketLifecycleConfiguration` request:

```
<?xml version="1.0" encoding="UTF-8"?>
<LifecycleConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Rule>
      <ID>Lifecycle expiration rule</ID>
      <Filter>
         <And>
            <Prefix>myprefix/</Prefix>
            <ObjectSizeGreaterThan>500</ObjectSizeGreaterThan>
            <ObjectSizeLessThan>64000</ObjectSizeLessThan>
         </And>
      </Filter>
      <Status>Enabled</Status>
      <Expiration>
         <Days>7</Days>
      </Expiration>
   </Rule>
   <Rule>
      <ID>MPU Rule </ID>
      <Filter>
         <Prefix>another_prefix </Prefix>
      </Filter>
```

```
      <Status>Enabled</Status>
      <AbortIncompleteMultipartUpload>
         <DaysAfterInitiation>3</DaysAfterInitiation>
      </AbortIncompleteMultipartUpload>
   </Rule>
</LifecycleConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketLocation

Service: Amazon S3

> **Important**
>
> Using the `GetBucketLocation` operation is no longer a best practice. To return the Region that a bucket resides in, we recommend that you use the HeadBucket operation instead. For backward compatibility, Amazon S3 continues to support the `GetBucketLocation` operation.

Returns the Region the bucket resides in. You set the bucket's Region using the `LocationConstraint` request parameter in a `CreateBucket` request. For more information, see CreateBucket.

> **Note**
>
> In a bucket's home Region, calls to the `GetBucketLocation` operation are governed by the bucket's policy. In other Regions, the bucket policy doesn't apply, which means that cross-account access won't be authorized. However, calls to the `HeadBucket` operation always return the bucket’s location through an HTTP response header, whether access to the bucket is authorized or not. Therefore, we recommend using the `HeadBucket` operation for bucket Region discovery and to avoid using the `GetBucketLocation` operation.

When you use this API operation with an access point, provide the alias of the access point in place of the bucket name.

When you use this API operation with an Object Lambda access point, provide the alias of the Object Lambda access point in place of the bucket name. If the Object Lambda access point alias in a request is not valid, the error code `InvalidAccessPointAliasError` is returned. For more information about `InvalidAccessPointAliasError`, see List of Error Codes.

> **Note**
>
> This operation is not supported for directory buckets.

The following operations are related to `GetBucketLocation`:

- GetObject
- CreateBucket

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?location HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket for which to get the location.

When you use this API operation with an access point, provide the alias of the access point in place of the bucket name.

When you use this API operation with an Object Lambda access point, provide the alias of the Object Lambda access point in place of the bucket name. If the Object Lambda access point alias in a request is not valid, the error code `InvalidAccessPointAliasError` is returned. For more information about `InvalidAccessPointAliasError`, see List of Error Codes.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<LocationConstraint>
   <LocationConstraint>string</LocationConstraint>
</LocationConstraint>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

LocationConstraint

Root level tag for the LocationConstraint parameters.

Required: Yes

LocationConstraint

Specifies the Region where the bucket resides. For a list of all the Amazon S3 supported location constraints by Region, see Regions and Endpoints.

Buckets in Region `us-east-1` have a LocationConstraint of `null`. Buckets with a LocationConstraint of EU reside in `eu-west-1`.

Type: String

Valid Values: `af-south-1 | ap-east-1 | ap-northeast-1 | ap-northeast-2 | ap-northeast-3 | ap-south-1 | ap-south-2 | ap-southeast-1 | ap-southeast-2 | ap-southeast-3 | ap-southeast-4 | ap-southeast-5 | ca-central-1 | cn-north-1 | cn-northwest-1 | EU | eu-central-1 | eu-central-2 | eu-north-1 | eu-south-1 | eu-south-2 | eu-west-1 | eu-west-2 | eu-west-3 | il-central-1 | me-central-1 | me-south-1 | sa-east-1 | us-east-2 | us-gov-east-1 | us-gov-west-1 | us-west-1 | us-west-2`

Examples

Sample Request

The following request returns the Region of the specified bucket.

```
GET /?location HTTP/1.1
Host: amzn-s3-demo-bucket.s3.amazonaws.com
Date: Tue, 09 Oct 2007 20:26:04 +0000
Authorization: signatureValue
```

Sample Response

This example illustrates one usage of GetBucketLocation.

```
<?xml version="1.0" encoding="UTF-8"?>
<LocationConstraint xmlns="http://s3.amazonaws.com/doc/2006-03-01/">us-
west-2</LocationConstraint>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketLogging

Service: Amazon S3

> **Important**
>
> End of support notice: Beginning November 21, 2025, Amazon S3 will stop returning `DisplayName`. Update your applications to use canonical IDs (unique identifier for AWS accounts), AWS account ID (12 digit identifier) or IAM ARNs (full resource naming) as a direct replacement of `DisplayName`.
> Between July 15, 2025 and November 21, 2025, you will begin to see an increasing rate of missing `DisplayName` in the Owner object.
> This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

> **Note**
>
> This operation is not supported for directory buckets.

Returns the logging status of a bucket and the permissions users have to view and modify that status.

The following operations are related to `GetBucketLogging`:

- CreateBucket
- PutBucketLogging

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?logging HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name for which to get the logging information.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<BucketLoggingStatus>
   <LoggingEnabled>
      <TargetBucket>string</TargetBucket>
      <TargetGrants>
         <Grant>
            <Grantee>
               <DisplayName>string</DisplayName>
               <EmailAddress>string</EmailAddress>
               <ID>string</ID>
               <xsi:type>string</xsi:type>
               <URI>string</URI>
            </Grantee>
```

```
            <Permission>string</Permission>
         </Grant>
      </TargetGrants>
      <TargetObjectKeyFormat>
         <PartitionedPrefix>
            <PartitionDateSource>string</PartitionDateSource>
         </PartitionedPrefix>
         <SimplePrefix>
         </SimplePrefix>
      </TargetObjectKeyFormat>
      <TargetPrefix>string</TargetPrefix>
   </LoggingEnabled>
</BucketLoggingStatus>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

BucketLoggingStatus

Root level tag for the BucketLoggingStatus parameters.

Required: Yes

LoggingEnabled

Describes where logs are stored and the prefix that Amazon S3 assigns to all log object keys for a bucket. For more information, see PUT Bucket logging in the *Amazon S3 API Reference*.

Type: LoggingEnabled data type

Examples

Sample Request

The following request returns the logging status for `amzn-s3-demo-bucket`.

```
GET ?logging HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Wed, 25 Nov 2009 12:00:00 GMT
```

```
Authorization: authorization string
```

Sample Response: Showing an enabled logging status

This example illustrates one usage of GetBucketLogging.

```
HTTP/1.1 200 OK
Date: Wed, 25 Nov 2009 12:00:00 GMT
Connection: close
Server: AmazonS3

<?xml version="1.0" encoding="UTF-8"?>
<BucketLoggingStatus xmlns="http://doc.s3.amazonaws.com/2006-03-01">
 <LoggingEnabled>
  <TargetBucket>amzn-s3-demo-bucket</TargetBucket>
  <TargetPrefix>mybucket-access_log-/</TargetPrefix>
    <TargetGrants>
      <Grant>
       <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:type="AmazonCustomerByEmail">
        <EmailAddress>user@company.com</EmailAddress>
       </Grantee>
       <Permission>READ</Permission>
     </Grant>
    </TargetGrants>
</LoggingEnabled>
</BucketLoggingStatus>
```

Sample Response: Showing a disabled logging status

This example illustrates one usage of GetBucketLogging.

```
HTTP/1.1 200 OK
Date: Wed, 25 Nov 2009 12:00:00 GMT
Connection: close
Server: AmazonS3

<?xml version="1.0" encoding="UTF-8"?>
<BucketLoggingStatus xmlns="http://doc.s3.amazonaws.com/2006-03-01" />
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketMetadataConfiguration

Service: Amazon S3

Retrieves the S3 Metadata configuration for a general purpose bucket. For more information, see Accelerating data discovery with S3 Metadata in the *Amazon S3 User Guide*.

> **Note**
>
> You can use the V2 `GetBucketMetadataConfiguration` API operation with V1 or V2 metadata configurations. However, if you try to use the V1 `GetBucketMetadataTableConfiguration` API operation with V2 configurations, you will receive an HTTP `405 Method Not Allowed` error.

Permissions

To use this operation, you must have the `s3:GetBucketMetadataTableConfiguration` permission. For more information, see Setting up permissions for configuring metadata tables in the *Amazon S3 User Guide*.

> **Note**
>
> The IAM policy action name is the same for the V1 and V2 API operations.

The following operations are related to `GetBucketMetadataConfiguration`:

- CreateBucketMetadataConfiguration
- DeleteBucketMetadataConfiguration
- UpdateBucketMetadataInventoryTableConfiguration
- UpdateBucketMetadataJournalTableConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?metadataConfiguration HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The general purpose bucket that corresponds to the metadata configuration that you want to retrieve.

Required: Yes

x-amz-expected-bucket-owner

The expected owner of the general purpose bucket that you want to retrieve the metadata table configuration for.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetBucketMetadataConfigurationResult>
   <MetadataConfigurationResult>
      <DestinationResult>
         <TableBucketArn>string</TableBucketArn>
         <TableBucketType>string</TableBucketType>
         <TableNamespace>string</TableNamespace>
      </DestinationResult>
      <InventoryTableConfigurationResult>
         <ConfigurationState>string</ConfigurationState>
         <Error>
            <ErrorCode>string</ErrorCode>
            <ErrorMessage>string</ErrorMessage>
```

```
            </Error>
            <TableArn>string</TableArn>
            <TableName>string</TableName>
            <TableStatus>string</TableStatus>
        </InventoryTableConfigurationResult>
        <JournalTableConfigurationResult>
            <Error>
                <ErrorCode>string</ErrorCode>
                <ErrorMessage>string</ErrorMessage>
            </Error>
            <RecordExpiration>
                <Days>integer</Days>
                <Expiration>string</Expiration>
            </RecordExpiration>
            <TableArn>string</TableArn>
            <TableName>string</TableName>
            <TableStatus>string</TableStatus>
        </JournalTableConfigurationResult>
    </MetadataConfigurationResult>
</GetBucketMetadataConfigurationResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetBucketMetadataConfigurationResult

Root level tag for the GetBucketMetadataConfigurationResult parameters.

Required: Yes

MetadataConfigurationResult

The metadata configuration for a general purpose bucket.

Type: MetadataConfigurationResult data type

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketMetadataTableConfiguration

Service: Amazon S3

> **Important**
>
> We recommend that you retrieve your S3 Metadata configurations by using the V2 GetBucketMetadataTableConfiguration API operation. We no longer recommend using the V1 `GetBucketMetadataTableConfiguration` API operation.
> If you created your S3 Metadata configuration before July 15, 2025, we recommend that you delete and re-create your configuration by using CreateBucketMetadataConfiguration so that you can expire journal table records and create a live inventory table.

Retrieves the V1 S3 Metadata configuration for a general purpose bucket. For more information, see Accelerating data discovery with S3 Metadata in the *Amazon S3 User Guide*.

> **Note**
>
> You can use the V2 `GetBucketMetadataConfiguration` API operation with V1 or V2 metadata table configurations. However, if you try to use the V1 `GetBucketMetadataTableConfiguration` API operation with V2 configurations, you will receive an HTTP `405 Method Not Allowed` error.
> Make sure that you update your processes to use the new V2 API operations (`CreateBucketMetadataConfiguration`, `GetBucketMetadataConfiguration`, and `DeleteBucketMetadataConfiguration`) instead of the V1 API operations.

Permissions

To use this operation, you must have the `s3:GetBucketMetadataTableConfiguration` permission. For more information, see Setting up permissions for configuring metadata tables in the *Amazon S3 User Guide*.

The following operations are related to `GetBucketMetadataTableConfiguration`:

- CreateBucketMetadataTableConfiguration
- DeleteBucketMetadataTableConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?metadataTable HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The general purpose bucket that corresponds to the metadata table configuration that you want to retrieve.

Required: Yes

x-amz-expected-bucket-owner

The expected owner of the general purpose bucket that you want to retrieve the metadata table configuration for.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetBucketMetadataTableConfigurationResult>
   <MetadataTableConfigurationResult>
      <S3TablesDestinationResult>
         <TableArn>string</TableArn>
```

```
            <TableBucketArn>string</TableBucketArn>
            <TableName>string</TableName>
            <TableNamespace>string</TableNamespace>
        </S3TablesDestinationResult>
    </MetadataTableConfigurationResult>
    <Status>string</Status>
    <Error>
        <ErrorCode>string</ErrorCode>
        <ErrorMessage>string</ErrorMessage>
    </Error>
</GetBucketMetadataTableConfigurationResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetBucketMetadataTableConfigurationResult

Root level tag for the GetBucketMetadataTableConfigurationResult parameters.

Required: Yes

Error

If the `CreateBucketMetadataTableConfiguration` request succeeds, but S3 Metadata was unable to create the table, this structure contains the error code and error message.

Type: ErrorDetails data type

MetadataTableConfigurationResult

The V1 S3 Metadata configuration for a general purpose bucket.

Type: MetadataTableConfigurationResult data type

Status

The status of the metadata table. The status values are:

- `CREATING` - The metadata table is in the process of being created in the specified table bucket.
- `ACTIVE` - The metadata table has been created successfully, and records are being delivered to the table.

- `FAILED` - Amazon S3 is unable to create the metadata table, or Amazon S3 is unable to deliver records. See `ErrorDetails` for details.

Type: String

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketMetricsConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Gets a metrics configuration (specified by the metrics configuration ID) from the bucket. Note that this doesn't include the daily storage metrics.

To use this operation, you must have permissions to perform the `s3:GetMetricsConfiguration` action. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources.

For information about CloudWatch request metrics for Amazon S3, see Monitoring Metrics with Amazon CloudWatch.

The following operations are related to `GetBucketMetricsConfiguration`:

- PutBucketMetricsConfiguration
- DeleteBucketMetricsConfiguration
- ListBucketMetricsConfigurations
- Monitoring Metrics with Amazon CloudWatch

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?metrics&id=Id HTTP/1.1
Host: Bucket.s3.amazonaws.com
```

```
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket containing the metrics configuration to retrieve.

Required: Yes

id

The ID used to identify the metrics configuration. The ID has a 64 character limit and can only contain letters, numbers, periods, dashes, and underscores.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<MetricsConfiguration>
   <Id>string</Id>
   <Filter>
      <AccessPointArn>string</AccessPointArn>
      <And>
         <AccessPointArn>string</AccessPointArn>
         <Prefix>string</Prefix>
         <Tag>
            <Key>string</Key>
            <Value>string</Value>
         </Tag>
```

```
        ...
      </And>
      <Prefix>string</Prefix>
      <Tag>
        <Key>string</Key>
        <Value>string</Value>
      </Tag>
    </Filter>
</MetricsConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

MetricsConfiguration

Root level tag for the MetricsConfiguration parameters.

Required: Yes

Filter

Specifies a metrics configuration filter. The metrics configuration will only include objects that meet the filter's criteria. A filter must be a prefix, an object tag, an access point ARN, or a conjunction (MetricsAndOperator).

Type: MetricsFilter data type

Id

The ID used to identify the metrics configuration. The ID has a 64 character limit and can only contain letters, numbers, periods, dashes, and underscores.

Type: String

Examples

First Sample Request

Retrieve a metrics configuration that filters metrics based on a specified prefix.

```
GET /?metrics&id=Documents HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
x-amz-date: Thu, 15 Nov 2016 00:17:21 GMT
Authorization: signatureValue
```

First Sample Response

This example illustrates one usage of GetBucketMetricsConfiguration.

```
HTTP/1.1 200 OK
x-amz-id-2:
ITnGT1y4REXAMPLEPi4hklTXouTf0hccUjo0iCPEXAMPLEutBj3M7fPGlWO2SEWp
x-amz-request-id: 51991EXAMPLE5321
Date: Thu, 15 Nov 2016 00:17:22 GMT
Server: AmazonS3
Content-Length: 180

<?xml version="1.0" encoding="UTF-8"?>
<MetricsConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Id>Documents</Id>
  <Filter>
      <Prefix>documents/</Prefix>
  </Filter>
</MetricsConfiguration>
```

Second Sample Request

Retrieve a metrics configuration that enables metrics for objects that start with a particular prefix and have specific tags applied.

```
GET /?metrics&id=ImportantBlueDocuments HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
x-amz-date: Thu, 15 Nov 2016 00:17:21 GMT
Authorization: signatureValue
```

Second Sample Response

This example illustrates one usage of GetBucketMetricsConfiguration.

```
           HTTP/1.1 200 OK
           x-amz-id-2:
ITnGT1y4REXAMPLEPi4hklTXouTf0hccUjo0iCPEXAMPLEutBj3M7fPGlWO2SEWp
           x-amz-request-id: 51991EXAMPLE5321
           Date: Thu, 15 Nov 2016 00:17:22 GMT
           Server: AmazonS3
           Content-Length: 480

           <?xml version="1.0" encoding="UTF-8"?>
           <MetricsConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
             <Id>ImportantBlueDocuments</Id>
             <Filter>
                 <And>
                     <Prefix>documents/</Prefix>
                     <Tag>
                         <Key>priority</Key>
                         <Value>high</Value>
                     </Tag>
                     <Tag>
                           <Key>class</Key>
                           <Value>blue</Value>
                     </Tag>
                  </And>
               </Filter>
           </MetricsConfiguration>
```

Third Sample Request

Retrieve a metrics configuration that enables metrics for a specific access point.

```
           GET /?metrics&id=ImportantDocumentsAccessPoint HTTP/1.1
           Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
           x-amz-date: Thu, 26 Aug 2021 00:17:21 GMT
           Authorization: signatureValue
```

Third Sample Response

This example illustrates one usage of GetBucketMetricsConfiguration.

```
            HTTP/1.1 200 OK
            x-amz-id-2:
 ITnGT1y4REXAMPLEPi4hklTXouTf0hccUjo0iCPEXAMPLEutBj3M7fPGlWO2SEWp
            x-amz-request-id: 51991EXAMPLE5321
            Date: Thu, 26 Aug 2021 00:17:22 GMT
            Server: AmazonS3
            Content-Length: 480

            <?xml version="1.0" encoding="UTF-8"?>
            <MetricsConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
              <Id>ImportantDocumentsAccessPoint</Id>
              <Filter>
                  <AccessPointArn>arn:aws:s3:us-west-2:123456789012:accesspoint/test</
AccessPointArn>
               </Filter>
            </MetricsConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketNotification

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

No longer used, see GetBucketNotificationConfiguration.

Request Syntax

```
GET /?notification HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket for which to get the notification configuration.

When you use this API operation with an access point, provide the alias of the access point in place of the bucket name.

When you use this API operation with an Object Lambda access point, provide the alias of the Object Lambda access point in place of the bucket name. If the Object Lambda access point alias in a request is not valid, the error code `InvalidAccessPointAliasError` is returned. For more information about `InvalidAccessPointAliasError`, see List of Error Codes.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<NotificationConfiguration>
   <TopicConfiguration>
      <Event>string</Event>
      <Event>string</Event>
      ...
      <Id>string</Id>
      <Topic>string</Topic>
   </TopicConfiguration>
   <QueueConfiguration>
      <Event>string</Event>
      <Event>string</Event>
      ...
      <Id>string</Id>
      <Queue>string</Queue>
   </QueueConfiguration>
   <CloudFunctionConfiguration>
      <CloudFunction>string</CloudFunction>
      <Event>string</Event>
      <Event>string</Event>
      ...
      <Id>string</Id>
      <InvocationRole>string</InvocationRole>
   </CloudFunctionConfiguration>
</NotificationConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

NotificationConfiguration

Root level tag for the NotificationConfiguration parameters.

Required: Yes

CloudFunctionConfiguration

Container for specifying the AWS Lambda notification configuration.

Type: CloudFunctionConfiguration data type

QueueConfiguration

This data type is deprecated. This data type specifies the configuration for publishing messages to an Amazon Simple Queue Service (Amazon SQS) queue when Amazon S3 detects specified events.

Type: QueueConfigurationDeprecated data type

TopicConfiguration

This data type is deprecated. A container for specifying the configuration for publication of messages to an Amazon Simple Notification Service (Amazon SNS) topic when Amazon S3 detects specified events.

Type: TopicConfigurationDeprecated data type

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketNotificationConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Returns the notification configuration of a bucket.

If notifications are not enabled on the bucket, the action returns an empty `NotificationConfiguration` element.

By default, you must be the bucket owner to read the notification configuration of a bucket. However, the bucket owner can use a bucket policy to grant permission to other users to read this configuration with the `s3:GetBucketNotification` permission.

When you use this API operation with an access point, provide the alias of the access point in place of the bucket name.

When you use this API operation with an Object Lambda access point, provide the alias of the Object Lambda access point in place of the bucket name. If the Object Lambda access point alias in a request is not valid, the error code `InvalidAccessPointAliasError` is returned. For more information about `InvalidAccessPointAliasError`, see List of Error Codes.

For more information about setting and reading the notification configuration on a bucket, see Setting Up Notification of Bucket Events. For more information about bucket policies, see Using Bucket Policies.

The following action is related to `GetBucketNotification`:

- PutBucketNotification

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?notification HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket for which to get the notification configuration.

When you use this API operation with an access point, provide the alias of the access point in place of the bucket name.

When you use this API operation with an Object Lambda access point, provide the alias of the Object Lambda access point in place of the bucket name. If the Object Lambda access point alias in a request is not valid, the error code `InvalidAccessPointAliasError` is returned. For more information about `InvalidAccessPointAliasError`, see List of Error Codes.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<NotificationConfiguration>
   <TopicConfiguration>
      <Event>string</Event>
      ...
      <Filter>
```

```
        <S3Key>
           <FilterRule>
              <Name>string</Name>
              <Value>string</Value>
           </FilterRule>
           ...
        </S3Key>
     </Filter>
     <Id>string</Id>
     <Topic>string</Topic>
  </TopicConfiguration>
  ...
  <QueueConfiguration>
     <Event>string</Event>
     ...
     <Filter>
        <S3Key>
           <FilterRule>
              <Name>string</Name>
              <Value>string</Value>
           </FilterRule>
           ...
        </S3Key>
     </Filter>
     <Id>string</Id>
     <Queue>string</Queue>
  </QueueConfiguration>
  ...
  <CloudFunctionConfiguration>
     <Event>string</Event>
     ...
     <Filter>
        <S3Key>
           <FilterRule>
              <Name>string</Name>
              <Value>string</Value>
           </FilterRule>
           ...
        </S3Key>
     </Filter>
     <Id>string</Id>
     <CloudFunction>string</CloudFunction>
  </CloudFunctionConfiguration>
  ...
```

```
    <EventBridgeConfiguration>
    </EventBridgeConfiguration>
</NotificationConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

NotificationConfiguration

Root level tag for the NotificationConfiguration parameters.

Required: Yes

CloudFunctionConfiguration

Describes the AWS Lambda functions to invoke and the events for which to invoke them.

Type: Array of LambdaFunctionConfiguration data types

EventBridgeConfiguration

Enables delivery of events to Amazon EventBridge.

Type: EventBridgeConfiguration data type

QueueConfiguration

The Amazon Simple Queue Service queues to publish messages to and the events for which to publish messages.

Type: Array of QueueConfiguration data types

TopicConfiguration

The topic to which notifications are sent and the events for which notifications are generated.

Type: Array of TopicConfiguration data types

Examples

Sample Request

This request returns the notification configuration on the bucket `amzn-s3-demo-bucket.s3.<Region>.amazonaws.com`.

```
GET ?notification HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Wed, 15 Oct 2014 16:59:03 GMT
Authorization: authorization string
```

Sample Response

This response returns that the notification configuration for the specified bucket.

```
HTTP/1.1 200 OK
x-amz-id-2: YgIPIfBiKa2bj0KMgUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 236A8905248E5A02
Date: Wed, 15 Oct 2014 16:59:04 GMT
Server: AmazonS3
<?xml version="1.0" encoding="UTF-8"?>

<NotificationConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
 <TopicConfiguration>
   <Id>YjVkM2Y0YmUtNGI3NC00ZjQyLWEwNGItNDIyYWUxY2I0N2M4</Id>
  <Topic>arn:aws:sns:us-east-1:account-id:s3notificationtopic2</Topic>
  <Event>s3:ReducedRedundancyLostObject</Event>
  <Event>s3:ObjectCreated:*</Event>
 </TopicConfiguration>
</NotificationConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3

- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketOwnershipControls

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Retrieves `OwnershipControls` for an Amazon S3 bucket. To use this operation, you must have the `s3:GetBucketOwnershipControls` permission. For more information about Amazon S3 permissions, see Specifying permissions in a policy.

> **Note**
>
> A bucket doesn't have `OwnershipControls` settings in the following cases:
>
> - The bucket was created before the `BucketOwnerEnforced` ownership setting was introduced and you've never explicitly applied this value
> - You've manually deleted the bucket ownership control value using the `DeleteBucketOwnershipControls` API operation.
>
> By default, Amazon S3 sets `OwnershipControls` for all newly created buckets.

For information about Amazon S3 Object Ownership, see Using Object Ownership.

The following operations are related to `GetBucketOwnershipControls`:

- PutBucketOwnershipControls
- DeleteBucketOwnershipControls

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?ownershipControls HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the Amazon S3 bucket whose `OwnershipControls` you want to retrieve.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<OwnershipControls>
   <Rule>
      <ObjectOwnership>string</ObjectOwnership>
   </Rule>
   ...
</OwnershipControls>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

OwnershipControls

Root level tag for the OwnershipControls parameters.

Required: Yes

Rule

The container element for an ownership control rule.

Type: Array of OwnershipControlsRule data types

Examples

Sample GetBucketOwnershipControls Request for BucketOwnerEnforced

This example illustrates one usage of GetBucketOwnershipControls.

```
GET /amzn-s3-demo-bucket?/ownershipControls HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Mon, 29 Nov 2021 00:17:22 GMT
Authorization: signatureValue;
```

Sample GetBucketOwnershipControls Response

This example illustrates one usage of GetBucketOwnershipControls.

```
HTTP/1.1 200 OK
x-amz-id-2: Adphn7MaAHDEg9mh5JmcTN8mzyVX0JhIztSiQNaqTxnXXcYi4uiZbYdwWC3JXmh/
XXVUUQwO4Vs=
x-amz-request-id: 252631E05F84A415
Date: Mon, 29 Nov 2021 00:17:22 GMT
Server: AmazonS3
Content-Length: 194

<OwnershipControls xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Rule>
    <ObjectOwnership>BucketOwnerEnforced</ObjectOwnership>
  </Rule>
</OwnershipControls>
```

Sample GetBucketOwnershipControls Request for BucketOwnerPreferred

This example illustrates one usage of GetBucketOwnershipControls.

```
GET /amzn-s3-demo-bucket?/ownershipControls HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Thu, 18 Jun 2017 00:17:22 GMT
Authorization: signatureValue;
```

Sample GetBucketOwnershipControls Response

This example illustrates one usage of GetBucketOwnershipControls.

```
HTTP/1.1 200 OK
x-amz-id-2: Adphn7MaAHDEg9mh5JmcTN8mzyVX0JhIztSiQNaqTxnXXcYi4uiZbYdwWC3JXmh/
XXVUUQwO4Vs=
x-amz-request-id: 252631E05F84A415
Date: Thu, 18 Jun 2020 00:17:22 GMT
Server: AmazonS3
Content-Length: 194

<OwnershipControls xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Rule>
    <ObjectOwnership>BucketOwnerPreferred</ObjectOwnership>
  </Rule>
</OwnershipControls>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++

- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketPolicy

Service: Amazon S3

Returns the policy of a specified bucket.

> **Note**
>
> **Directory buckets** - For directory buckets, you must make requests for this API operation to the Regional endpoint. These endpoints support path-style requests in the format `https://s3express-control.`*`region-code`*`.amazonaws.com/`*`bucket-name`* . Virtual-hosted-style requests aren't supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Permissions

If you are using an identity other than the root user of the AWS account that owns the bucket, the calling identity must both have the `GetBucketPolicy` permissions on the specified bucket and belong to the bucket owner's account in order to use this operation.

If you don't have `GetBucketPolicy` permissions, Amazon S3 returns a `403 Access Denied` error. If you have the correct permissions, but you're not using an identity that belongs to the bucket owner's account, Amazon S3 returns a `405 Method Not Allowed` error.

> **Important**
>
> To ensure that bucket owners don't inadvertently lock themselves out of their own buckets, the root principal in a bucket owner's AWS account can perform the `GetBucketPolicy`, `PutBucketPolicy`, and `DeleteBucketPolicy` API actions, even if their bucket policy explicitly denies the root principal's access. Bucket owner root principals can only be blocked from performing these API actions by VPC endpoint policies and AWS Organizations policies.

- **General purpose bucket permissions** - The `s3:GetBucketPolicy` permission is required in a policy. For more information about general purpose buckets bucket policies, see Using Bucket Policies and User Policies in the *Amazon S3 User Guide*.

- **Directory bucket permissions** - To grant access to this API operation, you must have the `s3express:GetBucketPolicy` permission in an IAM identity-based policy instead of a bucket policy. Cross-account access to this API operation isn't supported. This operation can only be performed by the AWS account that owns the resource. For more information about directory bucket policies and permissions, see AWS Identity and Access Management (IAM) for S3 Express One Zone in the *Amazon S3 User Guide*.

Example bucket policies

General purpose buckets example bucket policies - See Bucket policy examples in the *Amazon S3 User Guide*.

Directory bucket example bucket policies - See Example bucket policies for S3 Express One Zone in the *Amazon S3 User Guide*.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `s3express-control.`*`region-code`*`.amazonaws.com`.

The following action is related to `GetBucketPolicy`:

- GetObject

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?policy HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name to get the bucket policy for.

Directory buckets - When you use this operation with a directory bucket, you must use path-style requests in the format `https://s3express-control.region-code.amazonaws.com/bucket-name` . Virtual-hosted-style requests aren't supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must also follow the format `bucket-base-name--zone-id--x-s3` (for example, `DOC-EXAMPLE-BUCKET--usw2-az1--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*

Access points - When you use this API operation with an access point, provide the alias of the access point in place of the bucket name.

Object Lambda access points - When you use this API operation with an Object Lambda access point, provide the alias of the Object Lambda access point in place of the bucket name. If the Object Lambda access point alias in a request is not valid, the error code `InvalidAccessPointAliasError` is returned. For more information about `InvalidAccessPointAliasError`, see List of Error Codes.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

> **Note**
>
> For directory buckets, this header is not supported in this API operation. If you specify this header, the request fails with the HTTP status code `501 Not Implemented`.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200

{ Policy in JSON format }
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.
<varlistentry> **Policy** </varlistentry>

Examples

Sample Request for general purpose buckets

The following request returns the policy of the specified bucket.

```
GET ?policy HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Wed, 28 Oct 2009 22:32:00 GMT
Authorization: authorization string
```

Sample Response for general purpose buckets

This example illustrates one usage of GetBucketPolicy.

```
HTTP/1.1 200 OK
x-amz-id-2: Uuag1LuByru9pO4SAMPLEAtRPfTaOFg==
x-amz-request-id: 656c76696e67SAMPLE57374
Date: Tue, 04 Apr 2010 20:34:56 GMT
Connection: keep-alive
Server: AmazonS3
```

```
{
"Version":"2008-10-17",
"Id":"aaaa-bbbb-cccc-dddd",
"Statement" : [
    {
        "Effect":"Deny",
        "Sid":"1",
        "Principal" : {
           "AWS":["111122223333","444455556666"]
        },
        "Action":["s3:*"],
        "Resource":"arn:aws:s3:::bucket/*"
    }
 ]
}
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketPolicyStatus

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Retrieves the policy status for an Amazon S3 bucket, indicating whether the bucket is public. In order to use this operation, you must have the `s3:GetBucketPolicyStatus` permission. For more information about Amazon S3 permissions, see Specifying Permissions in a Policy.

For more information about when Amazon S3 considers a bucket public, see The Meaning of "Public".

The following operations are related to `GetBucketPolicyStatus`:

- Using Amazon S3 Block Public Access
- GetPublicAccessBlock
- PutPublicAccessBlock
- DeletePublicAccessBlock

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?policyStatus HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the Amazon S3 bucket whose policy status you want to retrieve.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<PolicyStatus>
   <IsPublic>boolean</IsPublic>
</PolicyStatus>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

PolicyStatus

Root level tag for the PolicyStatus parameters.

Required: Yes

IsPublic

The policy status for this bucket. `TRUE` indicates that this bucket is public. `FALSE` indicates that the bucket is not public.

Type: Boolean

Examples

Sample Request

The following request gets a bucket policy status.

```
GET /<bucket-name>?policyStatus HTTP/1.1
Host: <bucket-name>.s3.<Region>.amazonaws.com
x-amz-date: <Thu, 15 Nov 2016 00:17:21 GMT>
Authorization: <signatureValue>
```

Sample Response

This example illustrates one usage of GetBucketPolicyStatus.

```
HTTP/1.1 200 OK
x-amz-id-2:
ITnGT1y4REXAMPLEPi4hklTXouTf0hccUjo0iCPEXAMPLEutBj3M7fPGlWO2SEWp
x-amz-request-id: 51991EXAMPLE5321
Date: Thu, 15 Nov 2016 00:17:22 GMT
Server: AmazonS3
Content-Length: 0

<PolicyStatus>
   <IsPublic>TRUE</IsPublic>
</PolicyStatus>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2

- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketReplication

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Returns the replication configuration of a bucket.

> **Note**
>
> It can take a while to propagate the put or delete a replication configuration to all Amazon S3 systems. Therefore, a get request soon after put or delete can return a wrong result.

For information about replication configuration, see Replication in the *Amazon S3 User Guide*.

This action requires permissions for the `s3:GetReplicationConfiguration` action. For more information about permissions, see Using Bucket Policies and User Policies.

If you include the `Filter` element in a replication configuration, you must also include the `DeleteMarkerReplication` and `Priority` elements. The response also returns those elements.

For information about `GetBucketReplication` errors, see List of replication-related error codes

The following operations are related to `GetBucketReplication`:

- PutBucketReplication
- DeleteBucketReplication

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?replication HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name for which to get the replication information.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ReplicationConfiguration>
   <Role>string</Role>
   <Rule>
      <DeleteMarkerReplication>
         <Status>string</Status>
      </DeleteMarkerReplication>
      <Destination>
         <AccessControlTranslation>
            <Owner>string</Owner>
         </AccessControlTranslation>
         <Account>string</Account>
         <Bucket>string</Bucket>
         <EncryptionConfiguration>
```

```
            <ReplicaKmsKeyID>string</ReplicaKmsKeyID>
         </EncryptionConfiguration>
         <Metrics>
            <EventThreshold>
               <Minutes>integer</Minutes>
            </EventThreshold>
            <Status>string</Status>
         </Metrics>
         <ReplicationTime>
            <Status>string</Status>
            <Time>
               <Minutes>integer</Minutes>
            </Time>
         </ReplicationTime>
         <StorageClass>string</StorageClass>
      </Destination>
      <ExistingObjectReplication>
         <Status>string</Status>
      </ExistingObjectReplication>
      <Filter>
         <And>
            <Prefix>string</Prefix>
            <Tag>
               <Key>string</Key>
               <Value>string</Value>
            </Tag>
            ...
         </And>
         <Prefix>string</Prefix>
         <Tag>
            <Key>string</Key>
            <Value>string</Value>
         </Tag>
      </Filter>
      <ID>string</ID>
      <Prefix>string</Prefix>
      <Priority>integer</Priority>
      <SourceSelectionCriteria>
         <ReplicaModifications>
            <Status>string</Status>
         </ReplicaModifications>
         <SseKmsEncryptedObjects>
            <Status>string</Status>
         </SseKmsEncryptedObjects>
```

```
      </SourceSelectionCriteria>
      <Status>string</Status>
   </Rule>
   ...
</ReplicationConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ReplicationConfiguration

Root level tag for the ReplicationConfiguration parameters.

Required: Yes

Role

The Amazon Resource Name (ARN) of the AWS Identity and Access Management (IAM) role that Amazon S3 assumes when replicating objects. For more information, see How to Set Up Replication in the *Amazon S3 User Guide*.

Type: String

Rule

A container for one or more replication rules. A replication configuration must have at least one rule and can contain a maximum of 1,000 rules.

Type: Array of ReplicationRule data types

Examples

Sample Request: Retrieve replication configuration information

The following GET request retrieves information about the replication configuration set for the `amzn-s3-demo-bucket` bucket:

```
GET /?replication HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
```

```
            Date: Tue, 10 Feb 2015 00:17:21 GMT
            Authorization: authorization string
```

Sample Response

The following response shows that replication is enabled on the bucket. The empty prefix indicates that Amazon S3 will replicate all objects that are created in the `amzn-s3-demo-bucket` bucket. The `Destination` element identifies the target bucket where Amazon S3 creates the object replicas, and the storage class (STANDARD_IA) that Amazon S3 uses when creating replicas.

Amazon S3 assumes the specified IAM role to replicate objects on behalf of the bucket owner, which is the AWS account that created the bucket.

```
            HTTP/1.1 200 OK
            x-amz-id-2:
 ITnGT1y4RyTmXa3rPi4hklTXouTf0hccUjo0iCPjz6FnfIutBj3M7fPGlWO2SEWp
            x-amz-request-id: 51991C342example
            Date: Tue, 10 Feb 2015 00:17:23 GMT
            Server: AmazonS3
            Content-Length: contentlength

            <?xml version="1.0" encoding="UTF-8"?>
            <ReplicationConfiguration>
              <Role>arn:aws:iam::35667example:role/CrossRegionReplicationRoleForS3</
Role>
             <Rule>
               <ID>rule1</ID>
               <Status>Enabled</Status>
               <Priority>1</Priority>
               <DeleteMarkerReplication>
                   <Status>Disabled</Status>
               </DeleteMarkerReplication>
               <Filter>
                  <And>
                       <Prefix>TaxDocs</Prefix>
                       <Tag>
                         <Key>key1</Key>
                         <Value>value1</Value>
                       </Tag>
                       <Tag>
                         <Key>key1</Key>
```

```
                        <Value>value1</Value>
                      </Tag>
                  </And>
                </Filter>
               <Destination>
                  <Bucket>arn:aws:s3:::exampletargetbucket</Bucket>
               </Destination>
              </Rule>
            </ReplicationConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketRequestPayment

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Returns the request payment configuration of a bucket. To use this version of the operation, you must be the bucket owner. For more information, see Requester Pays Buckets.

The following operations are related to `GetBucketRequestPayment`:

- ListObjects

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?requestPayment HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket for which to get the payment request configuration

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<RequestPaymentConfiguration>
   <Payer>string</Payer>
</RequestPaymentConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

RequestPaymentConfiguration

Root level tag for the RequestPaymentConfiguration parameters.

Required: Yes

Payer

Specifies who pays for the download and request fees.

Type: String

Valid Values: `Requester | BucketOwner`

Examples

Sample Request

The following request returns the payer for the bucket, `amzn-s3-demo-bucket`.

```
GET ?requestPayment HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Wed, 01 Mar 2009 12:00:00 GMT
Authorization: authorization string
```

Sample Response

This response shows that the bucket is a Requester Pays bucket, meaning the person requesting a download from this bucket pays the transfer fees.

```
HTTP/1.1 200 OK
x-amz-id-2:
 YgIPIfBiKa2bj0KMg95r/0zo3emzU4dzsD4rcKCHQUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 236A8905248E5A01
Date: Wed, 01 Mar 2009 12:00:00 GMT
Content-Type: [type]
Content-Length: 0
Connection: close
Server: AmazonS3

<?xml version="1.0" encoding="UTF-8"?>
<RequestPaymentConfiguration xmlns="http://s3.amazonaws.com/
doc/2006-03-01/">
  <Payer>Requester</Payer>
</RequestPaymentConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2

- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketTagging

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Returns the tag set associated with the bucket.

To use this operation, you must have permission to perform the `s3:GetBucketTagging` action. By default, the bucket owner has this permission and can grant this permission to others.

`GetBucketTagging` has the following special error:

- Error code: `NoSuchTagSet`
  - Description: There is no tag set associated with the bucket.

The following operations are related to `GetBucketTagging`:

- PutBucketTagging
- DeleteBucketTagging

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?tagging HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket for which to get the tagging information.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<Tagging>
   <TagSet>
      <Tag>
         <Key>string</Key>
         <Value>string</Value>
      </Tag>
   </TagSet>
</Tagging>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

Tagging

Root level tag for the Tagging parameters.

Required: Yes

TagSet

Contains the tag set.

Type: Array of Tag data types

Examples

Sample Request

The following request returns the tag set of the specified bucket.

```
GET ?tagging HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Wed, 28 Oct 2009 22:32:00 GMT
Authorization: authorization string
```

Sample Response

Delete the metric configuration with a specified ID, which disables the CloudWatch metrics with the `ExampleMetrics` value for the `FilterId` dimension.

```
HTTP/1.1 200 OK
Date: Wed, 25 Nov 2009 12:00:00 GMT
Connection: close
Server: AmazonS3

<Tagging>
  <TagSet>
     <Tag>
       <Key>Project</Key>
      <Value>Project One</Value>
     </Tag>
     <Tag>
       <Key>User</Key>
       <Value>jsmith</Value>
     </Tag>
  </TagSet>
</Tagging>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketVersioning

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Returns the versioning state of a bucket.

To retrieve the versioning state of a bucket, you must be the bucket owner.

This implementation also returns the MFA Delete status of the versioning state. If the MFA Delete status is `enabled`, the bucket owner must use an authentication device to change the versioning state of the bucket.

The following operations are related to `GetBucketVersioning`:

- GetObject
- PutObject
- DeleteObject

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?versioning HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket for which to get the versioning information.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<VersioningConfiguration>
   <Status>string</Status>
   <MfaDelete>string</MfaDelete>
</VersioningConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

VersioningConfiguration

Root level tag for the VersioningConfiguration parameters.

Required: Yes

MFADelete

Specifies whether MFA delete is enabled in the bucket versioning configuration. This element is only returned if the bucket has been configured with MFA delete. If the bucket has never been so configured, this element is not returned.

Type: String

Valid Values: `Enabled | Disabled`

Status

The versioning state of the bucket.

Type: String

Valid Values: `Enabled | Suspended`

Examples

Example

This example returns the versioning state of `amzn-s3-demo-bucket`.

```
GET /?versioning HTTP/1.1
Host:amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Wed, 12 Oct 2009 17:50:00 GMT
Authorization: authorization string
Content-Type: text/plain
```

Example

There are three versioning states:

If you enabled versioning on a bucket, the response is:

```
<VersioningConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Status>Enabled</Status>
</VersioningConfiguration>
```

Example

If you suspended versioning on a bucket, the response is:

```
<VersioningConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Status>Suspended</Status>
</VersioningConfiguration>
```

Example

If you never enabled (or suspended) versioning on a bucket, the response is:

```
<VersioningConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/"/>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketWebsite

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Returns the website configuration for a bucket. To host website on Amazon S3, you can configure a bucket as website by adding a website configuration. For more information about hosting websites, see Hosting Websites on Amazon S3.

This GET action requires the `S3:GetBucketWebsite` permission. By default, only the bucket owner can read the bucket website configuration. However, bucket owners can allow other users to read the website configuration by writing a bucket policy granting them the `S3:GetBucketWebsite` permission.

The following operations are related to `GetBucketWebsite`:

- DeleteBucketWebsite
- PutBucketWebsite

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?website HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name for which to get the website configuration.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<WebsiteConfiguration>
   <RedirectAllRequestsTo>
      <HostName>string</HostName>
      <Protocol>string</Protocol>
   </RedirectAllRequestsTo>
   <IndexDocument>
      <Suffix>string</Suffix>
   </IndexDocument>
   <ErrorDocument>
      <Key>string</Key>
   </ErrorDocument>
   <RoutingRules>
      <RoutingRule>
         <Condition>
            <HttpErrorCodeReturnedEquals>string</HttpErrorCodeReturnedEquals>
            <KeyPrefixEquals>string</KeyPrefixEquals>
         </Condition>
         <Redirect>
            <HostName>string</HostName>
            <HttpRedirectCode>string</HttpRedirectCode>
            <Protocol>string</Protocol>
            <ReplaceKeyPrefixWith>string</ReplaceKeyPrefixWith>
            <ReplaceKeyWith>string</ReplaceKeyWith>
```

```
        </Redirect>
      </RoutingRule>
    </RoutingRules>
</WebsiteConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

WebsiteConfiguration

Root level tag for the WebsiteConfiguration parameters.

Required: Yes

ErrorDocument

The object key name of the website error document to use for 4XX class errors.

Type: ErrorDocument data type

IndexDocument

The name of the index document for the website (for example `index.html`).

Type: IndexDocument data type

RedirectAllRequestsTo

Specifies the redirect behavior of all requests to a website endpoint of an Amazon S3 bucket.

Type: RedirectAllRequestsTo data type

RoutingRules

Rules that define when a redirect is applied and the redirect behavior.

Type: Array of RoutingRule data types

Examples

Sample Request

This request retrieves website configuration on the specified bucket.

```
GET ?website HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Thu, 27 Jan 2011 00:49:20 GMT
Authorization: AWS AKIAIOSFODNN7EXAMPLE:n0Nhek72Ufg/u7Sm5C1dqRLs8XX=
```

Sample Response

This example illustrates one usage of GetBucketWebsite.

```
HTTP/1.1 200 OK
x-amz-id-2: YgIPIfBiKa2bj0KMgUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 3848CD259D811111
Date: Thu, 27 Jan 2011 00:49:26 GMT
Content-Length: 240
Content-Type: application/xml
Transfer-Encoding: chunked
Server: AmazonS3

<?xml version="1.0" encoding="UTF-8"?>
<WebsiteConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <IndexDocument>
    <Suffix>index.html</Suffix>
  </IndexDocument>
 <ErrorDocument>
   <Key>404.html</Key>
 </ErrorDocument>
</WebsiteConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++

- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetObject

Service: Amazon S3

Retrieves an object from Amazon S3.

In the `GetObject` request, specify the full key name for the object.

General purpose buckets - Both the virtual-hosted-style requests and the path-style requests are supported. For a virtual hosted-style request example, if you have the object `photos/2006/February/sample.jpg`, specify the object key name as `/photos/2006/February/sample.jpg`. For a path-style request example, if you have the object `photos/2006/February/sample.jpg` in the bucket named `examplebucket`, specify the object key name as `/examplebucket/photos/2006/February/sample.jpg`. For more information about request types, see HTTP Host Header Bucket Specification in the *Amazon S3 User Guide*.

Directory buckets - Only virtual-hosted-style requests are supported. For a virtual hosted-style request example, if you have the object `photos/2006/February/sample.jpg` in the bucket named `amzn-s3-demo-bucket--usw2-az1--x-s3`, specify the object key name as `/photos/2006/February/sample.jpg`. Also, when you make requests to this API operation, your requests are sent to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://bucket-name.s3express-zone-id.region-code.amazonaws.com/key-name` . Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Permissions

- **General purpose bucket permissions** - You must have the required permissions in a policy. To use `GetObject`, you must have the `READ` access to the object (or version). If you grant `READ` access to the anonymous user, the `GetObject` operation returns the object without using an authorization header. For more information, see Specifying permissions in a policy in the *Amazon S3 User Guide*.

  If you include a `versionId` in your request header, you must have the `s3:GetObjectVersion` permission to access a specific version of an object. The `s3:GetObject` permission is not required in this scenario.

If you request the current version of an object without a specific `versionId` in the request header, only the `s3:GetObject` permission is required. The `s3:GetObjectVersion` permission is not required in this scenario.

If the object that you request doesn't exist, the error that Amazon S3 returns depends on whether you also have the `s3:ListBucket` permission.

- If you have the `s3:ListBucket` permission on the bucket, Amazon S3 returns an HTTP status code `404 Not Found` error.
- If you don't have the `s3:ListBucket` permission, Amazon S3 returns an HTTP status code `403 Access Denied` error.

- **Directory bucket permissions** - To grant access to this API operation on a directory bucket, we recommend that you use the `CreateSession` API operation for session-based authorization. Specifically, you grant the `s3express:CreateSession` permission to the directory bucket in a bucket policy or an IAM identity-based policy. Then, you make the `CreateSession` API call on the bucket to obtain a session token. With the session token in your request header, you can make API requests to this operation. After the session token expires, you make another `CreateSession` API call to generate a new session token for use. AWS CLI or SDKs create session and refresh the session token automatically to avoid service interruptions when a session expires. For more information about authorization, see `CreateSession`.

  If the object is encrypted using SSE-KMS, you must also have the `kms:GenerateDataKey` and `kms:Decrypt` permissions in IAM identity-based policies and AWS KMS key policies for the AWS KMS key.

Storage classes

If the object you are retrieving is stored in the S3 Glacier Flexible Retrieval storage class, the S3 Glacier Deep Archive storage class, the S3 Intelligent-Tiering Archive Access tier, or the S3 Intelligent-Tiering Deep Archive Access tier, before you can retrieve the object you must first restore a copy using RestoreObject. Otherwise, this operation returns an `InvalidObjectState` error. For information about restoring archived objects, see Restoring Archived Objects in the *Amazon S3 User Guide*.

Directory buckets - Directory buckets only support `EXPRESS_ONEZONE` (the S3 Express One Zone storage class) in Availability Zones and `ONEZONE_IA` (the S3 One Zone-Infrequent

Access storage class) in Dedicated Local Zones. Unsupported storage class values won't write a destination object and will respond with the HTTP status code `400 Bad Request`.

Encryption

Encryption request headers, like `x-amz-server-side-encryption`, should not be sent for the `GetObject` requests, if your object uses server-side encryption with Amazon S3 managed encryption keys (SSE-S3), server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS), or dual-layer server-side encryption with AWS KMS keys (DSSE-KMS). If you include the header in your `GetObject` requests for the object that uses these types of keys, you'll get an HTTP `400 Bad Request` error.

Directory buckets - For directory buckets, there are only two supported options for server-side encryption: SSE-S3 and SSE-KMS. SSE-C isn't supported. For more information, see Protecting data with server-side encryption in the *Amazon S3 User Guide*.

Overriding response header values through the request

There are times when you want to override certain response header values of a `GetObject` response. For example, you might override the `Content-Disposition` response header value through your `GetObject` request.

You can override values for a set of response headers. These modified response header values are included only in a successful response, that is, when the HTTP status code `200 OK` is returned. The headers you can override using the following query parameters in the request are a subset of the headers that Amazon S3 accepts when you create an object.

The response headers that you can override for the `GetObject` response are `Cache-Control`, `Content-Disposition`, `Content-Encoding`, `Content-Language`, `Content-Type`, and `Expires`.

To override values for a set of response headers in the `GetObject` response, you can use the following query parameters in the request.

- `response-cache-control`
- `response-content-disposition`
- `response-content-encoding`
- `response-content-language`
- `response-content-type`
- `response-expires`

> **Note**
>
> When you use these parameters, you must sign the request by using either an Authorization header or a presigned URL. These parameters cannot be used with an unsigned (anonymous) request.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `Bucket-name.s3express-zone-id.region-code.amazonaws.com`.

The following operations are related to `GetObject`:

- ListBuckets
- GetObjectAcl

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /Key+?partNumber=PartNumber&response-cache-control=ResponseCacheControl&response-
content-disposition=ResponseContentDisposition&response-
content-encoding=ResponseContentEncoding&response-content-
language=ResponseContentLanguage&response-content-type=ResponseContentType&response-
expires=ResponseExpires&versionId=VersionId HTTP/1.1
Host: Bucket.s3.amazonaws.com
If-Match: IfMatch
If-Modified-Since: IfModifiedSince
If-None-Match: IfNoneMatch
If-Unmodified-Since: IfUnmodifiedSince
Range: Range
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key: SSECustomerKey
```

```
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-request-payer: RequestPayer
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-checksum-mode: ChecksumMode
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name containing the object.

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format `Bucket-name.s3express-zone-id.region-code.amazonaws.com`. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format `bucket-base-name--zone-id--x-s3` (for example, `amzn-s3-demo-bucket--usw2-az1--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

Object Lambda access points - When you use this action with an Object Lambda access point, you must direct requests to the Object Lambda access point hostname. The Object Lambda access point hostname takes the form *AccessPointName-AccountId*.s3-object-lambda.*Region*.amazonaws.com.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

If-Match

Return the object only if its entity tag (ETag) is the same as the one specified in this header; otherwise, return a `412 Precondition Failed` error.

If both of the `If-Match` and `If-Unmodified-Since` headers are present in the request as follows: `If-Match` condition evaluates to `true`, and; `If-Unmodified-Since` condition evaluates to `false`; then, S3 returns `200 OK` and the data requested.

For more information about conditional requests, see RFC 7232.

If-Modified-Since

Return the object only if it has been modified since the specified time; otherwise, return a `304 Not Modified` error.

If both of the `If-None-Match` and `If-Modified-Since` headers are present in the request as follows: `If-None-Match` condition evaluates to `false`, and; `If-Modified-Since` condition evaluates to `true`; then, S3 returns `304 Not Modified` status code.

For more information about conditional requests, see RFC 7232.

If-None-Match

Return the object only if its entity tag (ETag) is different from the one specified in this header; otherwise, return a `304 Not Modified` error.

If both of the `If-None-Match` and `If-Modified-Since` headers are present in the request as follows: `If-None-Match` condition evaluates to `false`, and; `If-Modified-Since` condition evaluates to `true`; then, S3 returns `304 Not Modified` HTTP status code.

For more information about conditional requests, see RFC 7232.

If-Unmodified-Since

Return the object only if it has not been modified since the specified time; otherwise, return a `412 Precondition Failed` error.

If both of the `If-Match` and `If-Unmodified-Since` headers are present in the request as follows: `If-Match` condition evaluates to `true`, and; `If-Unmodified-Since` condition evaluates to `false`; then, S3 returns `200 OK` and the data requested.

For more information about conditional requests, see RFC 7232.

Key

Key of the object to get.

Length Constraints: Minimum length of 1.

Required: Yes

partNumber

Part number of the object being read. This is a positive integer between 1 and 10,000. Effectively performs a 'ranged' GET request for the part specified. Useful for downloading just a part of an object.

Range

Downloads the specified byte range of an object. For more information about the HTTP Range header, see https://www.rfc-editor.org/rfc/rfc9110.html#name-range.

> **Note**
>
> Amazon S3 doesn't support retrieving multiple ranges of data per GET request.

response-cache-control

Sets the `Cache-Control` header of the response.

response-content-disposition

Sets the `Content-Disposition` header of the response.

response-content-encoding

Sets the `Content-Encoding` header of the response.

response-content-language

Sets the `Content-Language` header of the response.

response-content-type

Sets the `Content-Type` header of the response.

response-expires

Sets the `Expires` header of the response.

versionId

Version ID used to reference a specific version of the object.

By default, the `GetObject` operation returns the current version of an object. To return a different version, use the `versionId` subresource.

> **Note**
>
> - If you include a `versionId` in your request header, you must have the `s3:GetObjectVersion` permission to access a specific version of an object. The `s3:GetObject` permission is not required in this scenario.
> - If you request the current version of an object without a specific `versionId` in the request header, only the `s3:GetObject` permission is required. The `s3:GetObjectVersion` permission is not required in this scenario.
> - **Directory buckets** - S3 Versioning isn't enabled and supported for directory buckets. For this API operation, only the `null` value of the version ID is supported by directory buckets. You can only specify `null` to the `versionId` query parameter in the request.

For more information about versioning, see PutBucketVersioning.

x-amz-checksum-mode

To retrieve the checksum, this mode must be enabled.

Valid Values: `ENABLED`

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-server-side-encryption-customer-algorithm

Specifies the algorithm to use when decrypting the object (for example, `AES256`).

If you encrypt an object by using server-side encryption with customer-provided encryption keys (SSE-C) when you store the object in Amazon S3, then when you GET the object, you must use the following headers:

- `x-amz-server-side-encryption-customer-algorithm`
- `x-amz-server-side-encryption-customer-key`
- `x-amz-server-side-encryption-customer-key-MD5`

For more information about SSE-C, see Server-Side Encryption (Using Customer-Provided Encryption Keys) in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key

Specifies the customer-provided encryption key that you originally provided for Amazon S3 to encrypt the data before storing it. This value is used to decrypt the object when recovering it and must match the one used when storing the data. The key must be appropriate for use with the algorithm specified in the `x-amz-server-side-encryption-customer-algorithm` header.

If you encrypt an object by using server-side encryption with customer-provided encryption keys (SSE-C) when you store the object in Amazon S3, then when you GET the object, you must use the following headers:

- `x-amz-server-side-encryption-customer-algorithm`
- `x-amz-server-side-encryption-customer-key`
- `x-amz-server-side-encryption-customer-key-MD5`

For more information about SSE-C, see Server-Side Encryption (Using Customer-Provided Encryption Keys) in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key-MD5

Specifies the 128-bit MD5 digest of the customer-provided encryption key according to RFC 1321. Amazon S3 uses this header for a message integrity check to ensure that the encryption key was transmitted without error.

If you encrypt an object by using server-side encryption with customer-provided encryption keys (SSE-C) when you store the object in Amazon S3, then when you GET the object, you must use the following headers:

- `x-amz-server-side-encryption-customer-algorithm`
- `x-amz-server-side-encryption-customer-key`
- `x-amz-server-side-encryption-customer-key-MD5`

For more information about SSE-C, see Server-Side Encryption (Using Customer-Provided Encryption Keys) in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-delete-marker: DeleteMarker
accept-ranges: AcceptRanges
x-amz-expiration: Expiration
x-amz-restore: Restore
Last-Modified: LastModified
Content-Length: ContentLength
ETag: ETag
x-amz-checksum-crc32: ChecksumCRC32
x-amz-checksum-crc32c: ChecksumCRC32C
x-amz-checksum-crc64nvme: ChecksumCRC64NVME
x-amz-checksum-sha1: ChecksumSHA1
x-amz-checksum-sha256: ChecksumSHA256
x-amz-checksum-type: ChecksumType
x-amz-missing-meta: MissingMeta
x-amz-version-id: VersionId
Cache-Control: CacheControl
Content-Disposition: ContentDisposition
Content-Encoding: ContentEncoding
Content-Language: ContentLanguage
Content-Range: ContentRange
Content-Type: ContentType
Expires: Expires
x-amz-website-redirect-location: WebsiteRedirectLocation
x-amz-server-side-encryption: ServerSideEncryption
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-server-side-encryption-aws-kms-key-id: SSEKMSKeyId
x-amz-server-side-encryption-bucket-key-enabled: BucketKeyEnabled
x-amz-storage-class: StorageClass
x-amz-request-charged: RequestCharged
x-amz-replication-status: ReplicationStatus
```

```
x-amz-mp-parts-count: PartsCount
x-amz-tagging-count: TagCount
x-amz-object-lock-mode: ObjectLockMode
x-amz-object-lock-retain-until-date: ObjectLockRetainUntilDate
x-amz-object-lock-legal-hold: ObjectLockLegalHoldStatus

Body
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

accept-ranges

Indicates that a range of bytes was specified in the request.

Cache-Control

Specifies caching behavior along the request/reply chain.

Content-Disposition

Specifies presentational information for the object.

Content-Encoding

Indicates what content encodings have been applied to the object and thus what decoding mechanisms must be applied to obtain the media-type referenced by the Content-Type header field.

Content-Language

The language the content is in.

Content-Length

Size of the body in bytes.

Content-Range

The portion of the object returned in the response.

Content-Type

A standard MIME type describing the format of the object data.

ETag

An entity tag (ETag) is an opaque identifier assigned by a web server to a specific version of a resource found at a URL.

Expires

The date and time at which the object is no longer cacheable.

Last-Modified

Date and time when the object was last modified.

General purpose buckets - When you specify a `versionId` of the object in your request, if the specified version in the request is a delete marker, the response returns a `405 Method Not Allowed` error and the `Last-Modified: timestamp` response header.

x-amz-checksum-crc32

The Base64 encoded, 32-bit `CRC32` checksum of the object. This checksum is only present if the object was uploaded with the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-crc32c

The Base64 encoded, 32-bit `CRC32C` checksum of the object. This will only be present if the object was uploaded with the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-crc64nvme

The Base64 encoded, 64-bit `CRC64NVME` checksum of the object. For more information, see Checking object integrity in the Amazon S3 User Guide.

x-amz-checksum-sha1

The Base64 encoded, 160-bit `SHA1` digest of the object. This will only be present if the object was uploaded with the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-sha256

The Base64 encoded, 256-bit `SHA256` digest of the object. This will only be present if the object was uploaded with the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-type

The checksum type, which determines how part-level checksums are combined to create an object-level checksum for multipart objects. You can use this header response to verify that the checksum type that is received is the same checksum type that was specified in the `CreateMultipartUpload` request. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Valid Values: `COMPOSITE | FULL_OBJECT`

x-amz-delete-marker

Indicates whether the object retrieved was (true) or was not (false) a Delete Marker. If false, this response header does not appear in the response.

> **Note**
>
> - If the current version of the object is a delete marker, Amazon S3 behaves as if the object was deleted and includes `x-amz-delete-marker: true` in the response.
> - If the specified version in the request is a delete marker, the response returns a `405 Method Not Allowed` error and the `Last-Modified: timestamp` response header.

x-amz-expiration

If the object expiration is configured (see `PutBucketLifecycleConfiguration`), the response includes this header. It includes the `expiry-date` and `rule-id` key-value pairs providing object expiration information. The value of the `rule-id` is URL-encoded.

> **Note**
>
> Object expiration information is not returned in directory buckets and this header returns the value "`NotImplemented`" in all responses for directory buckets.

x-amz-missing-meta

This is set to the number of metadata entries not returned in the headers that are prefixed with `x-amz-meta-`. This can happen if you create metadata using an API like SOAP that supports

more flexible metadata than the REST API. For example, using SOAP, you can create metadata whose values are not legal HTTP headers.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-mp-parts-count

The count of parts this object has. This value is only returned if you specify `partNumber` in your request and the object was uploaded as a multipart upload.

x-amz-object-lock-legal-hold

Indicates whether this object has an active legal hold. This field is only returned if you have permission to view an object's legal hold status.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `ON` | `OFF`

x-amz-object-lock-mode

The Object Lock mode that's currently in place for this object.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `GOVERNANCE` | `COMPLIANCE`

x-amz-object-lock-retain-until-date

The date and time when this object's Object Lock will expire.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-replication-status

Amazon S3 can return this if your request involves a bucket that is either a source or destination in a replication rule.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `COMPLETE | PENDING | FAILED | REPLICA | COMPLETED`

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-restore

Provides information about object restoration action and expiration time of the restored object copy.

> **Note**
>
> This functionality is not supported for directory buckets. Directory buckets only support `EXPRESS_ONEZONE` (the S3 Express One Zone storage class) in Availability Zones and `ONEZONE_IA` (the S3 One Zone-Infrequent Access storage class) in Dedicated Local Zones.

x-amz-server-side-encryption

The server-side encryption algorithm used when you store this object in Amazon S3 or Amazon FSx.

> **Note**
>
> When accessing data stored in Amazon FSx file systems using S3 access points, the only valid server side encryption option is `aws:fsx`.

Valid Values: `AES256` | `aws:fsx` | `aws:kms` | `aws:kms:dsse`

x-amz-server-side-encryption-aws-kms-key-id

If present, indicates the ID of the KMS key that was used for object encryption.

x-amz-server-side-encryption-bucket-key-enabled

Indicates whether the object uses an S3 Bucket Key for server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS).

x-amz-server-side-encryption-customer-algorithm

If server-side encryption with a customer-provided encryption key was requested, the response will include this header to confirm the encryption algorithm that's used.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key-MD5

If server-side encryption with a customer-provided encryption key was requested, the response will include this header to provide the round-trip message integrity verification of the customer-provided encryption key.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-storage-class

Provides storage class information of the object. Amazon S3 returns this header for all objects except for S3 Standard storage class objects.

> **Note**
>
> **Directory buckets** - Directory buckets only support `EXPRESS_ONEZONE` (the S3 Express One Zone storage class) in Availability Zones and `ONEZONE_IA` (the S3 One Zone-Infrequent Access storage class) in Dedicated Local Zones.

Valid Values: `STANDARD | REDUCED_REDUNDANCY | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | GLACIER | DEEP_ARCHIVE | OUTPOSTS | GLACIER_IR | SNOW | EXPRESS_ONEZONE | FSX_OPENZFS`

x-amz-tagging-count

The number of tags, if any, on the object, when you have the relevant permission to read object tags.

You can use GetObjectTagging to retrieve the tag set associated with an object.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-version-id

Version ID of the object.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-website-redirect-location

If the bucket is configured as a website, redirects requests for this object to another object in the same bucket or to an external URL. Amazon S3 stores the value of this header in the object metadata.

> **Note**
>
> This functionality is not supported for directory buckets.

The following data is returned in binary format by the service.
<varlistentry> **Body** </varlistentry>

Errors

InvalidObjectState

Object is archived and inaccessible until restored.

If the object you are retrieving is stored in the S3 Glacier Flexible Retrieval storage class, the S3 Glacier Deep Archive storage class, the S3 Intelligent-Tiering Archive Access tier, or the S3 Intelligent-Tiering Deep Archive Access tier, before you can retrieve the object you must first restore a copy using RestoreObject. Otherwise, this operation returns an `InvalidObjectState` error. For information about restoring archived objects, see Restoring Archived Objects in the *Amazon S3 User Guide*.

HTTP Status Code: 403

NoSuchKey

The specified key does not exist.

HTTP Status Code: 404

Examples

Sample Request for general purpose buckets

The following request returns the object `my-image.jpg`.

```
GET /my-image.jpg HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
Date: Mon, 3 Oct 2016 22:32:00 GMT
Authorization: authorization string
```

Sample Response for general purpose buckets

This example illustrates one usage of GetObject.

```
HTTP/1.1 200 OK
x-amz-id-2:
eftixk72aD6Ap51TnqcoF8eFidJG9Z/2mkiDFu8yU9AS1ed4OpIszj7UDNEHGran
x-amz-request-id: 318BC8BC148832E5
Date: Mon, 3 Oct 2016 22:32:00 GMT
Last-Modified: Wed, 12 Oct 2009 17:50:00 GMT
ETag: "fba9dede5f27731c9771645a39863328"
Content-Length: 434234

[434234 bytes of object data]
```

Sample Response for general purpose buckets: Object with associated tags

If the object had tags associated with it, Amazon S3 returns the `x-amz-tagging-count` header with tag count.

```
HTTP/1.1 200 OK
x-amz-id-2:
eftixk72aD6Ap51TnqcoF8eFidJG9Z/2mkiDFu8yU9AS1ed4OpIszj7UDNEHGran
x-amz-request-id: 318BC8BC148832E5
Date: Mon, 3 Oct 2016 22:32:00 GMT
Last-Modified: Wed, 12 Oct 2009 17:50:00 GMT
ETag: "fba9dede5f27731c9771645a39863328"
Content-Length: 434234
x-amz-tagging-count: 2

[434234 bytes of object data]
```

Sample Response for general purpose buckets: Object with an expiration

If the object had expiration set using lifecycle configuration, you get the following response with the `x-amz-expiration` header.

```
            HTTP/1.1 200 OK
            x-amz-id-2:
 eftixk72aD6Ap51TnqcoF8eFidJG9Z/2mkiDFu8yU9AS1ed4OpIszj7UDNEHGran
            x-amz-request-id: 318BC8BC148832E5
            Date: Wed, 28 Oct 2009 22:32:00 GMT
            Last-Modified: Wed, 12 Oct 2009 17:50:00 GMT
            x-amz-expiration: expiry-date="Fri, 23 Dec 2012 00:00:00 GMT", rule-
id="picture-deletion-rule"
            ETag: "fba9dede5f27731c9771645a39863328"
            Content-Length: 434234
            Content-Type: text/plain

            [434234 bytes of object data]
```

Sample Response for general purpose buckets: If an object is archived in the S3 Glacier Flexible Retrieval or S3 Glacier Deep Archive storage classes

If the object you are retrieving is stored in the S3 Glacier Flexible Retrieval or S3 Glacier Deep Archive storage classes, you must first restore a copy using RestoreObject. Otherwise, this action returns an `InvalidObjectState` error.

```
            HTTP/1.1 403 Forbidden
            x-amz-request-id: CD4BD8A1310A11B3
            x-amz-id-2: m9RDbQU0+RRBTjOUN1ChQ1eqMUnr9dv8b
+KP6I2gHfRJZSTSrMCoRP8RtPRzX9mb
            Content-Type: application/xml
            Date: Mon, 12 Nov 2012 23:53:21 GMT
            Server: Amazon S3
            Content-Length: 231

            <Error>
              <Code>InvalidObjectState</Code>
              <Message>The action is not valid for the object's storage class</Message>
              <RequestId>9FEFFF118E15B86F</RequestId>
```

```
              <HostId>WVQ5kzhiT+oiUfDCOiOYv8W4Tk9eNcxWi/MK+hTS/av34Xy4rBU3zsavf0aaaaa</
HostId>
            </Error>
```

Sample Response for general purpose buckets: If an object is archived with the S3 Intelligent-Tiering Archive or S3 Intelligent-Tiering Deep Archive tiers

If the object you are retrieving is stored in the S3 Intelligent-Tiering Archive or S3 Intelligent-Tiering Deep Archive tiers, you must first restore a copy using RestoreObject. Otherwise, this action returns an `InvalidObjectState` error. When restoring from Archive Access or Deep Archive Access tiers, the response will include `StorageClass` and `AccessTier` elements. Access tier valid values are `ARCHIVE_ACCESS` and `DEEP_ARCHIVE_ACCESS`. There is no syntax change if there is an ongoing restore.

```
            HTTP/1.1 403 Forbidden
            x-amz-request-id: CB6AW8C4332B23B7
            x-amz-id-2: n3RRfT90+PJDUhut3nhGW2ehfhfNU5f55c
+a2ceCC36ab7c7fe3a71Q273b9Q45b1R5
            Content-Type: application/xml
            Date: Mon, 12 Nov 2012 23:53:21 GMT
            Server: Amazon S3
            Content-Length: 231

            <Error>
              <Code>InvalidObjectState</Code>
              <Message>The action is not valid for the object's access tier</Message>
              <StorageClass>INTELLIGENT_TIERING</StorageClass>
              <AccessTier>ARCHIVE_ACCESS</AccessTier>
              <RequestId>9FEFFF118E15B86F</RequestId>
              <HostId>WVQ5kzhiT+oiUfDCOiOYv8W4Tk9eNcxWi/MK+hTS/av34Xy4rBU3zsavf0aaaaa</
HostId>
            </Error>
```

Sample Response for general purpose buckets: If the Latest Object Is a Delete Marker

Notice that the delete marker returns a 404 Not Found error.

```
HTTP/1.1 404 Not Found
x-amz-request-id: 318BC8BC148832E5
x-amz-id-2: eftixk72aD6Ap51Tnqzj7UDNEHGran
x-amz-version-id: 3GL4kqtJlcpXroDTDm3vjVBH40Nr8X8g
x-amz-delete-marker:  true
Date: Wed, 28 Oct 2009 22:32:00 GMT
Content-Type: text/plain
Connection: close
Server: AmazonS3
```

Sample Request for general purpose buckets: Getting a specified version of an object

The following request returns the specified version of an object.

```
GET /myObject?versionId=3/L4kqtJlcpXroDTDmpUMLUo HTTP/1.1
Host: bucket.s3.<Region>.amazonaws.com
Date: Wed, 28 Oct 2009 22:32:00 GMT
Authorization: authorization string
```

Sample Response for general purpose buckets: GET a versioned object

This example illustrates one usage of GetObject.

```
HTTP/1.1 200 OK
x-amz-id-2: eftixk72aD6Ap54OpIszj7UDNEHGran
x-amz-request-id: 318BC8BC148832E5
Date: Wed, 28 Oct 2009 22:32:00 GMT
Last-Modified: Sun, 1 Jan 2006 12:00:00 GMT
x-amz-version-id: 3/L4kqtJlcpXroDTDmJ+rmSpXd3QBpUMLUo
ETag: "fba9dede5f27731c9771645a39863328"
Content-Length: 434234
Content-Type: text/plain
Connection: close
Server: AmazonS3
[434234 bytes of object data]
```

Sample Request for general purpose buckets: Parameters altering response header values

The following request specifies all the query string parameters in a GET request overriding the response header values.

```
            GET /Junk3.txt?response-cache-control=No-cache&response-content-
disposition=attachment%3B%20filename%3Dtesting.txt&response-content-encoding=x-
gzip&response-content-language=mi%2C%20en&response-expires=Thu%2C%2001%20Dec
%201994%2016:00:00%20GMT HTTP/1.1
            x-amz-date: Sun, 19 Dec 2010 01:53:44 GMT
            Accept: */*
            Authorization: AWS AKIAIOSFODNN7EXAMPLE:aaStE6nKnw8ihhiIdReoXYlMamW=
```

Sample Response for general purpose buckets: With overridden response header values

The following request specifies all the query string parameters in a GET request overriding the response header values.

```
            HTTP/1.1 200 OK
            x-amz-id-2: SIidWAK3hK+Il3/
Qqiu1ZKEuegzLAAspwsgwnwygb9GgFseeFHL5CII8NXSrfWW2
            x-amz-request-id: 881B1CBD9DF17WA1
            Date: Sun, 19 Dec 2010 01:54:01 GMT
            x-amz-meta-param1: value 1
            x-amz-meta-param2: value 2
            Cache-Control: No-cache
            Content-Language: mi, en
            Expires: Thu, 01 Dec 1994 16:00:00 GMT
            Content-Disposition: attachment; filename=testing.txt
            Content-Encoding: x-gzip
            Last-Modified: Fri, 17 Dec 2010 18:10:41 GMT
            ETag: "0332bee1a7bf845f176c5c0d1ae7cf07"
            Accept-Ranges: bytes
            Content-Type: text/plain
            Content-Length: 22
            Server: AmazonS3

            [object data not shown]
```

Sample Request for general purpose buckets: Range header

The following request specifies the HTTP Range header to retrieve the first 10 bytes of an object. For more information about the HTTP Range header, see https://www.rfc-editor.org/rfc/rfc9110.html#name-range.

> **Note**
>
> Amazon S3 doesn't support retrieving multiple ranges of data per GET request.

```
GET /example-object HTTP/1.1
Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
x-amz-date: Fri, 28 Jan 2011 21:32:02 GMT
Range: bytes=0-9
Authorization: AWS AKIAIOSFODNN7EXAMPLE:Yxg83MZaEgh3OZ3l0rLo5RTX11o=
Sample Response with Specified Range of the Object Bytes
```

Sample Response for general purpose buckets

In the following sample response, note that the header values are set to the values specified in the true request.

```
HTTP/1.1 206 Partial Content
x-amz-id-2: MzRISOwyjmnupCzjI1WC06l5TTAzm7/JypPGXLh0OVFGcJaaO3KW/
hRAqKOpIEEp
x-amz-request-id: 47622117804B3E11
Date: Fri, 28 Jan 2011 21:32:09 GMT
x-amz-meta-title: the title
Last-Modified: Fri, 28 Jan 2011 20:10:32 GMT
ETag: "b2419b1e3fd45d596ee22bdf62aaaa2f"
Accept-Ranges: bytes
Content-Range: bytes 0-9/443
Content-Type: text/plain
Content-Length: 10
Server: AmazonS3
```

```
            [10 bytes of object data]
```

Sample Request for general purpose buckets: Get an object stored using server-side encryption with customer-provided encryption keys

If an object is stored in Amazon S3 using server-side encryption with customer-provided encryption keys, Amazon S3 needs encryption information so that it can decrypt the object before sending it to you in response to a GET request. You provide the encryption information in your GET request using the relevant headers, as shown in the following example request.

```
            GET /example-object HTTP/1.1
            Host: amzn-s3-demo-bucket.s3.<Region>.amazonaws.com

            Accept: */*
            Authorization:authorization string
            Date: Wed, 28 May 2014 19:24:44 +0000
            x-amz-server-side-encryption-customer-
key:g0lCfA3Dv40jZz5SQJ1ZukLRFqtI5WorC/8SEKEXAMPLE
            x-amz-server-side-encryption-customer-key-MD5:ZjQrne1X/iTcskbY2m3example
            x-amz-server-side-encryption-customer-algorithm:AES256
```

Sample Response for general purpose buckets

The following sample response shows some of the response headers Amazon S3 returns. Note that it includes the encryption information in the response.

```
            HTTP/1.1 200 OK
            x-amz-id-2: ka5jRm8X3N12ZiY29Z989zg2tNSJPMcK+to7jNjxImXBbyChqc6tLAv
+sau7Vjzh
            x-amz-request-id: 195157E3E073D3F9
            Date: Wed, 28 May 2014 19:24:45 GMT
            Last-Modified: Wed, 28 May 2014 19:21:01 GMT
            ETag: "c12022c9a3c6d3a28d29d90933a2b096"
            x-amz-server-side-encryption-customer-algorithm: AES256
            x-amz-server-side-encryption-customer-key-MD5: ZjQrne1X/iTcskbY2m3example
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetObjectAcl

Service: Amazon S3

Important

End of support notice: Beginning November 21, 2025, Amazon S3 will stop returning `DisplayName`. Update your applications to use canonical IDs (unique identifier for AWS accounts), AWS account ID (12 digit identifier) or IAM ARNs (full resource naming) as a direct replacement of `DisplayName`.

Between July 15, 2025 and November 21, 2025, you will begin to see an increasing rate of missing `DisplayName` in the Owner object.

This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

Note

This operation is not supported for directory buckets.

Returns the access control list (ACL) of an object. To use this operation, you must have `s3:GetObjectAcl` permissions or `READ_ACP` access to the object. For more information, see Mapping of ACL permissions and access policy permissions in the *Amazon S3 User Guide*

This functionality is not supported for Amazon S3 on Outposts.

By default, GET returns ACL information about the current version of an object. To return ACL information about a different version, use the versionId subresource.

Note

If your bucket uses the bucket owner enforced setting for S3 Object Ownership, requests to read ACLs are still supported and return the `bucket-owner-full-control` ACL with the owner being the account that created the bucket. For more information, see Controlling object ownership and disabling ACLs in the *Amazon S3 User Guide*.

The following operations are related to `GetObjectAcl`:

- GetObject
- GetObjectAttributes
- DeleteObject
- PutObject

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /{Key+}?acl&versionId=VersionId HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-request-payer: RequestPayer
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name that contains the object for which to get the ACL information.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

Required: Yes

Key

The key of the object for which to get the ACL information.

Length Constraints: Minimum length of 1.

Required: Yes

versionId

Version ID used to reference a specific version of the object.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-request-charged: RequestCharged
<?xml version="1.0" encoding="UTF-8"?>
<AccessControlPolicy>
   <Owner>
      <DisplayName>string</DisplayName>
      <ID>string</ID>
   </Owner>
   <AccessControlList>
      <Grant>
         <Grantee>
            <DisplayName>string</DisplayName>
            <EmailAddress>string</EmailAddress>
            <ID>string</ID>
            <xsi:type>string</xsi:type>
            <URI>string</URI>
         </Grantee>
         <Permission>string</Permission>
      </Grant>
   </AccessControlList>
</AccessControlPolicy>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

The following data is returned in XML format by the service.

AccessControlPolicy

Root level tag for the AccessControlPolicy parameters.

Required: Yes

Grants

A list of grants.

Type: Array of Grant data types

Owner

Container for the bucket owner's display name and ID.

Type: Owner data type

Errors

NoSuchKey

The specified key does not exist.

HTTP Status Code: 404

Examples

Sample Request

The following request returns information, including the ACL, of the object `my-image.jpg`.

```
GET /my-image.jpg?acl HTTP/1.1
Host: bucket.s3.<Region>.amazonaws.com
Date: Wed, 28 Oct 2009 22:32:00 GMT
Authorization: authorization string
```

Sample Response

This example illustrates one usage of GetObjectAcl.

```
            HTTP/1.1 200 OK
            x-amz-id-2:
 eftixk72aD6Ap51TnqcoF8eFidJG9Z/2mkiDFu8yU9AS1ed4OpIszj7UDNEHGran
            x-amz-request-id: 318BC8BC148832E5
            x-amz-version-id: 4HL4kqtJlcpXroDTDmJ+rmSpXd3dIbrHY+MTRCxf3vjVBH40Nrjfkd
            Date: Wed, 28 Oct 2009 22:32:00 GMT
            Last-Modified: Sun, 1 Jan 2006 12:00:00 GMT
            Content-Length: 124
            Content-Type: text/plain
            Connection: close
            Server: AmazonS3

            <AccessControlPolicy>
              <Owner>
                <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</
ID>
                <DisplayName>mtd@amazon.com</DisplayName>
              </Owner>
              <AccessControlList>
                <Grant>
                 <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

 <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
                   <DisplayName>mtd@amazon.com</DisplayName>
                   <Type>CanonicalUser</Type>
                  </Grantee>
                  <Permission>FULL_CONTROL</Permission>
               </Grant>
              </AccessControlList>
            </AccessControlPolicy>
```

Sample Request: Getting the ACL of the specific version of an object

The following request returns information, including the ACL, of the specified version of the object, my-image.jpg.

```
            GET /my-image.jpg?versionId=3/L4kqtJlcpXroDVBH40Nr8X8gdRQBpUMLUo&acl
 HTTP/1.1
            Host: bucket.s3.<Region>.amazonaws.com
```

```
            Date: Wed, 28 Oct 2009 22:32:00 GMT
            Authorization: authorization string
```

Sample Response: Showing the ACL of the specific version

This example illustrates one usage of GetObjectAcl.

```
            HTTP/1.1 200 OK
            x-amz-id-2:
 eftixk72aD6Ap51TnqcoF8eFidJG9Z/2mkiDFu8yU9AS1ed4OpIszj7UDNEHGran
            x-amz-request-id: 318BC8BC148832E5
            Date: Wed, 28 Oct 2009 22:32:00 GMT
            Last-Modified: Sun, 1 Jan 2006 12:00:00 GMT
            x-amz-version-id: 3/L4kqtJlcpXroDTDmJ+rmSpXd3dIbrHY
+MTRCxf3vjVBH40Nr8X8gdRQBpUMLUo
            Content-Length: 124
            Content-Type: text/plain
            Connection: close
            Server: AmazonS3

            <AccessControlPolicy>
             <Owner>
               <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</
ID>
               <DisplayName>mdtd@amazon.com</DisplayName>
             </Owner>
             <AccessControlList>
               <Grant>
                 <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

 <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
                   <DisplayName>mdtd@amazon.com</DisplayName>
                   <Type>CanonicalUser</Type>
                 </Grantee>
                 <Permission>FULL_CONTROL</Permission>
               </Grant>
             </AccessControlList>
            </AccessControlPolicy>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetObjectAttributes

Service: Amazon S3

Retrieves all of the metadata from an object without returning the object itself. This operation is useful if you're interested only in an object's metadata.

`GetObjectAttributes` combines the functionality of `HeadObject` and `ListParts`. All of the data returned with both of those individual calls can be returned with a single call to `GetObjectAttributes`.

> **Note**
>
> **Directory buckets** - For directory buckets, you must make requests for this API operation to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://amzn-s3-demo-bucket.s3express-zone-id.region-code.amazonaws.com/key-name` . Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Permissions

- **General purpose bucket permissions** - To use `GetObjectAttributes`, you must have READ access to the object.

  The other permissions that you need to use this operation depend on whether the bucket is versioned and if a version ID is passed in the `GetObjectAttributes` request.

  - If you pass a version ID in your request, you need both the `s3:GetObjectVersion` and `s3:GetObjectVersionAttributes` permissions.
  - If you do not pass a version ID in your request, you need the `s3:GetObject` and `s3:GetObjectAttributes` permissions.

  For more information, see Specifying Permissions in a Policy in the *Amazon S3 User Guide*.

  If the object that you request does not exist, the error Amazon S3 returns depends on whether you also have the `s3:ListBucket` permission.

- If you have the `s3:ListBucket` permission on the bucket, Amazon S3 returns an HTTP status code `404 Not Found` ("no such key") error.
- If you don't have the `s3:ListBucket` permission, Amazon S3 returns an HTTP status code `403 Forbidden` ("access denied") error.

- **Directory bucket permissions** - To grant access to this API operation on a directory bucket, we recommend that you use the `CreateSession` API operation for session-based authorization. Specifically, you grant the `s3express:CreateSession` permission to the directory bucket in a bucket policy or an IAM identity-based policy. Then, you make the `CreateSession` API call on the bucket to obtain a session token. With the session token in your request header, you can make API requests to this operation. After the session token expires, you make another `CreateSession` API call to generate a new session token for use. AWS CLI or SDKs create session and refresh the session token automatically to avoid service interruptions when a session expires. For more information about authorization, see `CreateSession`.

  If the object is encrypted with SSE-KMS, you must also have the `kms:GenerateDataKey` and `kms:Decrypt` permissions in IAM identity-based policies and AWS KMS key policies for the AWS KMS key.

Encryption

> **Note**
>
> Encryption request headers, like `x-amz-server-side-encryption`, should not be sent for HEAD requests if your object uses server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS), dual-layer server-side encryption with AWS KMS keys (DSSE-KMS), or server-side encryption with Amazon S3 managed encryption keys (SSE-S3). The `x-amz-server-side-encryption` header is used when you PUT an object to S3 and want to specify the encryption method. If you include this header in a GET request for an object that uses these types of keys, you'll get an HTTP `400 Bad Request` error. It's because the encryption method can't be changed when you retrieve the object.

If you encrypted an object when you stored the object in Amazon S3 by using server-side encryption with customer-provided encryption keys (SSE-C), then when you retrieve the

metadata from the object, you must use the following headers. These headers provide the server with the encryption key required to retrieve the object's metadata. The headers are:

- `x-amz-server-side-encryption-customer-algorithm`
- `x-amz-server-side-encryption-customer-key`
- `x-amz-server-side-encryption-customer-key-MD5`

For more information about SSE-C, see Server-Side Encryption (Using Customer-Provided Encryption Keys) in the *Amazon S3 User Guide*.

> **Note**
>
> **Directory bucket permissions** - For directory buckets, there are only two supported options for server-side encryption: server-side encryption with Amazon S3 managed keys (SSE-S3) (`AES256`) and server-side encryption with AWS KMS keys (SSE-KMS) (`aws:kms`). We recommend that the bucket's default encryption uses the desired encryption configuration and you don't override the bucket default encryption in your `CreateSession` requests or PUT object requests. Then, new objects are automatically encrypted with the desired encryption settings. For more information, see Protecting data with server-side encryption in the *Amazon S3 User Guide*. For more information about the encryption overriding behaviors in directory buckets, see Specifying server-side encryption with AWS KMS for new object uploads.

Versioning

Directory buckets - S3 Versioning isn't enabled and supported for directory buckets. For this API operation, only the `null` value of the version ID is supported by directory buckets. You can only specify `null` to the `versionId` query parameter in the request.

Conditional request headers

Consider the following when using request headers:

- If both of the `If-Match` and `If-Unmodified-Since` headers are present in the request as follows, then Amazon S3 returns the HTTP status code `200 OK` and the data requested:
  - `If-Match` condition evaluates to `true`.
  - `If-Unmodified-Since` condition evaluates to `false`.

  For more information about conditional requests, see RFC 7232.

- If both of the `If-None-Match` and `If-Modified-Since` headers are present in the request as follows, then Amazon S3 returns the HTTP status code `304 Not Modified`:
  - `If-None-Match` condition evaluates to `false`.
  - `If-Modified-Since` condition evaluates to `true`.

  For more information about conditional requests, see RFC 7232.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is *`Bucket-name`*`.s3express-`*`zone-id`*`.`*`region-code`*`.amazonaws.com`.

The following actions are related to `GetObjectAttributes`:

- GetObject
- GetObjectAcl
- GetObjectLegalHold
- GetObjectLockConfiguration
- GetObjectRetention
- GetObjectTagging
- HeadObject
- ListParts

Important

You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /{Key+}?attributes&versionId=VersionId HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-max-parts: MaxParts
x-amz-part-number-marker: PartNumberMarker
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
```

```
x-amz-server-side-encryption-customer-key: SSECustomerKey
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-request-payer: RequestPayer
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-object-attributes: ObjectAttributes
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket that contains the object.

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format `Bucket-name.s3express-zone-id.region-code.amazonaws.com`. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format `bucket-base-name--zone-id--x-s3` (for example, `amzn-s3-demo-bucket--usw2-az1--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`.

When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

Key

The object key.

Length Constraints: Minimum length of 1.

Required: Yes

versionId

The version ID used to reference a specific version of the object.

> **Note**
>
> S3 Versioning isn't enabled and supported for directory buckets. For this API operation, only the `null` value of the version ID is supported by directory buckets. You can only specify `null` to the `versionId` query parameter in the request.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-max-parts

Sets the maximum number of parts to return. For more information, see Uploading and copying objects using multipart upload in Amazon S3 in the *Amazon Simple Storage Service user guide*.

x-amz-object-attributes

Specifies the fields at the root level that you want returned in the response. Fields that you do not specify are not returned.

Valid Values: `ETag | Checksum | ObjectParts | StorageClass | ObjectSize`

Required: Yes

x-amz-part-number-marker

Specifies the part after which listing should begin. Only parts with higher part numbers will be listed. For more information, see Uploading and copying objects using multipart upload in Amazon S3 in the *Amazon Simple Storage Service user guide*.

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-server-side-encryption-customer-algorithm

Specifies the algorithm to use when encrypting the object (for example, AES256).

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key

Specifies the customer-provided encryption key for Amazon S3 to use in encrypting data. This value is used to store the object and then it is discarded; Amazon S3 does not store the encryption key. The key must be appropriate for use with the algorithm specified in the `x-amz-server-side-encryption-customer-algorithm` header.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key-MD5

Specifies the 128-bit MD5 digest of the encryption key according to RFC 1321. Amazon S3 uses this header for a message integrity check to ensure that the encryption key was transmitted without error.

> **Note**
>
> This functionality is not supported for directory buckets.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-delete-marker: DeleteMarker
Last-Modified: LastModified
x-amz-version-id: VersionId
x-amz-request-charged: RequestCharged
<?xml version="1.0" encoding="UTF-8"?>
<GetObjectAttributesResponse>
   <ETag>string</ETag>
   <Checksum>
      <ChecksumCRC32>string</ChecksumCRC32>
      <ChecksumCRC32C>string</ChecksumCRC32C>
      <ChecksumCRC64NVME>string</ChecksumCRC64NVME>
      <ChecksumSHA1>string</ChecksumSHA1>
      <ChecksumSHA256>string</ChecksumSHA256>
      <ChecksumType>string</ChecksumType>
   </Checksum>
   <ObjectParts>
      <IsTruncated>boolean</IsTruncated>
      <MaxParts>integer</MaxParts>
      <NextPartNumberMarker>integer</NextPartNumberMarker>
      <PartNumberMarker>integer</PartNumberMarker>
      <Part>
         <ChecksumCRC32>string</ChecksumCRC32>
         <ChecksumCRC32C>string</ChecksumCRC32C>
         <ChecksumCRC64NVME>string</ChecksumCRC64NVME>
         <ChecksumSHA1>string</ChecksumSHA1>
```

```
            <ChecksumSHA256>string</ChecksumSHA256>
            <PartNumber>integer</PartNumber>
            <Size>long</Size>
        </Part>
        ...
        <PartsCount>integer</PartsCount>
    </ObjectParts>
    <StorageClass>string</StorageClass>
    <ObjectSize>long</ObjectSize>
</GetObjectAttributesResponse>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

Last-Modified

Date and time when the object was last modified.

x-amz-delete-marker

Specifies whether the object retrieved was (`true`) or was not (`false`) a delete marker. If `false`, this response header does not appear in the response. To learn more about delete markers, see Working with delete markers.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-version-id

The version ID of the object.

> **Note**
>
> This functionality is not supported for directory buckets.

The following data is returned in XML format by the service.

GetObjectAttributesResponse

Root level tag for the GetObjectAttributesResponse parameters.

Required: Yes

Checksum

The checksum or digest of the object.

Type: Checksum data type

ETag

An ETag is an opaque identifier assigned by a web server to a specific version of a resource found at a URL.

Type: String

ObjectParts

A collection of parts associated with a multipart upload.

Type: GetObjectAttributesParts data type

ObjectSize

The size of the object in bytes.

Type: Long

StorageClass

Provides the storage class information of the object. Amazon S3 returns this header for all objects except for S3 Standard storage class objects.

For more information, see Storage Classes.

> **Note**
>
> **Directory buckets** - Directory buckets only support `EXPRESS_ONEZONE` (the S3 Express One Zone storage class) in Availability Zones and `ONEZONE_IA` (the S3 One Zone-Infrequent Access storage class) in Dedicated Local Zones.

Type: String

Valid Values: `STANDARD | REDUCED_REDUNDANCY | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | GLACIER | DEEP_ARCHIVE | OUTPOSTS | GLACIER_IR | SNOW | EXPRESS_ONEZONE | FSX_OPENZFS`

Errors

NoSuchKey

The specified key does not exist.

HTTP Status Code: 404

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python

- AWS SDK for Ruby V3

GetObjectLegalHold

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Gets an object's current legal hold status. For more information, see Locking Objects.

This functionality is not supported for Amazon S3 on Outposts.

The following action is related to `GetObjectLegalHold`:

- GetObjectAttributes

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /{Key+}?legal-hold&versionId=VersionId HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-request-payer: RequestPayer
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name containing the object whose legal hold status you want to retrieve.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access

point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

Required: Yes

Key

The key name for the object whose legal hold status you want to retrieve.

Length Constraints: Minimum length of 1.

Required: Yes

versionId

The version ID of the object whose legal hold status you want to retrieve.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<LegalHold>
   <Status>string</Status>
</LegalHold>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

LegalHold

Root level tag for the LegalHold parameters.

Required: Yes

Status

Indicates whether the specified object has a legal hold in place.

Type: String

Valid Values: `ON` | `OFF`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2

- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetObjectLockConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Gets the Object Lock configuration for a bucket. The rule specified in the Object Lock configuration will be applied by default to every new object placed in the specified bucket. For more information, see Locking Objects.

The following action is related to `GetObjectLockConfiguration`:

- GetObjectAttributes

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?object-lock HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket whose Object Lock configuration you want to retrieve.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must

provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ObjectLockConfiguration>
   <ObjectLockEnabled>string</ObjectLockEnabled>
   <Rule>
      <DefaultRetention>
         <Days>integer</Days>
         <Mode>string</Mode>
         <Years>integer</Years>
      </DefaultRetention>
   </Rule>
</ObjectLockConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ObjectLockConfiguration

Root level tag for the ObjectLockConfiguration parameters.

Required: Yes

ObjectLockEnabled

Indicates whether this bucket has an Object Lock configuration enabled. Enable `ObjectLockEnabled` when you apply `ObjectLockConfiguration` to a bucket.

Type: String

Valid Values: `Enabled`

Rule

Specifies the Object Lock rule for the specified object. Enable the this rule when you apply `ObjectLockConfiguration` to a bucket. Bucket settings require both a mode and a period. The period can be either `Days` or `Years` but you must select one. You cannot specify `Days` and `Years` at the same time.

Type: ObjectLockRule data type

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetObjectRetention

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Retrieves an object's retention settings. For more information, see Locking Objects.

This functionality is not supported for Amazon S3 on Outposts.

The following action is related to `GetObjectRetention`:

- GetObjectAttributes

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /{Key+}?retention&versionId=VersionId HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-request-payer: RequestPayer
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name containing the object whose retention settings you want to retrieve.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access

point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

Required: Yes

Key

The key name for the object whose retention settings you want to retrieve.

Length Constraints: Minimum length of 1.

Required: Yes

versionId

The version ID for the object whose retention settings you want to retrieve.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<Retention>
   <Mode>string</Mode>
   <RetainUntilDate>timestamp</RetainUntilDate>
</Retention>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

Retention

Root level tag for the Retention parameters.

Required: Yes

Mode

Indicates the Retention mode for the specified object.

Type: String

Valid Values: `GOVERNANCE | COMPLIANCE`

RetainUntilDate

The date on which this Object Lock Retention will expire.

Type: Timestamp

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetObjectTagging

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Returns the tag-set of an object. You send the GET request against the tagging subresource associated with the object.

To use this operation, you must have permission to perform the `s3:GetObjectTagging` action. By default, the GET action returns information about current version of an object. For a versioned bucket, you can have multiple versions of an object in your bucket. To retrieve tags of any other version, use the versionId query parameter. You also need permission for the `s3:GetObjectVersionTagging` action.

By default, the bucket owner has this permission and can grant this permission to others.

For information about the Amazon S3 object tagging feature, see Object Tagging.

The following actions are related to `GetObjectTagging`:

- DeleteObjectTagging
- GetObjectAttributes
- PutObjectTagging

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /{Key+}?tagging&versionId=VersionId HTTP/1.1
Host: Bucket.s3.amazonaws.com
```

```
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-request-payer: RequestPayer
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name containing the object for which to get the tagging information.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

Key

Object key for which to get the tagging information.

Length Constraints: Minimum length of 1.

Required: Yes

versionId

The versionId of the object for which to get the tagging information.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-version-id: VersionId
<?xml version="1.0" encoding="UTF-8"?>
<Tagging>
   <TagSet>
      <Tag>
         <Key>string</Key>
         <Value>string</Value>
      </Tag>
   </TagSet>
</Tagging>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-version-id

The versionId of the object for which you got the tagging information.

The following data is returned in XML format by the service.

Tagging

Root level tag for the Tagging parameters.

Required: Yes

TagSet

Contains the tag set.

Type: Array of Tag data types

Examples

Sample Request

The following request returns the tag set of the specified object.

```
GET /example-object?tagging HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
Date: Thu, 22 Sep 2016 21:33:08 GMT
Authorization: authorization string
```

Sample Response

This example illustrates one usage of GetObjectTagging.

```
HTTP/1.1 200 OK
Date: Thu, 22 Sep 2016 21:33:08 GMT
Connection: close
Server: AmazonS3
```

```
<?xml version="1.0" encoding="UTF-8"?>
<Tagging xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <TagSet>
     <Tag>
       <Key>tag1</Key>
       <Value>val1</Value>
    </Tag>
    <Tag>
        <Key>tag2</Key>
        <Value>val2</Value>
     </Tag>
  </TagSet>
</Tagging>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetObjectTorrent

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Returns torrent files from a bucket. BitTorrent can save you bandwidth when you're distributing large files.

> **Note**
>
> You can get torrent only for objects that are less than 5 GB in size, and that are not encrypted using server-side encryption with a customer-provided encryption key.

To use GET, you must have READ access to the object.

This functionality is not supported for Amazon S3 on Outposts.

The following action is related to `GetObjectTorrent`:

- GetObject

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /{Key+}?torrent HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-request-payer: RequestPayer
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket containing the object for which to get the torrent files.

Required: Yes

Key

The object key for which to get the information.

Length Constraints: Minimum length of 1.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-request-charged: RequestCharged

Body
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

The following data is returned in binary format by the service.
<varlistentry> **Body** </varlistentry>

Examples

Getting torrent files in a bucket

This example retrieves the `Torrent` file for the `Nelson` object in the `quotes` bucket.

```
GET /quotes/Nelson?torrent HTTP/1.0
Host: bucket.s3.<Region>.amazonaws.com
Date: Wed, 28 Oct 2009 22:32:00 GMT
Authorization: authorization string
```

Sample Response

This example illustrates one usage of GetObjectTorrent.

```
HTTP/1.1 200 OK
x-amz-request-id: 7CD745EBB7AB5ED9
Date: Wed, 25 Nov 2009 12:00:00 GMT
Content-Disposition: attachment; filename=Nelson.torrent;
Content-Type: application/x-bittorrent
Content-Length: 537
Server: AmazonS3

<body: a Bencoded dictionary as defined by the BitTorrent specification>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetPublicAccessBlock

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Retrieves the `PublicAccessBlock` configuration for an Amazon S3 bucket. To use this operation, you must have the `s3:GetBucketPublicAccessBlock` permission. For more information about Amazon S3 permissions, see Specifying Permissions in a Policy.

> **Important**
>
> When Amazon S3 evaluates the `PublicAccessBlock` configuration for a bucket or an object, it checks the `PublicAccessBlock` configuration for both the bucket (or the bucket that contains the object) and the bucket owner's account. If the `PublicAccessBlock` settings are different between the bucket and the account, Amazon S3 uses the most restrictive combination of the bucket-level and account-level settings.

For more information about when Amazon S3 considers a bucket or an object public, see The Meaning of "Public".

The following operations are related to `GetPublicAccessBlock`:

- Using Amazon S3 Block Public Access
- PutPublicAccessBlock
- GetPublicAccessBlock
- DeletePublicAccessBlock

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?publicAccessBlock HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the Amazon S3 bucket whose `PublicAccessBlock` configuration you want to retrieve.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<PublicAccessBlockConfiguration>
   <BlockPublicAcls>boolean</BlockPublicAcls>
   <IgnorePublicAcls>boolean</IgnorePublicAcls>
   <BlockPublicPolicy>boolean</BlockPublicPolicy>
   <RestrictPublicBuckets>boolean</RestrictPublicBuckets>
</PublicAccessBlockConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

PublicAccessBlockConfiguration

Root level tag for the PublicAccessBlockConfiguration parameters.

Required: Yes

BlockPublicAcls

Specifies whether Amazon S3 should block public access control lists (ACLs) for this bucket and objects in this bucket. Setting this element to TRUE causes the following behavior:

- PUT Bucket ACL and PUT Object ACL calls fail if the specified ACL is public.
- PUT Object calls fail if the request includes a public ACL.
- PUT Bucket calls fail if the request includes a public ACL.

Enabling this setting doesn't affect existing policies or ACLs.

Type: Boolean

BlockPublicPolicy

Specifies whether Amazon S3 should block public bucket policies for this bucket. Setting this element to TRUE causes Amazon S3 to reject calls to PUT Bucket policy if the specified bucket policy allows public access.

Enabling this setting doesn't affect existing bucket policies.

Type: Boolean

IgnorePublicAcls

Specifies whether Amazon S3 should ignore public ACLs for this bucket and objects in this bucket. Setting this element to TRUE causes Amazon S3 to ignore all public ACLs on this bucket and objects in this bucket.

Enabling this setting doesn't affect the persistence of any existing ACLs and doesn't prevent new public ACLs from being set.

Type: Boolean

RestrictPublicBuckets

Specifies whether Amazon S3 should restrict public bucket policies for this bucket. Setting this element to TRUE restricts access to this bucket to only AWS service principals and authorized users within this account if the bucket has a public policy.

Enabling this setting doesn't affect previously stored bucket policies, except that public and cross-account access within any public bucket policy, including non-public delegation to specific accounts, is blocked.

Type: Boolean

Examples

Sample Request

The following request gets a bucket `PublicAccessBlock` configuration.

```
GET /<bucket-name>?publicAccessBlock HTTP/1.1
Host: <bucket-name>.s3.<Region>.amazonaws.com
x-amz-date: <Thu, 15 Nov 2016 00:17:21 GMT>
Authorization: <signatureValue>
```

Sample Response

This example illustrates one usage of GetPublicAccessBlock.

```
HTTP/1.1 200 OK
x-amz-id-2: ITnGT1y4REXAMPLEPi4hklTXouTf0hccUjo0iCPEXAMPLEutBj3M7fPGlWO2SEWp
x-amz-request-id: 51991EXAMPLE5321
Date: Thu, 15 Nov 2016 00:17:22 GMT
Server: AmazonS3
Content-Length: 0

<PublicAccessBlockConfiguration>
   <BlockPublicAcls>TRUE</BlockPublicAcls>
   <IgnorePublicAcls>FALSE</IgnorePublicAcls>
   <BlockPublicPolicy>FALSE</BlockPublicPolicy>
   <RestrictPublicBuckets>FALSE</RestrictPublicBuckets>
</PublicAccessBlockConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

HeadBucket

Service: Amazon S3

You can use this operation to determine if a bucket exists and if you have permission to access it. The action returns a `200 OK` HTTP status code if the bucket exists and you have permission to access it. You can make a `HeadBucket` call on any bucket name to any Region in the partition, and regardless of the permissions on the bucket, you will receive a response header with the correct bucket location so that you can then make a proper, signed request to the appropriate Regional endpoint.

> **Note**
>
> If the bucket doesn't exist or you don't have permission to access it, the HEAD request returns a generic `400 Bad Request`, `403 Forbidden`, or `404 Not Found` HTTP status code. A message body isn't included, so you can't determine the exception beyond these HTTP response codes.

Authentication and authorization

General purpose buckets - Request to public buckets that grant the s3:ListBucket permission publicly do not need to be signed. All other `HeadBucket` requests must be authenticated and signed by using IAM credentials (access key ID and secret access key for the IAM identities). All headers with the `x-amz-` prefix, including `x-amz-copy-source`, must be signed. For more information, see REST Authentication.

Directory buckets - You must use IAM credentials to authenticate and authorize your access to the `HeadBucket` API operation, instead of using the temporary security credentials through the `CreateSession` API operation.

AWS CLI or SDKs handles authentication and authorization on your behalf.

Permissions

- **General purpose bucket permissions** - To use this operation, you must have permissions to perform the `s3:ListBucket` action. The bucket owner has this permission by default and can grant this permission to others. For more information about permissions, see Managing access permissions to your Amazon S3 resources in the *Amazon S3 User Guide*.
- **Directory bucket permissions** - You must have the **`s3express:CreateSession`** permission in the `Action` element of a policy. By default, the session is in the `ReadWrite`

mode. If you want to restrict the access, you can explicitly set the `s3express:SessionMode` condition key to `ReadOnly` on the bucket.

For more information about example bucket policies, see Example bucket policies for S3 Express One Zone and AWS Identity and Access Management (IAM) identity-based policies for S3 Express One Zone in the *Amazon S3 User Guide*.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `Bucket-name.s3express-zone-id.region-code.amazonaws.com`.

> **Note**
>
> You must make requests for this API operation to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://bucket-name.s3express-zone-id.region-code.amazonaws.com`. Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
HEAD / HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name.

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format *Bucket-name*.s3express-*zone-id*.*region-code*.amazonaws.com. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format *bucket-base-name*--*zone-id*--x-s3 (for example, *amzn-s3-demo-bucket*--*usw2-az1*--x-s3). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

Object Lambda access points - When you use this API operation with an Object Lambda access point, provide the alias of the Object Lambda access point in place of the bucket name. If the Object Lambda access point alias in a request is not valid, the error code `InvalidAccessPointAliasError` is returned. For more information about `InvalidAccessPointAliasError`, see List of Error Codes.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form *AccessPointName-AccountId*.*outpostID*.s3-outposts.*Region*.amazonaws.com. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-bucket-arn: BucketArn
x-amz-bucket-location-type: BucketLocationType
x-amz-bucket-location-name: BucketLocationName
x-amz-bucket-region: BucketRegion
x-amz-access-point-alias: AccessPointAlias
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-access-point-alias

Indicates whether the bucket name used in the request is an access point alias.

> **Note**
>
> For directory buckets, the value of this field is `false`.

x-amz-bucket-arn

The Amazon Resource Name (ARN) of the S3 bucket. ARNs uniquely identify AWS resources across all of AWS.

> **Note**
>
> This parameter is only supported for S3 directory buckets. For more information, see Using tags with directory buckets.

Length Constraints: Minimum length of 1. Maximum length of 128.

Pattern: `arn:[^:]+:(s3|s3express):.*`

x-amz-bucket-location-name

The name of the location where the bucket will be created.

For directory buckets, the Zone ID of the Availability Zone or the Local Zone where the bucket is created. An example Zone ID value for an Availability Zone is `usw2-az1`.

> **Note**
>
> This functionality is only supported by directory buckets.

x-amz-bucket-location-type

The type of location where the bucket is created.

> **Note**
>
> This functionality is only supported by directory buckets.

Valid Values: `AvailabilityZone | LocalZone`

x-amz-bucket-region

The Region that the bucket is located.

Length Constraints: Minimum length of 0. Maximum length of 20.

Errors

NoSuchBucket

The specified bucket does not exist.

HTTP Status Code: 404

Examples

Sample Request for general purpose buckets

This example illustrates one usage of HeadBucket.

```
HEAD / HTTP/1.1
Date: Fri, 10 Feb 2012 21:34:55 GMT
Authorization: authorization string
Host: myawsbucket.s3.amazonaws.com
Connection: Keep-Alive
```

Sample responses for general purpose buckets

This example illustrates one usage of HeadBucket.

```
HTTP/1.1 200 OK
x-amz-id-2: wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY
x-amz-request-id: 28PG2CEB32F5EE25
x-amz-bucket-region: us-west-2
x-amz-access-point-alias: false
Date: Fri, 10 2012 21:34:56 GMT
Server: AmazonS3
```

```
HTTP/1.1 301 Moved Permanantly
x-amz-id-2: wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY
x-amz-request-id: M8H3G2AJ0V6NQ8AJ
Date: Tue, 06 May 2025 21:29:41 GMT
```

```
x-amz-bucket-region: us-east-1
x-amz-access-point-alias: false
Server: AmazonS3
```

```
HTTP/1.1 403 Forbidden
x-amz-bucket-region: us-east-1
x-amz-request-id: P6K9QSW8EN5YEPS
x-amz-id-2: wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY
Date: Tue, 06 May 2025 21:24:51 GMT
Server: AmazonS3
```

Example of anonymous request response

This example illustrates one usage of HeadBucket.

```
HTTP/1.1 403 Forbidden
x-amz-bucket-region: us-east-1
x-amz-request-id: 7B3WF90PGN6J8F2
x-amz-id-2: wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY
Date: Tue, 06 May 2025 21:55:02
GMT Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin

- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

HeadObject

Service: Amazon S3

The HEAD operation retrieves metadata from an object without returning the object itself. This operation is useful if you're interested only in an object's metadata.

> **Note**
>
> A HEAD request has the same options as a GET operation on an object. The response is identical to the GET response except that there is no response body. Because of this, if the HEAD request generates an error, it returns a generic code, such as `400 Bad Request`, `403 Forbidden`, `404 Not Found`, `405 Method Not Allowed`, `412 Precondition Failed`, or `304 Not Modified`. It's not possible to retrieve the exact exception of these error codes.

Request headers are limited to 8 KB in size. For more information, see Common Request Headers.

Permissions

- **General purpose bucket permissions** - To use HEAD, you must have the `s3:GetObject` permission. You need the relevant read object (or version) permission for this operation. For more information, see Actions, resources, and condition keys for Amazon S3 in the *Amazon S3 User Guide*. For more information about the permissions to S3 API operations by S3 resource types, see Required permissions for Amazon S3 API operations in the *Amazon S3 User Guide*.

  If the object you request doesn't exist, the error that Amazon S3 returns depends on whether you also have the `s3:ListBucket` permission.

  - If you have the `s3:ListBucket` permission on the bucket, Amazon S3 returns an HTTP status code `404 Not Found` error.
  - If you don't have the `s3:ListBucket` permission, Amazon S3 returns an HTTP status code `403 Forbidden` error.
- **Directory bucket permissions** - To grant access to this API operation on a directory bucket, we recommend that you use the `CreateSession` API operation for session-based authorization. Specifically, you grant the `s3express:CreateSession` permission to the directory bucket in a bucket policy or an IAM identity-based policy. Then, you make the `CreateSession` API call on the bucket to obtain a session token. With the session token in

your request header, you can make API requests to this operation. After the session token expires, you make another `CreateSession` API call to generate a new session token for use. AWS CLI or SDKs create session and refresh the session token automatically to avoid service interruptions when a session expires. For more information about authorization, see `CreateSession`.

If you enable `x-amz-checksum-mode` in the request and the object is encrypted with AWS Key Management Service (AWS KMS), you must also have the `kms:GenerateDataKey` and `kms:Decrypt` permissions in IAM identity-based policies and AWS KMS key policies for the AWS KMS key to retrieve the checksum of the object.

Encryption

> **Note**
>
> Encryption request headers, like `x-amz-server-side-encryption`, should not be sent for HEAD requests if your object uses server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS), dual-layer server-side encryption with AWS KMS keys (DSSE-KMS), or server-side encryption with Amazon S3 managed encryption keys (SSE-S3). The `x-amz-server-side-encryption` header is used when you PUT an object to S3 and want to specify the encryption method. If you include this header in a HEAD request for an object that uses these types of keys, you'll get an HTTP `400 Bad Request` error. It's because the encryption method can't be changed when you retrieve the object.

If you encrypt an object by using server-side encryption with customer-provided encryption keys (SSE-C) when you store the object in Amazon S3, then when you retrieve the metadata from the object, you must use the following headers to provide the encryption key for the server to be able to retrieve the object's metadata. The headers are:

- `x-amz-server-side-encryption-customer-algorithm`
- `x-amz-server-side-encryption-customer-key`
- `x-amz-server-side-encryption-customer-key-MD5`

For more information about SSE-C, see Server-Side Encryption (Using Customer-Provided Encryption Keys) in the *Amazon S3 User Guide*.

> **Note**
>
> **Directory bucket** - For directory buckets, there are only two supported options for server-side encryption: SSE-S3 and SSE-KMS. SSE-C isn't supported. For more information, see Protecting data with server-side encryption in the *Amazon S3 User Guide*.

Versioning

- If the current version of the object is a delete marker, Amazon S3 behaves as if the object was deleted and includes `x-amz-delete-marker: true` in the response.
- If the specified version is a delete marker, the response returns a `405 Method Not Allowed` error and the `Last-Modified: timestamp` response header.

> **Note**
>
> - **Directory buckets** - Delete marker is not supported for directory buckets.
> - **Directory buckets** - S3 Versioning isn't enabled and supported for directory buckets. For this API operation, only the `null` value of the version ID is supported by directory buckets. You can only specify `null` to the `versionId` query parameter in the request.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `Bucket-name.s3express-zone-id.region-code.amazonaws.com`.

> **Note**
>
> For directory buckets, you must make requests for this API operation to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://amzn-s3-demo-bucket.s3express-zone-id.region-code.amazonaws.com/key-name`. Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more

information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

The following actions are related to `HeadObject`:

- GetObject
- GetObjectAttributes

Important

You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
HEAD /Key+?partNumber=PartNumber&response-cache-control=ResponseCacheControl&response-
content-disposition=ResponseContentDisposition&response-
content-encoding=ResponseContentEncoding&response-content-
language=ResponseContentLanguage&response-content-type=ResponseContentType&response-
expires=ResponseExpires&versionId=VersionId HTTP/1.1
Host: Bucket.s3.amazonaws.com
If-Match: IfMatch
If-Modified-Since: IfModifiedSince
If-None-Match: IfNoneMatch
If-Unmodified-Since: IfUnmodifiedSince
Range: Range
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key: SSECustomerKey
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-request-payer: RequestPayer
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-checksum-mode: ChecksumMode
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket that contains the object.

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format `Bucket-name.s3express-zone-id.region-code.amazonaws.com`. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format `bucket-base-name--zone-id--x-s3` (for example, `amzn-s3-demo-bucket--usw2-az1--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

If-Match

Return the object only if its entity tag (ETag) is the same as the one specified; otherwise, return a 412 (precondition failed) error.

If both of the `If-Match` and `If-Unmodified-Since` headers are present in the request as follows:

- `If-Match` condition evaluates to `true`, and;
- `If-Unmodified-Since` condition evaluates to `false`;

Then Amazon S3 returns `200 OK` and the data requested.

For more information about conditional requests, see RFC 7232.

If-Modified-Since

Return the object only if it has been modified since the specified time; otherwise, return a 304 (not modified) error.

If both of the `If-None-Match` and `If-Modified-Since` headers are present in the request as follows:

- `If-None-Match` condition evaluates to `false`, and;
- `If-Modified-Since` condition evaluates to `true`;

Then Amazon S3 returns the `304 Not Modified` response code.

For more information about conditional requests, see RFC 7232.

If-None-Match

Return the object only if its entity tag (ETag) is different from the one specified; otherwise, return a 304 (not modified) error.

If both of the `If-None-Match` and `If-Modified-Since` headers are present in the request as follows:

- `If-None-Match` condition evaluates to `false`, and;
- `If-Modified-Since` condition evaluates to `true`;

Then Amazon S3 returns the `304 Not Modified` response code.

For more information about conditional requests, see RFC 7232.

If-Unmodified-Since

Return the object only if it has not been modified since the specified time; otherwise, return a 412 (precondition failed) error.

If both of the `If-Match` and `If-Unmodified-Since` headers are present in the request as follows:

- `If-Match` condition evaluates to `true`, and;
- `If-Unmodified-Since` condition evaluates to `false`;

Then Amazon S3 returns `200 OK` and the data requested.

For more information about conditional requests, see RFC 7232.

Key

The object key.

Length Constraints: Minimum length of 1.

Required: Yes

partNumber

Part number of the object being read. This is a positive integer between 1 and 10,000. Effectively performs a 'ranged' HEAD request for the part specified. Useful querying about the size of the part and the number of parts in this object.

Range

HeadObject returns only the metadata for an object. If the Range is satisfiable, only the `ContentLength` is affected in the response. If the Range is not satisfiable, S3 returns a `416 - Requested Range Not Satisfiable` error.

response-cache-control

Sets the `Cache-Control` header of the response.

response-content-disposition

Sets the `Content-Disposition` header of the response.

response-content-encoding

Sets the `Content-Encoding` header of the response.

response-content-language

Sets the `Content-Language` header of the response.

response-content-type

Sets the `Content-Type` header of the response.

response-expires

Sets the `Expires` header of the response.

versionId

Version ID used to reference a specific version of the object.

> **Note**
>
> For directory buckets in this API operation, only the `null` value of the version ID is supported.

x-amz-checksum-mode

To retrieve the checksum, this parameter must be enabled.

General purpose buckets - If you enable checksum mode and the object is uploaded with a checksum and encrypted with an AWS Key Management Service (AWS KMS) key, you must have permission to use the `kms:Decrypt` action to retrieve the checksum.

Directory buckets - If you enable `ChecksumMode` and the object is encrypted with AWS Key Management Service (AWS KMS), you must also have the `kms:GenerateDataKey` and `kms:Decrypt` permissions in IAM identity-based policies and AWS KMS key policies for the AWS KMS key to retrieve the checksum of the object.

Valid Values: `ENABLED`

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-server-side-encryption-customer-algorithm

Specifies the algorithm to use when encrypting the object (for example, AES256).

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key

Specifies the customer-provided encryption key for Amazon S3 to use in encrypting data. This value is used to store the object and then it is discarded; Amazon S3 does not store the encryption key. The key must be appropriate for use with the algorithm specified in the `x-amz-server-side-encryption-customer-algorithm` header.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key-MD5

Specifies the 128-bit MD5 digest of the encryption key according to RFC 1321. Amazon S3 uses this header for a message integrity check to ensure that the encryption key was transmitted without error.

> **Note**
>
> This functionality is not supported for directory buckets.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-delete-marker: DeleteMarker
accept-ranges: AcceptRanges
x-amz-expiration: Expiration
x-amz-restore: Restore
x-amz-archive-status: ArchiveStatus
Last-Modified: LastModified
Content-Length: ContentLength
x-amz-checksum-crc32: ChecksumCRC32
x-amz-checksum-crc32c: ChecksumCRC32C
x-amz-checksum-crc64nvme: ChecksumCRC64NVME
x-amz-checksum-sha1: ChecksumSHA1
x-amz-checksum-sha256: ChecksumSHA256
x-amz-checksum-type: ChecksumType
ETag: ETag
x-amz-missing-meta: MissingMeta
x-amz-version-id: VersionId
Cache-Control: CacheControl
Content-Disposition: ContentDisposition
Content-Encoding: ContentEncoding
Content-Language: ContentLanguage
Content-Type: ContentType
Content-Range: ContentRange
Expires: Expires
x-amz-website-redirect-location: WebsiteRedirectLocation
x-amz-server-side-encryption: ServerSideEncryption
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-server-side-encryption-aws-kms-key-id: SSEKMSKeyId
x-amz-server-side-encryption-bucket-key-enabled: BucketKeyEnabled
x-amz-storage-class: StorageClass
x-amz-request-charged: RequestCharged
x-amz-replication-status: ReplicationStatus
x-amz-mp-parts-count: PartsCount
x-amz-tagging-count: TagCount
x-amz-object-lock-mode: ObjectLockMode
x-amz-object-lock-retain-until-date: ObjectLockRetainUntilDate
```

```
x-amz-object-lock-legal-hold: ObjectLockLegalHoldStatus
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

accept-ranges

Indicates that a range of bytes was specified.

Cache-Control

Specifies caching behavior along the request/reply chain.

Content-Disposition

Specifies presentational information for the object.

Content-Encoding

Indicates what content encodings have been applied to the object and thus what decoding mechanisms must be applied to obtain the media-type referenced by the Content-Type header field.

Content-Language

The language the content is in.

Content-Length

Size of the body in bytes.

Content-Range

The portion of the object returned in the response for a GET request.

Content-Type

A standard MIME type describing the format of the object data.

ETag

An entity tag (ETag) is an opaque identifier assigned by a web server to a specific version of a resource found at a URL.

Expires

The date and time at which the object is no longer cacheable.

Last-Modified

Date and time when the object was last modified.

x-amz-archive-status

The archive state of the head object.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `ARCHIVE_ACCESS | DEEP_ARCHIVE_ACCESS`

x-amz-checksum-crc32

The Base64 encoded, 32-bit `CRC32 checksum` of the object. This checksum is only be present if the checksum was uploaded with the object. When you use an API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-crc32c

The Base64 encoded, 32-bit `CRC32C` checksum of the object. This checksum is only present if the checksum was uploaded with the object. When you use an API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-crc64nvme

The Base64 encoded, 64-bit `CRC64NVME` checksum of the object. For more information, see Checking object integrity in the Amazon S3 User Guide.

x-amz-checksum-sha1

The Base64 encoded, 160-bit `SHA1` digest of the object. This will only be present if the object was uploaded with the object. When you use the API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more

information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-sha256

The Base64 encoded, 256-bit SHA256 digest of the object. This will only be present if the object was uploaded with the object. When you use an API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-type

The checksum type, which determines how part-level checksums are combined to create an object-level checksum for multipart objects. You can use this header response to verify that the checksum type that is received is the same checksum type that was specified in `CreateMultipartUpload` request. For more information, see Checking object integrity in the Amazon S3 User Guide.

Valid Values: `COMPOSITE` | `FULL_OBJECT`

x-amz-delete-marker

Specifies whether the object retrieved was (true) or was not (false) a Delete Marker. If false, this response header does not appear in the response.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-expiration

If the object expiration is configured (see `PutBucketLifecycleConfiguration`), the response includes this header. It includes the `expiry-date` and `rule-id` key-value pairs providing object expiration information. The value of the `rule-id` is URL-encoded.

> **Note**
>
> Object expiration information is not returned in directory buckets and this header returns the value "`NotImplemented`" in all responses for directory buckets.

x-amz-missing-meta

This is set to the number of metadata entries not returned in `x-amz-meta` headers. This can happen if you create metadata using an API like SOAP that supports more flexible metadata than the REST API. For example, using SOAP, you can create metadata whose values are not legal HTTP headers.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-mp-parts-count

The count of parts this object has. This value is only returned if you specify `partNumber` in your request and the object was uploaded as a multipart upload.

x-amz-object-lock-legal-hold

Specifies whether a legal hold is in effect for this object. This header is only returned if the requester has the `s3:GetObjectLegalHold` permission. This header is not returned if the specified version of this object has never had a legal hold applied. For more information about S3 Object Lock, see Object Lock.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `ON` | `OFF`

x-amz-object-lock-mode

The Object Lock mode, if any, that's in effect for this object. This header is only returned if the requester has the `s3:GetObjectRetention` permission. For more information about S3 Object Lock, see Object Lock.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `GOVERNANCE | COMPLIANCE`

x-amz-object-lock-retain-until-date

The date and time when the Object Lock retention period expires. This header is only returned if the requester has the `s3:GetObjectRetention` permission.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-replication-status

Amazon S3 can return this header if your request involves a bucket that is either a source or a destination in a replication rule.

In replication, you have a source bucket on which you configure replication and destination bucket or buckets where Amazon S3 stores object replicas. When you request an object (`GetObject`) or object metadata (`HeadObject`) from these buckets, Amazon S3 will return the `x-amz-replication-status` header in the response as follows:

- **If requesting an object from the source bucket**, Amazon S3 will return the `x-amz-replication-status` header if the object in your request is eligible for replication.

  For example, suppose that in your replication configuration, you specify object prefix `TaxDocs` requesting Amazon S3 to replicate objects with key prefix `TaxDocs`. Any objects you upload with this key name prefix, for example `TaxDocs/document1.pdf`, are eligible for replication. For any object request with this key name prefix, Amazon S3 will return the `x-amz-replication-status` header with value PENDING, COMPLETED or FAILED indicating object replication status.
- **If requesting an object from a destination bucket**, Amazon S3 will return the `x-amz-replication-status` header with value REPLICA if the object in your request is a replica that Amazon S3 created and there is no replica modification replication in progress.
- **When replicating objects to multiple destination buckets**, the `x-amz-replication-status` header acts differently. The header of the source object will only return a value of COMPLETED when replication is successful to all destinations. The header will remain at value PENDING until replication has completed for all destinations. If one or more destinations fails replication the header will return FAILED.

For more information, see Replication.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `COMPLETE | PENDING | FAILED | REPLICA | COMPLETED`

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-restore

If the object is an archived object (an object whose storage class is GLACIER), the response includes this header if either the archive restoration is in progress (see RestoreObject or an archive copy is already restored.

If an archive copy is already restored, the header value indicates when Amazon S3 is scheduled to delete the object copy. For example:

```
x-amz-restore: ongoing-request="false", expiry-date="Fri, 21 Dec 2012
00:00:00 GMT"
```

If the object restoration is in progress, the header returns the value `ongoing-request="true"`.

For more information about archiving objects, see Transitioning Objects: General Considerations.

> **Note**
>
> This functionality is not supported for directory buckets. Directory buckets only support `EXPRESS_ONEZONE` (the S3 Express One Zone storage class) in Availability Zones and `ONEZONE_IA` (the S3 One Zone-Infrequent Access storage class) in Dedicated Local Zones.

x-amz-server-side-encryption

The server-side encryption algorithm used when you store this object in Amazon S3 or Amazon FSx.

> **Note**
>
> When accessing data stored in Amazon FSx file systems using S3 access points, the only valid server side encryption option is `aws:fsx`.

Valid Values: `AES256` | `aws:fsx` | `aws:kms` | `aws:kms:dsse`

x-amz-server-side-encryption-aws-kms-key-id

If present, indicates the ID of the KMS key that was used for object encryption.

x-amz-server-side-encryption-bucket-key-enabled

Indicates whether the object uses an S3 Bucket Key for server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS).

x-amz-server-side-encryption-customer-algorithm

If server-side encryption with a customer-provided encryption key was requested, the response will include this header to confirm the encryption algorithm that's used.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key-MD5

If server-side encryption with a customer-provided encryption key was requested, the response will include this header to provide the round-trip message integrity verification of the customer-provided encryption key.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-storage-class

Provides storage class information of the object. Amazon S3 returns this header for all objects except for S3 Standard storage class objects.

For more information, see Storage Classes.

> **Note**
>
> **Directory buckets** - Directory buckets only support `EXPRESS_ONEZONE` (the S3 Express One Zone storage class) in Availability Zones and `ONEZONE_IA` (the S3 One Zone-Infrequent Access storage class) in Dedicated Local Zones.

Valid Values: `STANDARD | REDUCED_REDUNDANCY | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | GLACIER | DEEP_ARCHIVE | OUTPOSTS | GLACIER_IR | SNOW | EXPRESS_ONEZONE | FSX_OPENZFS`

x-amz-tagging-count

The number of tags, if any, on the object, when you have the relevant permission to read object tags.

You can use GetObjectTagging to retrieve the tag set associated with an object.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-version-id

Version ID of the object.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-website-redirect-location

If the bucket is configured as a website, redirects requests for this object to another object in the same bucket or to an external URL. Amazon S3 stores the value of this header in the object metadata.

> **Note**
>
> This functionality is not supported for directory buckets.

Errors

NoSuchKey

The specified key does not exist.

HTTP Status Code: 404

Examples

Sample Request for general purpose buckets

The following request returns the metadata of an object.

```
HEAD /my-image.jpg HTTP/1.1
Host: bucket.s3.<Region>.amazonaws.com
Date: Wed, 28 Oct 2009 22:32:00 GMT
Authorization: AWS AKIAIOSFODNN7EXAMPLE:02236Q3V0RonhpaBX5sCYVf1bNRuU=
```

Sample Response for general purpose buckets

This example illustrates one usage of HeadObject.

```
HTTP/1.1 200 OK
x-amz-id-2: ef8yU9AS1ed4OpIszj7UDNEHGran
x-amz-request-id: 318BC8BC143432E5
x-amz-version-id: 3HL4kqtJlcpXroDTDmjVBH40Nrjfkd
Date: Wed, 28 Oct 2009 22:32:00 GMT
Last-Modified: Sun, 1 Jan 2006 12:00:00 GMT
ETag: "fba9dede5f27731c9771645a39863328"
Content-Length: 434234
Content-Type: text/plain
Connection: close
Server: AmazonS3
```

Sample Response for general purpose buckets: With an expiration tag

If the object is scheduled to expire according to a lifecycle configuration set on the bucket, the response returns the `x-amz-expiration` tag with information about when Amazon S3 will delete the object. For more information, see Transitioning Objects: General Considerations.

```
HTTP/1.1 200 OK
x-amz-id-2: azQRZtQJ2m1P8R+TIsG9h0VuC/DmiSJmjXUMq7snk
+LKSJeurtmfzSlGhR46GzSJ
x-amz-request-id: 0EFF61CCE3F24A26
Date: Mon, 17 Dec 2012 02:26:39 GMT
Last-Modified: Mon, 17 Dec 2012 02:14:10 GMT
x-amz-expiration: expiry-date="Fri, 21 Dec 2012 00:00:00 GMT", rule-
id="Rule for testfile.txt"
ETag: "54b0c58c7ce9f2a8b551351102ee0938"
Accept-Ranges: bytes
Content-Type: text/plain
Content-Length: 14
Server: AmazonS3
```

Sample Request for general purpose buckets: Getting metadata from a specified version of an object

The following request returns the metadata of the specified version of an object.

```
HEAD /my-image.jpg?versionId=3HL4kqCxf3vjVBH40Nrjfkd HTTP/1.1
Host: bucket.s3.<Region>.amazonaws.com
Date: Wed, 28 Oct 2009 22:32:00 GMT
Authorization: AWS AKIAIOSFODNN7EXAMPLE:02236Q3V0WpaBX5sCYVf1bNRuU=
```

Sample Response for general purpose buckets: To a versioned HEAD request

This example illustrates one usage of HeadObject.

```
HTTP/1.1 200 OK
x-amz-id-2: eftixk72aD6Ap51TnqcoF8epIszj7UDNEHGran
x-amz-request-id: 318BC8BC143432E5
x-amz-version-id: 3HL4kqtJlcpXrof3vjVBH40Nrjfkd
Date: Wed, 28 Oct 2009 22:32:00 GMT
Last-Modified: Sun, 1 Jan 2006 12:00:00 GMT
ETag: "fba9dede5f27731c9771645a39863328"
Content-Length: 434234
Content-Type: text/plain
Connection: close
Server: AmazonS3
```

Sample Request for general purpose buckets: For an S3 Glacier object

For an archived object, the `x-amz-restore` header provides the date when the restored copy expires, as shown in the following response. Even if the object is stored in S3 Glacier, all object metadata is still available.

```
HEAD /my-image.jpg HTTP/1.1
Host: bucket.s3.<Region>.amazonaws.com
Date: 13 Nov 2012 00:28:38 GMT
Authorization: AWS AKIAIOSFODNN7EXAMPLE:02236Q3V0RonhpaBX5sCYVf1bNRuU=
```

Sample Response for general purpose buckets: S3 Glacier object

If the object is already restored, the `x-amz-restore` header provides the date when the restored copy will expire, as shown in the following response.

```
            HTTP/1.1 200 OK
            x-amz-id-2: FSVaTMjrmBp3Izs1NnwBZeu7M19iI8UbxMbi0A8AirHANJBo
+hEftBuiESACOMJp
            x-amz-request-id: E5CEFCB143EB505A
            Date: Tue, 13 Nov 2012 00:28:38 GMT
            Last-Modified: Mon, 15 Oct 2012 21:58:07 GMT
            x-amz-restore: ongoing-request="false", expiry-date="Wed, 07 Nov 2012
 00:00:00 GMT"
            ETag: "1accb31fcf202eba0c0f41fa2f09b4d7"
            Accept-Ranges: bytes
            Content-Type: binary/octet-stream
            Content-Length: 300
            Server: AmazonS3
```

Sample Response for general purpose buckets: In-progress restoration

If the restoration is in progress, the `x-amz-restore` header returns a message accordingly.

```
            HTTP/1.1 200 OK
            x-amz-id-2: b+V2mDiMHTdy1myoUBpctvmJl95H9U/OSUm/
jRtHxjh0+pCk5SvByL4xu2TDv4GM
            x-amz-request-id: E2E7B6AEE4E9BD2B
            Date: Tue, 13 Nov 2012 00:43:32 GMT
            Last-Modified: Sat, 20 Oct 2012 21:28:27 GMT
            x-amz-restore: ongoing-request="true"
            ETag: "1accb31fcf202eba0c0f41fa2f09b4d7"
            Accept-Ranges: bytes
            Content-Type: binary/octet-stream
            Content-Length: 300
            Server: AmazonS3
```

Sample Response for general purpose buckets: Object archived using S3 Intelligent-Tiering

If an object is stored using the S3 Intelligent-Tiering storage class and is currently in one of the archive tiers, then this action shows the current tier using the `x-amz-archive-status` header.

```
            HTTP/1.1 200 OK
            x-amz-id-2: FSVaTMjrmBp3Izs1NnwBZeu7M19iI8UbxMbi0A8AirHANJBo
+hEftBuiESACOMJp
            x-amz-request-id: E5CEFCB143EB505A
            Date: Fri, 13 Nov 2020 00:28:38 GMT
            Last-Modified: Mon, 15 Oct 2012 21:58:07 GMT
            ETag: "1accb31fcf202eba0c0f41fa2f09b4d7"
     x-amz-storage-class: 'INTELLIGENT_TIERING'
            x-amz-archive-status: 'ARCHIVE_ACCESS'
            Accept-Ranges: bytes
            Content-Type: binary/octet-stream
            Content-Length: 300
            Server: AmazonS3
```

Sample Response for general purpose buckets: Object archived using S3 Intelligent-Tiering with restore in progress

If an object is stored using the S3 Intelligent-Tiering storage class and is currently in the process of being restored from one of the archive tiers, then this action shows the current tier using the `x-amz-archive-status` header and the current restore status using the `x-amz-restore` header.

```
            HTTP/1.1 200 OK
            x-amz-id-2: FSVaTMjrmBp3Izs1NnwBZeu7M19iI8UbxMbi0A8AirHANJBo
+hEftBuiESACOMJp
            x-amz-request-id: E5CEFCB143EB505A
            Date: Fri, 13 Nov 2020 00:28:38 GMT
            Last-Modified: Mon, 15 Oct 2012 21:58:07 GMT
            ETag: "1accb31fcf202eba0c0f41fa2f09b4d7"
     x-amz-storage-class: 'INTELLIGENT_TIERING'
     x-amz-archive-status: 'ARCHIVE_ACCESS'
     x-amz-restore: 'ongoing-request="true"'
            x-amz-restore-request-date: 'Fri, 13 Nov 2020 00:20:00 GMT'
            Accept-Ranges: bytes
            Content-Type: binary/octet-stream
```

```
            Content-Length: 300
            Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListBucketAnalyticsConfigurations

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Lists the analytics configurations for the bucket. You can have up to 1,000 analytics configurations per bucket.

This action supports list pagination and does not return more than 100 configurations at a time. You should always check the `IsTruncated` element in the response. If there are no more configurations to list, `IsTruncated` is set to false. If there are more configurations to list, `IsTruncated` is set to true, and there will be a value in `NextContinuationToken`. You use the `NextContinuationToken` value to continue the pagination of the list by passing the value in continuation-token in the request to `GET` the next page.

To use this operation, you must have permissions to perform the `s3:GetAnalyticsConfiguration` action. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources.

For information about Amazon S3 analytics feature, see Amazon S3 Analytics – Storage Class Analysis.

The following operations are related to `ListBucketAnalyticsConfigurations`:

- GetBucketAnalyticsConfiguration
- DeleteBucketAnalyticsConfiguration
- PutBucketAnalyticsConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?analytics&continuation-token=ContinuationToken HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket from which analytics configurations are retrieved.

Required: Yes

continuation-token

The `ContinuationToken` that represents a placeholder from where this request should begin.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ListBucketAnalyticsConfigurationResult>
   <IsTruncated>boolean</IsTruncated>
   <ContinuationToken>string</ContinuationToken>
   <NextContinuationToken>string</NextContinuationToken>
   <AnalyticsConfiguration>
      <Filter>
         <And>
            <Prefix>string</Prefix>
            <Tag>
```

```
                <Key>string</Key>
                <Value>string</Value>
             </Tag>
             ...
          </And>
          <Prefix>string</Prefix>
          <Tag>
             <Key>string</Key>
             <Value>string</Value>
          </Tag>
       </Filter>
       <Id>string</Id>
       <StorageClassAnalysis>
          <DataExport>
             <Destination>
                <S3BucketDestination>
                   <Bucket>string</Bucket>
                   <BucketAccountId>string</BucketAccountId>
                   <Format>string</Format>
                   <Prefix>string</Prefix>
                </S3BucketDestination>
             </Destination>
             <OutputSchemaVersion>string</OutputSchemaVersion>
          </DataExport>
       </StorageClassAnalysis>
    </AnalyticsConfiguration>
    ...
</ListBucketAnalyticsConfigurationResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListBucketAnalyticsConfigurationResult

Root level tag for the ListBucketAnalyticsConfigurationResult parameters.

Required: Yes

AnalyticsConfiguration

The list of analytics configurations for a bucket.

Type: Array of AnalyticsConfiguration data types

ContinuationToken

The marker that is used as a starting point for this analytics configuration list response. This value is present if it was sent in the request.

Type: String

IsTruncated

Indicates whether the returned list of analytics configurations is complete. A value of true indicates that the list is not complete and the NextContinuationToken will be provided for a subsequent request.

Type: Boolean

NextContinuationToken

`NextContinuationToken` is sent when `isTruncated` is true, which indicates that there are more analytics configurations to list. The next request must include this `NextContinuationToken`. The token is obfuscated and is not a usable value.

Type: String

Examples

Sample Request

Delete the metric configuration with a specified ID, which disables the CloudWatch metrics with the `ExampleMetrics` value for the `FilterId` dimension.

```
GET /?analytics HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
x-amz-date: 20160430T233541Z
Authorization: authorization string
```

Sample Response

This example illustrates one usage of ListBucketAnalyticsConfigurations.

```
HTTP/1.1 200 OK
x-amz-id-2: gyB+3jRPnrkN98ZajxHXr3u7EFM67bNgSAxexeEHndCX/7GRnfTXxReKUQF28IfP
x-amz-request-id: 3B3C7C725673C630
Date: Sat, 30 Apr 2016 23:29:37 GMT
Content-Length: length
Server: AmazonS3

<ListBucketAnalyticsConfigurationResult xmlns="http://s3.amazonaws.com/
doc/2006-03-01/">
    <AnalyticsConfiguration>
        <Id>list1</Id>
        <Filter>
            <And>
                <Prefix>images/</Prefix>
                <Tag>
                    <Key>dog</Key>
                    <Value>corgi</Value>
                </Tag>
            </And>
        </Filter>
        <StorageClassAnalysis>
            <DataExport>
                <OutputSchemaVersion>V_1</OutputSchemaVersion>
                <Destination>
                    <S3BucketDestination>
                        <Format>CSV</Format>
                        <BucketAccountId>123456789012</BucketAccountId>
                        <Bucket>arn:aws:s3:::destination-bucket</Bucket>
                        <Prefix>destination-prefix</Prefix>
                    </S3BucketDestination>
                </Destination>
            </DataExport>
        </StorageClassAnalysis>
    </AnalyticsConfiguration>

    <AnalyticsConfiguration>
        <Id>report1</Id>
        <Filter>
            <And>
                <Prefix>images/</Prefix>
                <Tag>
                    <Key>dog</Key>
```

```
                    <Value>bulldog</Value>
                </Tag>
            </And>
        </Filter>
        <StorageClassAnalysis>
            <DataExport>
                <OutputSchemaVersion>V_1</OutputSchemaVersion>
                <Destination>
                    <S3BucketDestination>
                        <Format>CSV</Format>
                        <BucketAccountId>123456789012</BucketAccountId>
                        <Bucket>arn:aws:s3:::destination-bucket</Bucket>
                        <Prefix>destination-prefix</Prefix>
                    </S3BucketDestination>
                </Destination>
            </DataExport>
        </StorageClassAnalysis>
    </AnalyticsConfiguration>
    ...
    <IsTruncated>false</IsTruncated>
    <!-- If ContinuationToken was provided in the request. -->
    <ContinuationToken>...</ContinuationToken>
    <!-- if IsTruncated == true -->
    <IsTruncated>true</IsTruncated>
   <NextContinuationToken>...</NextContinuationToken>
</ListBucketAnalyticsConfigurationResult>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin

- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListBucketIntelligentTieringConfigurations

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Lists the S3 Intelligent-Tiering configuration from the specified bucket.

The S3 Intelligent-Tiering storage class is designed to optimize storage costs by automatically moving data to the most cost-effective storage access tier, without performance impact or operational overhead. S3 Intelligent-Tiering delivers automatic cost savings in three low latency and high throughput access tiers. To get the lowest storage cost on data that can be accessed in minutes to hours, you can choose to activate additional archiving capabilities.

The S3 Intelligent-Tiering storage class is the ideal storage class for data with unknown, changing, or unpredictable access patterns, independent of object size or retention period. If the size of an object is less than 128 KB, it is not monitored and not eligible for auto-tiering. Smaller objects can be stored, but they are always charged at the Frequent Access tier rates in the S3 Intelligent-Tiering storage class.

For more information, see Storage class for automatically optimizing frequently and infrequently accessed objects.

Operations related to `ListBucketIntelligentTieringConfigurations` include:

- DeleteBucketIntelligentTieringConfiguration
- PutBucketIntelligentTieringConfiguration
- GetBucketIntelligentTieringConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?intelligent-tiering&continuation-token=ContinuationToken HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the Amazon S3 bucket whose configuration you want to modify or retrieve.

Required: Yes

continuation-token

The `ContinuationToken` that represents a placeholder from where this request should begin.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ListBucketIntelligentTieringConfigurationsOutput>
   <IsTruncated>boolean</IsTruncated>
   <ContinuationToken>string</ContinuationToken>
   <NextContinuationToken>string</NextContinuationToken>
   <IntelligentTieringConfiguration>
      <Filter>
         <And>
            <Prefix>string</Prefix>
            <Tag>
```

```
                <Key>string</Key>
                <Value>string</Value>
             </Tag>
             ...
          </And>
          <Prefix>string</Prefix>
          <Tag>
             <Key>string</Key>
             <Value>string</Value>
          </Tag>
       </Filter>
       <Id>string</Id>
       <Status>string</Status>
       <Tiering>
          <AccessTier>string</AccessTier>
          <Days>integer</Days>
       </Tiering>
       ...
    </IntelligentTieringConfiguration>
    ...
</ListBucketIntelligentTieringConfigurationsOutput>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListBucketIntelligentTieringConfigurationsOutput

Root level tag for the ListBucketIntelligentTieringConfigurationsOutput parameters.

Required: Yes

ContinuationToken

The `ContinuationToken` that represents a placeholder from where this request should begin.

Type: String

IntelligentTieringConfiguration

The list of S3 Intelligent-Tiering configurations for a bucket.

Type: Array of IntelligentTieringConfiguration data types

IsTruncated

Indicates whether the returned list of analytics configurations is complete. A value of `true` indicates that the list is not complete and the `NextContinuationToken` will be provided for a subsequent request.

Type: Boolean

NextContinuationToken

The marker used to continue this inventory configuration listing. Use the `NextContinuationToken` from this response to continue the listing in a subsequent request. The continuation token is an opaque value that Amazon S3 understands.

Type: String

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListBucketInventoryConfigurations

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Returns a list of S3 Inventory configurations for the bucket. You can have up to 1,000 inventory configurations per bucket.

This action supports list pagination and does not return more than 100 configurations at a time. Always check the `IsTruncated` element in the response. If there are no more configurations to list, `IsTruncated` is set to false. If there are more configurations to list, `IsTruncated` is set to true, and there is a value in `NextContinuationToken`. You use the `NextContinuationToken` value to continue the pagination of the list by passing the value in continuation-token in the request to `GET` the next page.

To use this operation, you must have permissions to perform the `s3:GetInventoryConfiguration` action. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources.

For information about the Amazon S3 inventory feature, see Amazon S3 Inventory

The following operations are related to `ListBucketInventoryConfigurations`:

- GetBucketInventoryConfiguration
- DeleteBucketInventoryConfiguration
- PutBucketInventoryConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?inventory&continuation-token=ContinuationToken HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket containing the inventory configurations to retrieve.

Required: Yes

continuation-token

The marker used to continue an inventory configuration listing that has been truncated. Use the `NextContinuationToken` from a previously truncated list response to continue the listing. The continuation token is an opaque value that Amazon S3 understands.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ListInventoryConfigurationsResult>
   <ContinuationToken>string</ContinuationToken>
   <InventoryConfiguration>
      <Destination>
         <S3BucketDestination>
            <AccountId>string</AccountId>
            <Bucket>string</Bucket>
            <Encryption>
```

```
                <SSE-KMS>
                   <KeyId>string</KeyId>
                </SSE-KMS>
                <SSE-S3>
                </SSE-S3>
             </Encryption>
             <Format>string</Format>
             <Prefix>string</Prefix>
          </S3BucketDestination>
       </Destination>
       <Filter>
          <Prefix>string</Prefix>
       </Filter>
       <Id>string</Id>
       <IncludedObjectVersions>string</IncludedObjectVersions>
       <IsEnabled>boolean</IsEnabled>
       <OptionalFields>
          <Field>string</Field>
       </OptionalFields>
       <Schedule>
          <Frequency>string</Frequency>
       </Schedule>
    </InventoryConfiguration>
    ...
    <IsTruncated>boolean</IsTruncated>
    <NextContinuationToken>string</NextContinuationToken>
</ListInventoryConfigurationsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListInventoryConfigurationsResult

Root level tag for the ListInventoryConfigurationsResult parameters.

Required: Yes

ContinuationToken

If sent in the request, the marker that is used as a starting point for this inventory configuration list response.

Type: String

InventoryConfiguration

The list of inventory configurations for a bucket.

Type: Array of InventoryConfiguration data types

IsTruncated

Tells whether the returned list of inventory configurations is complete. A value of true indicates that the list is not complete and the NextContinuationToken is provided for a subsequent request.

Type: Boolean

NextContinuationToken

The marker used to continue this inventory configuration listing. Use the `NextContinuationToken` from this response to continue the listing in a subsequent request. The continuation token is an opaque value that Amazon S3 understands.

Type: String

Examples

Sample Request

The following request returns the inventory configurations in `example-bucket`.

```
GET /?inventory HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
x-amz-date: 20160430T233541Z
Authorization: authorization string
Content-Type: text/plain
```

Sample Response

Delete the metric configuration with a specified ID, which disables the CloudWatch metrics with the `ExampleMetrics` value for the `FilterId` dimension.

```
HTTP/1.1 200 OK
x-amz-id-2: gyB+3jRPnrkN98ZajxHXr3u7EFM67bNgSAxexeEHndCX/7GRnfTXxReKUQF28IfP
x-amz-request-id: 3B3C7C725673C630
Date: Sat, 30 Apr 2016 23:29:37 GMT
Content-Type: application/xml
Content-Length: length
Connection: close
Server: AmazonS3

<?xml version="1.0" encoding="UTF-8"?>
<ListInventoryConfigurationsResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <InventoryConfiguration>
      <Id>report1</Id>
      <IsEnabled>true</IsEnabled>
      <Destination>
         <S3BucketDestination>
            <Format>CSV</Format>
            <AccountId>123456789012</AccountId>
            <Bucket>arn:aws:s3:::destination-bucket</Bucket>
            <Prefix>prefix1</Prefix>
         </S3BucketDestination>
      </Destination>
      <Schedule>
         <Frequency>Daily</Frequency>
      </Schedule>
      <Filter>
         <Prefix>prefix/One</Prefix>
      </Filter>
      <IncludedObjectVersions>All</IncludedObjectVersions>
      <OptionalFields>
         <Field>Size</Field>
         <Field>LastModifiedDate</Field>
         <Field>ETag</Field>
         <Field>StorageClass</Field>
         <Field>IsMultipartUploaded</Field>
         <Field>ReplicationStatus</Field>
      </OptionalFields>
   </InventoryConfiguration>
      <InventoryConfiguration>
      <Id>report2</Id>
      <IsEnabled>true</IsEnabled>
      <Destination>
```

```
            <S3BucketDestination>
               <Format>CSV</Format>
               <AccountId>123456789012</AccountId>
               <Bucket>arn:aws:s3:::bucket2</Bucket>
               <Prefix>prefix2</Prefix>
            </S3BucketDestination>
         </Destination>
         <Schedule>
            <Frequency>Daily</Frequency>
         </Schedule>
         <Filter>
            <Prefix>prefix/Two</Prefix>
         </Filter>
         <IncludedObjectVersions>All</IncludedObjectVersions>
         <OptionalFields>
            <Field>Size</Field>
            <Field>LastModifiedDate</Field>
            <Field>ETag</Field>
            <Field>StorageClass</Field>
            <Field>IsMultipartUploaded</Field>
            <Field>ReplicationStatus</Field>
            <Field>ObjectLockRetainUntilDate</Field>
            <Field>ObjectLockMode</Field>
            <Field>ObjectLockLegalHoldStatus</Field>
         </OptionalFields>
      </InventoryConfiguration>
      <InventoryConfiguration>
         <Id>report3</Id>
         <IsEnabled>true</IsEnabled>
         <Destination>
            <S3BucketDestination>
               <Format>CSV</Format>
               <AccountId>123456789012</AccountId>
               <Bucket>arn:aws:s3:::bucket3</Bucket>
               <Prefix>prefix3</Prefix>
            </S3BucketDestination>
         </Destination>
         <Schedule>
            <Frequency>Daily</Frequency>
         </Schedule>
         <Filter>
            <Prefix>prefix/Three</Prefix>
         </Filter>
         <IncludedObjectVersions>All</IncludedObjectVersions>
```

```
      <OptionalFields>
         <Field>Size</Field>
         <Field>LastModifiedDate</Field>
         <Field>ETag</Field>
         <Field>StorageClass</Field>
         <Field>IsMultipartUploaded</Field>
         <Field>ReplicationStatus</Field>
      </OptionalFields>
   </InventoryConfiguration>
    ...
    <IsTruncated>false</IsTruncated>
    <!-- If ContinuationToken was provided in the request. -->
    <ContinuationToken>...</ContinuationToken>
    <!-- if IsTruncated == true -->
    <IsTruncated>true</IsTruncated>
   <NextContinuationToken>...</NextContinuationToken>
</ListInventoryConfigurationsResult>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListBucketMetricsConfigurations

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Lists the metrics configurations for the bucket. The metrics configurations are only for the request metrics of the bucket and do not provide information on daily storage metrics. You can have up to 1,000 configurations per bucket.

This action supports list pagination and does not return more than 100 configurations at a time. Always check the `IsTruncated` element in the response. If there are no more configurations to list, `IsTruncated` is set to false. If there are more configurations to list, `IsTruncated` is set to true, and there is a value in `NextContinuationToken`. You use the `NextContinuationToken` value to continue the pagination of the list by passing the value in `continuation-token` in the request to `GET` the next page.

To use this operation, you must have permissions to perform the `s3:GetMetricsConfiguration` action. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources.

For more information about metrics configurations and CloudWatch request metrics, see Monitoring Metrics with Amazon CloudWatch.

The following operations are related to `ListBucketMetricsConfigurations`:

- PutBucketMetricsConfiguration
- GetBucketMetricsConfiguration
- DeleteBucketMetricsConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?metrics&continuation-token=ContinuationToken HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket containing the metrics configurations to retrieve.

Required: Yes

continuation-token

The marker that is used to continue a metrics configuration listing that has been truncated. Use the `NextContinuationToken` from a previously truncated list response to continue the listing. The continuation token is an opaque value that Amazon S3 understands.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

```
<?xml version="1.0" encoding="UTF-8"?>
<ListMetricsConfigurationsResult>
   <IsTruncated>boolean</IsTruncated>
   <ContinuationToken>string</ContinuationToken>
   <NextContinuationToken>string</NextContinuationToken>
   <MetricsConfiguration>
      <Filter>
         <AccessPointArn>string</AccessPointArn>
         <And>
            <AccessPointArn>string</AccessPointArn>
            <Prefix>string</Prefix>
            <Tag>
               <Key>string</Key>
               <Value>string</Value>
            </Tag>
            ...
         </And>
         <Prefix>string</Prefix>
         <Tag>
            <Key>string</Key>
            <Value>string</Value>
         </Tag>
      </Filter>
      <Id>string</Id>
   </MetricsConfiguration>
   ...
</ListMetricsConfigurationsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListMetricsConfigurationsResult

Root level tag for the ListMetricsConfigurationsResult parameters.

Required: Yes

ContinuationToken

The marker that is used as a starting point for this metrics configuration list response. This value is present if it was sent in the request.

Type: String

IsTruncated

Indicates whether the returned list of metrics configurations is complete. A value of true indicates that the list is not complete and the NextContinuationToken will be provided for a subsequent request.

Type: Boolean

MetricsConfiguration

The list of metrics configurations for a bucket.

Type: Array of MetricsConfiguration data types

NextContinuationToken

The marker used to continue a metrics configuration listing that has been truncated. Use the `NextContinuationToken` from a previously truncated list response to continue the listing. The continuation token is an opaque value that Amazon S3 understands.

Type: String

Examples

Sample Request

Delete the metric configuration with a specified ID, which disables the CloudWatch metrics with the `ExampleMetrics` value for the `FilterId` dimension.

```
GET /?metrics HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
x-amz-date: Thu, 15 Nov 2016 00:17:21 GMT
Authorization: signatureValue
```

Sample Response

Delete the metric configuration with a specified ID, which disables the CloudWatch metrics with the `ExampleMetrics` value for the `FilterId` dimension.

```
HTTP/1.1 200 OK
x-amz-id-2: ITnGT1y4REXAMPLEPi4hklTXouTf0hccUjo0iCPEXAMPLEutBj3M7fPGlWO2SEWp
x-amz-request-id: 51991EXAMPLE5321
Date: Thu, 15 Nov 2016 00:17:22 GMT
Server: AmazonS3
Content-Length: 758

<?xml version="1.0" encoding="UTF-8"?>
<ListMetricsConfigurationsResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
    <MetricsConfiguration>
        <Id>EntireBucket</Id>
    </MetricsConfiguration>
    <MetricsConfiguration>
        <Id>Documents</Id>
        <Filter>
            <Prefix>documents/</Prefix>
        </Filter>
    </MetricsConfiguration>
    <MetricsConfiguration>
        <Id>BlueDocuments</Id>
        <Filter>
            <And>
                <Prefix>documents/</Prefix>
                <Tag>
                    <Key>class</Key>
                    <Value>blue</Value>
                </Tag>
            </And>
        </Filter>
    </MetricsConfiguration>
    <IsTruncated>false</IsTruncated>
</ListMetricsConfigurationsResult>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET

- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListBuckets

Service: Amazon S3

> **Important**
>
> End of support notice: Beginning November 21, 2025, Amazon S3 will stop returning `DisplayName`. Update your applications to use canonical IDs (unique identifier for AWS accounts), AWS account ID (12 digit identifier) or IAM ARNs (full resource naming) as a direct replacement of `DisplayName`.
>
> Between July 15, 2025 and November 21, 2025, you will begin to see an increasing rate of missing `DisplayName` in the Owner object.
>
> This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

> **Note**
>
> This operation is not supported for directory buckets.

Returns a list of all buckets owned by the authenticated sender of the request. To grant IAM permission to use this operation, you must add the `s3:ListAllMyBuckets` policy action.

For information about Amazon S3 buckets, see Creating, configuring, and working with Amazon S3 buckets.

> **Important**
>
> We strongly recommend using only paginated `ListBuckets` requests. Unpaginated `ListBuckets` requests are only supported for AWS accounts set to the default general purpose bucket quota of 10,000. If you have an approved general purpose bucket quota above 10,000, you must send paginated `ListBuckets` requests to list your account's buckets. All unpaginated `ListBuckets` requests will be rejected for AWS accounts with a general purpose bucket quota greater than 10,000.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?bucket-region=BucketRegion&continuation-token=ContinuationToken&max-
buckets=MaxBuckets&prefix=Prefix HTTP/1.1
Host: s3.amazonaws.com
```

URI Request Parameters

The request uses the following URI parameters.

bucket-region

Limits the response to buckets that are located in the specified AWS Region. The AWS Region must be expressed according to the AWS Region code, such as `us-west-2` for the US West (Oregon) Region. For a list of the valid values for all of the AWS Regions, see Regions and Endpoints.

> **Note**
>
> Requests made to a Regional endpoint that is different from the `bucket-region` parameter are not supported. For example, if you want to limit the response to your buckets in Region `us-west-2`, the request must be made to an endpoint in Region `us-west-2`.

continuation-token

`ContinuationToken` indicates to Amazon S3 that the list is being continued on this bucket with a token. `ContinuationToken` is obfuscated and is not a real key. You can use this `ContinuationToken` for pagination of the list results.

Length Constraints: Minimum length of 0. Maximum length of 1024.

Required: No.

> **Note**
>
> If you specify the `bucket-region`, `prefix`, or `continuation-token` query parameters without using `max-buckets` to set the maximum number of buckets returned in the response, Amazon S3 applies a default page size of 10,000 and provides a continuation token if there are more buckets.

max-buckets

Maximum number of buckets to be returned in response. When the number is more than the count of buckets that are owned by an AWS account, return all the buckets in response.

Valid Range: Minimum value of 1. Maximum value of 10000.

prefix

Limits the response to bucket names that begin with the specified bucket name prefix.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ListAllMyBucketsResult>
   <Buckets>
      <Bucket>
         <BucketArn>string</BucketArn>
         <BucketRegion>string</BucketRegion>
         <CreationDate>timestamp</CreationDate>
         <Name>string</Name>
      </Bucket>
   </Buckets>
   <Owner>
      <DisplayName>string</DisplayName>
      <ID>string</ID>
```

```
    </Owner>
    <ContinuationToken>string</ContinuationToken>
    <Prefix>string</Prefix>
</ListAllMyBucketsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListAllMyBucketsResult

Root level tag for the ListAllMyBucketsResult parameters.

Required: Yes

Buckets

The list of buckets owned by the requester.

Type: Array of Bucket data types

ContinuationToken

`ContinuationToken` is included in the response when there are more buckets that can be listed with pagination. The next `ListBuckets` request to Amazon S3 can be continued with this `ContinuationToken`. `ContinuationToken` is obfuscated and is not a real bucket.

Type: String

Owner

The owner of the buckets listed.

Type: Owner data type

Prefix

If `Prefix` was sent with the request, it is included in the response.

All bucket names in the response begin with the specified bucket name prefix.

Type: String

Examples

Example 1: Unpaginated ListBuckets request

This example lists all the buckets in your account in a single unpaginated response. Unpaginated requests are only supported for AWS accounts that have the default service quota of 10,000 buckets. If you have an approved general purpose bucket quota that is greater than 10,000 buckets, all unpaginated requests will be rejected for your account.

```
GET / host:s3.us-east-2.amazonaws.com HTTP/1.1
```

```
HTTP/1.1 200 OK
<ListAllMyBucketsResult>
   <Buckets>
      <Bucket>
         <CreationDate>2019-12-11T23:32:47+00:00</CreationDate>
         <Name>amzn-s3-demo-bucket</Name>
      </Bucket>
      <Bucket>
         <CreationDate>2019-11-10T23:32:13+00:00</CreationDate>
         <Name>amzn-s3-demo-bucket1</Name>
      </Bucket>
   </Buckets>
   <Owner>
      <DisplayName>Account+Name</DisplayName>
      <ID>AIDACKCEVSQ6C2EXAMPLE</ID>
   </Owner>
</ListAllMyBucketsResult>
```

Example 2: Paginated ListBuckets request

The following example request lists all buckets in your account using pagination. It gets the first page of results with the page size set to 1000 buckets. The response returns a `ContinuationToken` that is used in **Example 3** to list the next 1000 buckets.

```
GET /?max-buckets=1000&host:s3.us-east-2.amazonaws.com HTTP/1.1
```

```
HTTP/1.1 200 OK
<ListAllMyBucketsResult>
   <Buckets>
      <Bucket>
         <CreationDate>2024-11-14T23:32:47+00:00</CreationDate>
         <Name>amzn-s3-demo-bucket</Name>
         <BucketRegion>us-east-1</BucketRegion>
      </Bucket>
      <Bucket>
         <CreationDate>2024-11-14T23:32:13+00:00</CreationDate>
         <Name>amzn-s3-demo-bucket1</Name>
         <BucketRegion>us-east-2</BucketRegion>
      </Bucket>
   </Buckets>
   <Owner>
      <DisplayName>Account+Name</DisplayName>
      <ID>AIDACKCEVSQ6C2EXAMPLE</ID>
   </Owner>
   <ContinuationToken>eyJNYXJrZXIiOiBudWxsLCAiYm90b190cnVuY2F0ZV9hbW91bnQiOiAxfQ==</
ContinuationToken>
</ListAllMyBucketsResult>
```

Example 3: Paginated ListBuckets request with continuation token

This example request uses the token returned in **Example 2** to return the next 1000 buckets. Continue until there are no more results. If you do not receive a continuation token with your initial paginated ListBuckets request, then your single paginated request returned all of the buckets in your account.

```
GET /?max-buckets=1000&continuation-
token=eyJNYXJrZXIiOiBudWxsLCAiYm90b190cnVuY2F0ZV9hbW91bnQiOiAxfQ== host:s3.us-
east-2.amazonaws.com HTTP/1.1
```

```
HTTP/1.1 200 OK
<ListAllMyBucketsResult>
   <Buckets>
      <Bucket>
         <CreationDate>2024-11-14T23:32:47+00:00</CreationDate>
         <Name>amzn-s3-demo-bucket</Name>
```

```
         <BucketRegion>us-east-1</BucketRegion>
      </Bucket>
      <Bucket>
         <CreationDate>2024-11-14T23:32:13+00:00</CreationDate>
         <Name>amzn-s3-demo-bucket1</Name>
         <BucketRegion>us-east-2</BucketRegion>
      </Bucket>
   </Buckets>
   <Owner>
      <DisplayName>Account+Name</DisplayName>
      <ID>AIDACKCEVSQ6C2EXAMPLE</ID>
   </Owner>

 <ContinuationToken>eyJOZXh0VG9rZW4iOiBudWxsLCAiYm90b190cnVuY2F0ZV9hbW91bnQiEXAMPLE=</
ContinuationToken>
</ListAllMyBucketsResult>
```

Example 4: Paginated ListBuckets request for buckets in US East (Ohio) (us-east-2)

The following example lists all the buckets in your account in the `us-east-2` Region. The first paginated response will return up to 1000 buckets. Requests made to a Regional endpoint that is different from the `bucket-region` parameter are not supported.

```
GET /?bucket-region=us-east-2&max-buckets=1000 host:s3.us-east-2.amazonaws.com HTTP/1.1
```

```
HTTP/1.1 200 OK
<ListAllMyBucketsResult>
   <Buckets>
      <Bucket>
         <CreationDate>2024-11-14T23:32:47+00:00</CreationDate>
         <Name>DOC-EXAMPLE-BUCKET</Name>
         <BucketRegion>us-east-2</BucketRegion>
      </Bucket>
      <Bucket>
         <CreationDate>2024-11-14T23:32:13+00:00</CreationDate>
         <Name>DOC-EXAMPLE-BUCKET1002</Name>
         <BucketRegion>us-east-2</BucketRegion>
      </Bucket>
   </Buckets>
   <Owner>
```

```
      <DisplayName>Account+Name</DisplayName>
      <ID>AIDACKCEVSQ6C2EXAMPLE</ID>
   </Owner>
   <ContinuationToken>eyJOZXh0VG9rZW4iOiBudWxsLCAiYm90b190cnVuY2F0ZV9hbW91bnQiEXAMPLEcd
 =</ContinuationToken>
</ListAllMyBucketsResult>
```

Example 5: Paginated ListBuckets request for buckets in your account that begin with amzn-s3-demo-bucket in US East (Ohio) (us-east-2)

The following example lists all the buckets in your account located in the `us-east-2` Region that begin with the `amzn-s3-demo-bucket` bucket prefix. This request uses pagination.

```
GET /?bucket-region=us-east-2&max-buckets=1000&prefix=amzn-s3-demo-bucket host:s3.us-
east-2.amazonaws.com HTTP/1.1
```

```
HTTP/1.1 200 OK
<ListAllMyBucketsResult>
   <Buckets>
      <Bucket>
         <CreationDate>2024-11-14T23:32:47+00:00</CreationDate>
         <Name>amzn-s3-demo-bucket</Name>
         <BucketRegion>us-east-2</BucketRegion>
      </Bucket>
   </Buckets>
   <Owner>
      <DisplayName>Account+Name</DisplayName>
      <ID>AIDACKCEVSQ6C2EXAMPLE</ID>
   </Owner>
   <Prefix>
       amzn-s3-demo-bucket
   </Prefix>

 <ContinuationToken>eyJOZXh0VG9rZW4iOiBudWxsLCAiYm90b190cnVuY2F0ZV9hbW91bnQiEXAMPLE=</
ContinuationToken>
</ListAllMyBucketsResult>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListDirectoryBuckets

Service: Amazon S3

Returns a list of all Amazon S3 directory buckets owned by the authenticated sender of the request. For more information about directory buckets, see Directory buckets in the *Amazon S3 User Guide*.

> **Note**
>
> **Directory buckets** - For directory buckets, you must make requests for this API operation to the Regional endpoint. These endpoints support path-style requests in the format `https://s3express-control.`*`region-code`*`.amazonaws.com/`*`bucket-name`* . Virtual-hosted-style requests aren't supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Permissions

You must have the `s3express:ListAllMyDirectoryBuckets` permission in an IAM identity-based policy instead of a bucket policy. Cross-account access to this API operation isn't supported. This operation can only be performed by the AWS account that owns the resource. For more information about directory bucket policies and permissions, see AWS Identity and Access Management (IAM) for S3 Express One Zone in the *Amazon S3 User Guide*.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `s3express-control.`*`region`*`.amazonaws.com`.

> **Note**
>
> The `BucketRegion` response element is not part of the `ListDirectoryBuckets` Response Syntax.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?continuation-token=ContinuationToken&max-directory-buckets=MaxDirectoryBuckets
 HTTP/1.1
Host: s3.amazonaws.com
```

URI Request Parameters

The request uses the following URI parameters.

continuation-token

`ContinuationToken` indicates to Amazon S3 that the list is being continued on buckets in this account with a token. `ContinuationToken` is obfuscated and is not a real bucket name. You can use this `ContinuationToken` for the pagination of the list results.

Length Constraints: Minimum length of 0. Maximum length of 1024.

max-directory-buckets

Maximum number of buckets to be returned in response. When the number is more than the count of buckets that are owned by an AWS account, return all the buckets in response.

Valid Range: Minimum value of 0. Maximum value of 1000.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ListAllMyDirectoryBucketsResult>
```

```
   <Buckets>
      <Bucket>
         <BucketArn>string</BucketArn>
         <BucketRegion>string</BucketRegion>
         <CreationDate>timestamp</CreationDate>
         <Name>string</Name>
      </Bucket>
   </Buckets>
   <ContinuationToken>string</ContinuationToken>
</ListAllMyDirectoryBucketsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListAllMyDirectoryBucketsResult

Root level tag for the ListAllMyDirectoryBucketsResult parameters.

Required: Yes

Buckets

The list of buckets owned by the requester.

Type: Array of Bucket data types

ContinuationToken

If `ContinuationToken` was sent with the request, it is included in the response. You can use the returned `ContinuationToken` for pagination of the list response.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 1024.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface

- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListMultipartUploads

Service: Amazon S3

> **Important**
>
> End of support notice: Beginning November 21, 2025, Amazon S3 will stop returning `DisplayName`. Update your applications to use canonical IDs (unique identifier for AWS accounts), AWS account ID (12 digit identifier) or IAM ARNs (full resource naming) as a direct replacement of `DisplayName`.
>
> Between July 15, 2025 and November 21, 2025, you will begin to see an increasing rate of missing `DisplayName` in the Owner object.
>
> This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

This operation lists in-progress multipart uploads in a bucket. An in-progress multipart upload is a multipart upload that has been initiated by the `CreateMultipartUpload` request, but has not yet been completed or aborted.

> **Note**
>
> **Directory buckets** - If multipart uploads in a directory bucket are in progress, you can't delete the bucket until all the in-progress multipart uploads are aborted or completed. To delete these in-progress multipart uploads, use the `ListMultipartUploads` operation to list the in-progress multipart uploads in the bucket and use the `AbortMultipartUpload` operation to abort all the in-progress multipart uploads.

The `ListMultipartUploads` operation returns a maximum of 1,000 multipart uploads in the response. The limit of 1,000 multipart uploads is also the default value. You can further limit the number of uploads in a response by specifying the `max-uploads` request parameter. If there are more than 1,000 multipart uploads that satisfy your `ListMultipartUploads` request, the response returns an `IsTruncated` element with the value of `true`, a `NextKeyMarker` element, and a `NextUploadIdMarker` element. To list the remaining multipart uploads, you need to make subsequent `ListMultipartUploads` requests. In these requests, include two

query parameters: `key-marker` and `upload-id-marker`. Set the value of `key-marker` to the `NextKeyMarker` value from the previous response. Similarly, set the value of `upload-id-marker` to the `NextUploadIdMarker` value from the previous response.

> **Note**
>
> **Directory buckets** - The `upload-id-marker` element and the `NextUploadIdMarker` element aren't supported by directory buckets. To list the additional multipart uploads, you only need to set the value of `key-marker` to the `NextKeyMarker` value from the previous response.

For more information about multipart uploads, see Uploading Objects Using Multipart Upload in the *Amazon S3 User Guide*.

> **Note**
>
> **Directory buckets** - For directory buckets, you must make requests for this API operation to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://amzn-s3-demo-bucket.s3express-zone-id.region-code.amazonaws.com/key-name` . Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Permissions

- **General purpose bucket permissions** - For information about permissions required to use the multipart upload API, see Multipart Upload and Permissions in the *Amazon S3 User Guide*.
- **Directory bucket permissions** - To grant access to this API operation on a directory bucket, we recommend that you use the `CreateSession` API operation for session-based authorization. Specifically, you grant the `s3express:CreateSession` permission to the directory bucket in a bucket policy or an IAM identity-based policy. Then, you make the `CreateSession` API call on the bucket to obtain a session token. With the session token in your request header, you can make API requests to this operation. After the session token expires, you make another `CreateSession` API call to generate a new session token for

use. AWS CLI or SDKs create session and refresh the session token automatically to avoid service interruptions when a session expires. For more information about authorization, see `CreateSession`.

Sorting of multipart uploads in response

- **General purpose bucket** - In the `ListMultipartUploads` response, the multipart uploads are sorted based on two criteria:
  - Key-based sorting - Multipart uploads are initially sorted in ascending order based on their object keys.
  - Time-based sorting - For uploads that share the same object key, they are further sorted in ascending order based on the upload initiation time. Among uploads with the same key, the one that was initiated first will appear before the ones that were initiated later.
- **Directory bucket** - In the `ListMultipartUploads` response, the multipart uploads aren't sorted lexicographically based on the object keys.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `Bucket-name.s3express-zone-id.region-code.amazonaws.com`.

The following operations are related to `ListMultipartUploads`:

- CreateMultipartUpload
- UploadPart
- CompleteMultipartUpload
- ListParts
- AbortMultipartUpload

Important

You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?uploads&delimiter=Delimiter&encoding-type=EncodingType&key-marker=KeyMarker&max-
uploads=MaxUploads&prefix=Prefix&upload-id-marker=UploadIdMarker HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-request-payer: RequestPayer
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket to which the multipart upload was initiated.

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format *Bucket-name*.s3express-*zone-id*.*region-code*.amazonaws.com. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format *bucket-base-name*--*zone-id*--x-s3 (for example, *amzn-s3-demo-bucket*--*usw2-az1*--x-s3). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

delimiter

Character you use to group keys.

All keys that contain the same string between the prefix, if specified, and the first occurrence of the delimiter after the prefix are grouped under a single result element, `CommonPrefixes`. If you don't specify the prefix parameter, then the substring starts at the beginning of the key. The keys that are grouped under `CommonPrefixes` result element are not returned elsewhere in the response.

`CommonPrefixes` is filtered out from results if it is not lexicographically greater than the key-marker.

> **Note**
>
> **Directory buckets** - For directory buckets, `/` is the only supported delimiter.

encoding-type

Encoding type used by Amazon S3 to encode the object keys in the response. Responses are encoded only in UTF-8. An object key can contain any Unicode character. However, the XML 1.0 parser can't parse certain characters, such as characters with an ASCII value from 0 to 10. For characters that aren't supported in XML 1.0, you can add this parameter to request that Amazon S3 encode the keys in the response. For more information about characters to avoid in object key names, see Object key naming guidelines.

> **Note**
>
> When using the URL encoding type, non-ASCII characters that are used in an object's key name will be percent-encoded according to UTF-8 code values. For example, the object `test_file(3).png` will appear as `test_file%283%29.png`.

Valid Values: `url`

key-marker

Specifies the multipart upload after which listing should begin.

> **Note**
>
> - **General purpose buckets** - For general purpose buckets, `key-marker` is an object key. Together with `upload-id-marker`, this parameter specifies the multipart upload after which listing should begin.
>
> If `upload-id-marker` is not specified, only the keys lexicographically greater than the specified `key-marker` will be included in the list.
>
> If `upload-id-marker` is specified, any multipart uploads for a key equal to the `key-marker` might also be included, provided those multipart uploads have upload IDs lexicographically greater than the specified `upload-id-marker`.
>
> - **Directory buckets** - For directory buckets, `key-marker` is obfuscated and isn't a real object key. The `upload-id-marker` parameter isn't supported by directory buckets. To list the additional multipart uploads, you only need to set the value of `key-marker` to the `NextKeyMarker` value from the previous response.
>
> In the `ListMultipartUploads` response, the multipart uploads aren't sorted lexicographically based on the object keys.

max-uploads

Sets the maximum number of multipart uploads, from 1 to 1,000, to return in the response body. 1,000 is the maximum number of uploads that can be returned in a response.

prefix

Lists in-progress uploads only for those keys that begin with the specified prefix. You can use prefixes to separate a bucket into different grouping of keys. (You can think of using `prefix` to make groups in the same way that you'd use a folder in a file system.)

> **Note**
>
> **Directory buckets** - For directory buckets, only prefixes that end in a delimiter (/) are supported.

upload-id-marker

Together with key-marker, specifies the multipart upload after which listing should begin. If key-marker is not specified, the upload-id-marker parameter is ignored. Otherwise, any multipart uploads for a key equal to the key-marker might be included in the list only if they have an upload ID lexicographically greater than the specified `upload-id-marker`.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-request-charged: RequestCharged
<?xml version="1.0" encoding="UTF-8"?>
<ListMultipartUploadsResult>
   <Bucket>string</Bucket>
   <KeyMarker>string</KeyMarker>
   <UploadIdMarker>string</UploadIdMarker>
   <NextKeyMarker>string</NextKeyMarker>
   <Prefix>string</Prefix>
   <Delimiter>string</Delimiter>
   <NextUploadIdMarker>string</NextUploadIdMarker>
   <MaxUploads>integer</MaxUploads>
   <IsTruncated>boolean</IsTruncated>
   <Upload>
      <ChecksumAlgorithm>string</ChecksumAlgorithm>
      <ChecksumType>string</ChecksumType>
      <Initiated>timestamp</Initiated>
      <Initiator>
         <DisplayName>string</DisplayName>
         <ID>string</ID>
      </Initiator>
      <Key>string</Key>
      <Owner>
         <DisplayName>string</DisplayName>
         <ID>string</ID>
      </Owner>
      <StorageClass>string</StorageClass>
      <UploadId>string</UploadId>
   </Upload>
```

```
    ...
    <CommonPrefixes>
       <Prefix>string</Prefix>
    </CommonPrefixes>
    ...
    <EncodingType>string</EncodingType>
</ListMultipartUploadsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

The following data is returned in XML format by the service.

ListMultipartUploadsResult

Root level tag for the ListMultipartUploadsResult parameters.

Required: Yes

Bucket

The name of the bucket to which the multipart upload was initiated. Does not return the access point ARN or access point alias if used.

Type: String

CommonPrefixes

If you specify a delimiter in the request, then the result returns each distinct key prefix containing the delimiter in a `CommonPrefixes` element. The distinct key prefixes are returned in the `Prefix` child element.

> **Note**
>
> **Directory buckets** - For directory buckets, only prefixes that end in a delimiter (/) are supported.

Type: Array of CommonPrefix data types

Delimiter

Contains the delimiter you specified in the request. If you don't specify a delimiter in your request, this element is absent from the response.

> **Note**
>
> **Directory buckets** - For directory buckets, / is the only supported delimiter.

Type: String

EncodingType

Encoding type used by Amazon S3 to encode object keys in the response.

If you specify the `encoding-type` request parameter, Amazon S3 includes this element in the response, and returns encoded key name values in the following response elements:

`Delimiter`, `KeyMarker`, `Prefix`, `NextKeyMarker`, `Key`.

Type: String

Valid Values: `url`

IsTruncated

Indicates whether the returned list of multipart uploads is truncated. A value of true indicates that the list was truncated. The list can be truncated if the number of multipart uploads exceeds the limit allowed or specified by max uploads.

Type: Boolean

KeyMarker

The key at or after which the listing began.

Type: String

MaxUploads

Maximum number of multipart uploads that could have been included in the response.

Type: Integer

NextKeyMarker

When a list is truncated, this element specifies the value that should be used for the key-marker request parameter in a subsequent request.

Type: String

NextUploadIdMarker

When a list is truncated, this element specifies the value that should be used for the `upload-id-marker` request parameter in a subsequent request.

> **Note**
>
> This functionality is not supported for directory buckets.

Type: String

Prefix

When a prefix is provided in the request, this field contains the specified prefix. The result contains only keys starting with the specified prefix.

> **Note**
>
> **Directory buckets** - For directory buckets, only prefixes that end in a delimiter (/) are supported.

Type: String

Upload

Container for elements related to a particular multipart upload. A response can contain zero or more `Upload` elements.

Type: Array of MultipartUpload data types

UploadIdMarker

Together with key-marker, specifies the multipart upload after which listing should begin. If key-marker is not specified, the upload-id-marker parameter is ignored. Otherwise, any multipart uploads for a key equal to the key-marker might be included in the list only if they have an upload ID lexicographically greater than the specified `upload-id-marker`.

> **Note**
>
> This functionality is not supported for directory buckets.

Type: String

Examples

Sample Request for general purpose buckets

The following request lists three multipart uploads. The request specifies the `max-uploads` request parameter to set the maximum number of multipart uploads to return in the response body.

```
GET /?uploads&max-uploads=3 HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
Date: Mon, 1 Nov 2010 20:34:56 GMT
Authorization: authorization string
```

Sample Response for general purpose buckets

The following sample response indicates that the multipart upload list was truncated and provides the `NextKeyMarker` and the `NextUploadIdMarker` elements. You specify these values in your subsequent requests to read the next set of multipart uploads. That is, send a subsequent

request specifying `key-marker=my-movie2.m2ts` (value of the `NextKeyMarker` element) and `upload-id-marker=YW55IGlkZWEgd2h5IGVsdmluZydzIHVwbG9hZCBmYWlsZWQ` (value of the `NextUploadIdMarker`).

The sample response also shows a case of two multipart uploads in progress with the same key (`my-movie.m2ts`). That is, the response shows two uploads with the same key. This response shows the uploads sorted by key, and within each key the uploads are sorted in ascending order by the time the multipart upload was initiated.

```
HTTP/1.1 200 OK
x-amz-id-2: Uuag1LuByRx9e6j5Onimru9pO4ZVKnJ2Qz7/C1NPcfTWAtRPfTaOFg==
x-amz-request-id: 656c76696e6727732072657175657374
Date: Mon, 1 Nov 2010 20:34:56 GMT
Content-Length: 1330
Connection: keep-alive
Server: AmazonS3

<?xml version="1.0" encoding="UTF-8"?>
<ListMultipartUploadsResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Bucket>bucket</Bucket>
  <KeyMarker></KeyMarker>
  <UploadIdMarker></UploadIdMarker>
  <NextKeyMarker>my-movie.m2ts</NextKeyMarker>
  <NextUploadIdMarker>YW55IGlkZWEgd2h5IGVsdmluZydzIHVwbG9hZCBmYWlsZWQ</
NextUploadIdMarker>
  <MaxUploads>3</MaxUploads>
  <IsTruncated>true</IsTruncated>
  <Upload>
    <Key>my-divisor</Key>
    <UploadId>XMgbGlrZSBlbHZpbmcncyBub3QgaGF2aW5nIG11Y2ggbHVjaw</UploadId>
    <Initiator>
      <ID>arn:aws:iam::111122223333:user/user1-11111a31-17b5-4fb7-9df5-b111111f13de</
ID>
      <DisplayName>user1-11111a31-17b5-4fb7-9df5-b111111f13de</DisplayName>
    </Initiator>
    <Owner>
      <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
      <DisplayName>OwnerDisplayName</DisplayName>
    </Owner>
    <StorageClass>STANDARD</StorageClass>
    <Initiated>2010-11-10T20:48:33.000Z</Initiated>
  </Upload>
```

```
  <Upload>
    <Key>my-movie.m2ts</Key>
    <UploadId>VXBsb2FkIElEIGZvciBlbHZpbmcncyBteS1tb3ZpZS5tMnRzIHVwbG9hZA</UploadId>
    <Initiator>
      <ID>b1d16700c70b0b05597d7acd6a3f92be</ID>
      <DisplayName>InitiatorDisplayName</DisplayName>
    </Initiator>
    <Owner>
      <ID>b1d16700c70b0b05597d7acd6a3f92be</ID>
      <DisplayName>OwnerDisplayName</DisplayName>
    </Owner>
    <StorageClass>STANDARD</StorageClass>
    <Initiated>2010-11-10T20:48:33.000Z</Initiated>
  </Upload>
  <Upload>
    <Key>my-movie.m2ts</Key>
    <UploadId>YW55IGlkZWEgd2h5IGVsdmluZydzIHVwbG9hZCBmYWlsZWQ</UploadId>
    <Initiator>
      <ID>arn:aws:iam::444455556666:user/user1-22222a31-17b5-4fb7-9df5-b222222f13de</
ID>
      <DisplayName>user1-22222a31-17b5-4fb7-9df5-b222222f13de</DisplayName>
    </Initiator>
    <Owner>
      <ID>b1d16700c70b0b05597d7acd6a3f92be</ID>
      <DisplayName>OwnerDisplayName</DisplayName>
    </Owner>
    <StorageClass>STANDARD</StorageClass>
    <Initiated>2010-11-10T20:49:33.000Z</Initiated>
  </Upload>
</ListMultipartUploadsResult>
```

Sample Request for general purpose buckets: Using the delimiter and the prefix parameters

Assume you have a multipart upload in progress for the following keys in your bucket, `example-bucket`.

- photos/2006/January/sample.jpg
- photos/2006/February/sample.jpg
- photos/2006/March/sample.jpg
- videos/2006/March/sample.wmv
- sample.jpg

The following list multipart upload request specifies the delimiter parameter with value "/".

```
GET /?uploads&delimiter=/ HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
Date: Mon, 1 Nov 2010 20:34:56 GMT
Authorization: authorization string
```

Sample Response for general purpose buckets

The following sample response lists multipart uploads on the specified bucket, `example-bucket`.

The response returns multipart upload for the `sample.jpg` key in an `<Upload>` element.

However, because all the other keys contain the specified delimiter, a distinct substring, from the beginning of the key to the first occurrence of the delimiter, from each of these keys is returned in a <CommonPrefixes> element. The key substrings, `photos/` and `videos/` in the <CommonPrefixes> element, indicate that there are one or more in-progress multipart uploads with these key prefixes.

This is a useful scenario if you use key prefixes for your objects to create a logical folder like structure. In this case, you can interpret the result as the folders `photos/` and `videos/` have one or more multipart uploads in progress.

```
<ListMultipartUploadsResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Bucket>example-bucket</Bucket>
  <KeyMarker/>
  <UploadIdMarker/>
  <NextKeyMarker>sample.jpg</NextKeyMarker>

 <NextUploadIdMarker>Agw4MJT6ZPAVxpY0SAuGN7q4uWJJM22ZYg1N99trdp4tpO88.PT6.MhO0w2E17eutfAvQfQWoa
</NextUploadIdMarker>
  <Delimiter>/</Delimiter>
  <Prefix/>
  <MaxUploads>1000</MaxUploads>
  <IsTruncated>false</IsTruncated>
  <Upload>
    <Key>sample.jpg</Key>
```

```
 <UploadId>Agw4MJT6ZPAVxpY0SAuGN7q4uWJJM22ZYg1N99trdp4tpO88.PT6.MhO0w2E17eutfAvQfQWoajgE_W2gpcx
</UploadId>
    <Initiator>
      <ID>314133b66967d86f031c7249d1d9a80249109428335cd0ef1cdc487b4566cb1b</ID>
      <DisplayName>string</DisplayName>
    </Initiator>
    <Owner>
      <ID>314133b66967d86f031c7249d1d9a80249109428335cd0ef1cdc487b4566cb1b</ID>
      <DisplayName>string</DisplayName>
    </Owner>
    <StorageClass>STANDARD</StorageClass>
    <Initiated>2010-11-26T19:24:17.000Z</Initiated>
  </Upload>
  <CommonPrefixes>
    <Prefix>photos/</Prefix>
  </CommonPrefixes>
  <CommonPrefixes>
    <Prefix>videos/</Prefix>
  </CommonPrefixes>
  </ListMultipartUploadsResult>
```

Sample Request for general purpose buckets

In addition to the delimiter parameter, you can filter results by adding a prefix parameter as shown in the following request.

```
GET /?uploads&delimiter=/&prefix=photos/2006/ HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
Date: Mon, 1 Nov 2010 20:34:56 GMT
Authorization: authorization string
```

Sample Response for general purpose buckets

In this case, the response will include only multipart uploads for keys that start with the specified prefix. The value returned in the <CommonPrefixes> element is a substring from the beginning of the key to the first occurrence of the specified delimiter after the prefix.

```
<?xml version="1.0" encoding="UTF-8"?>
<ListMultipartUploadsResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Bucket>example-bucket</Bucket>
  <KeyMarker/>
  <UploadIdMarker/>
  <NextKeyMarker/>
  <NextUploadIdMarker/>
  <Delimiter>/</Delimiter>
  <Prefix>photos/2006/</Prefix>
  <MaxUploads>1000</MaxUploads>
  <IsTruncated>false</IsTruncated>
  <CommonPrefixes>
    <Prefix>photos/2006/February/</Prefix>
  </CommonPrefixes>
  <CommonPrefixes>
    <Prefix>photos/2006/January/</Prefix>
  </CommonPrefixes>
  <CommonPrefixes>
    <Prefix>photos/2006/March/</Prefix>
  </CommonPrefixes>
</ListMultipartUploadsResult>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListObjects

Service: Amazon S3

> **Important**
>
> End of support notice: Beginning November 21, 2025, Amazon S3 will stop returning `DisplayName`. Update your applications to use canonical IDs (unique identifier for AWS accounts), AWS account ID (12 digit identifier) or IAM ARNs (full resource naming) as a direct replacement of `DisplayName`.
> Between July 15, 2025 and November 21, 2025, you will begin to see an increasing rate of missing `DisplayName` in the Owner object.
> This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

> **Note**
>
> This operation is not supported for directory buckets.

Returns some or all (up to 1,000) of the objects in a bucket. You can use the request parameters as selection criteria to return a subset of the objects in a bucket. A 200 OK response can contain valid or invalid XML. Be sure to design your application to parse the contents of the response and handle it appropriately.

> **Important**
>
> This action has been revised. We recommend that you use the newer version, ListObjectsV2, when developing applications. For backward compatibility, Amazon S3 continues to support `ListObjects`.

The following operations are related to `ListObjects`:

- ListObjectsV2
- GetObject

- PutObject
- CreateBucket
- ListBuckets

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?delimiter=Delimiter&encoding-type=EncodingType&marker=Marker&max-
keys=MaxKeys&prefix=Prefix HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-request-payer: RequestPayer
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-optional-object-attributes: OptionalObjectAttributes
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket containing the objects.

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format *Bucket-name*`.s3express-`*zone-id*`.`*region-code*`.amazonaws.com`. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format *bucket-base-name*`--`*zone-id*`--x-s3` (for example, *amzn-s3-demo-bucket*`--`*usw2-az1*`--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access

point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

delimiter

A delimiter is a character that you use to group keys.

`CommonPrefixes` is filtered out from results if it is not lexicographically greater than the key-marker.

encoding-type

Encoding type used by Amazon S3 to encode the object keys in the response. Responses are encoded only in UTF-8. An object key can contain any Unicode character. However, the XML 1.0 parser can't parse certain characters, such as characters with an ASCII value from 0 to 10. For characters that aren't supported in XML 1.0, you can add this parameter to request that Amazon S3 encode the keys in the response. For more information about characters to avoid in object key names, see Object key naming guidelines.

> **Note**
>
> When using the URL encoding type, non-ASCII characters that are used in an object's key name will be percent-encoded according to UTF-8 code values. For example, the object `test_file(3).png` will appear as `test_file%283%29.png`.

Valid Values: `url`

marker

Marker is where you want Amazon S3 to start listing from. Amazon S3 starts listing after this specified key. Marker can be any key in the bucket.

max-keys

Sets the maximum number of keys returned in the response. By default, the action returns up to 1,000 key names. The response might contain fewer keys but will never contain more.

prefix

Limits the response to keys that begin with the specified prefix.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-optional-object-attributes

Specifies the optional fields that you want returned in the response. Fields that you do not specify are not returned.

Valid Values: `RestoreStatus`

x-amz-request-payer

Confirms that the requester knows that she or he will be charged for the list objects request. Bucket owners need not specify this parameter in their requests.

Valid Values: `requester`

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-request-charged: RequestCharged
<?xml version="1.0" encoding="UTF-8"?>
<ListBucketResult>
   <IsTruncated>boolean</IsTruncated>
   <Marker>string</Marker>
   <NextMarker>string</NextMarker>
   <Contents>
      <ChecksumAlgorithm>string</ChecksumAlgorithm>
      ...
      <ChecksumType>string</ChecksumType>
      <ETag>string</ETag>
      <Key>string</Key>
      <LastModified>timestamp</LastModified>
      <Owner>
         <DisplayName>string</DisplayName>
         <ID>string</ID>
      </Owner>
      <RestoreStatus>
         <IsRestoreInProgress>boolean</IsRestoreInProgress>
         <RestoreExpiryDate>timestamp</RestoreExpiryDate>
      </RestoreStatus>
      <Size>long</Size>
      <StorageClass>string</StorageClass>
   </Contents>
   ...
   <Name>string</Name>
   <Prefix>string</Prefix>
   <Delimiter>string</Delimiter>
   <MaxKeys>integer</MaxKeys>
   <CommonPrefixes>
      <Prefix>string</Prefix>
   </CommonPrefixes>
   ...
   <EncodingType>string</EncodingType>
</ListBucketResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

The following data is returned in XML format by the service.

ListBucketResult

Root level tag for the ListBucketResult parameters.

Required: Yes

CommonPrefixes

All of the keys (up to 1,000) rolled up in a common prefix count as a single return when calculating the number of returns.

A response can contain `CommonPrefixes` only if you specify a delimiter.

`CommonPrefixes` contains all (if there are any) keys between `Prefix` and the next occurrence of the string specified by the delimiter.

`CommonPrefixes` lists keys that act like subdirectories in the directory specified by `Prefix`.

For example, if the prefix is `notes/` and the delimiter is a slash (/), as in `notes/summer/july`, the common prefix is `notes/summer/`. All of the keys that roll up into a common prefix count as a single return when calculating the number of returns.

Type: Array of CommonPrefix data types

Contents

Metadata about each object returned.

Type: Array of Object data types

Delimiter

Causes keys that contain the same string between the prefix and the first occurrence of the delimiter to be rolled up into a single result element in the `CommonPrefixes` collection. These rolled-up keys are not returned elsewhere in the response. Each rolled-up result counts as only one return against the `MaxKeys` value.

Type: String

EncodingType

Encoding type used by Amazon S3 to encode the object keys in the response. Responses are encoded only in UTF-8. An object key can contain any Unicode character. However, the XML 1.0 parser can't parse certain characters, such as characters with an ASCII value from 0 to 10. For characters that aren't supported in XML 1.0, you can add this parameter to request that Amazon S3 encode the keys in the response. For more information about characters to avoid in object key names, see Object key naming guidelines.

> **Note**
>
> When using the URL encoding type, non-ASCII characters that are used in an object's key name will be percent-encoded according to UTF-8 code values. For example, the object `test_file(3).`png will appear as `test_file%283%29.`png.

Type: String

Valid Values: `url`

IsTruncated

A flag that indicates whether Amazon S3 returned all of the results that satisfied the search criteria.

Type: Boolean

Marker

Indicates where in the bucket listing begins. Marker is included in the response if it was sent with the request.

Type: String

MaxKeys

The maximum number of keys returned in the response body.

Type: Integer

Name

The bucket name.

Type: String

NextMarker

When the response is truncated (the `IsTruncated` element value in the response is `true`), you can use the key name in this field as the `marker` parameter in the subsequent request to get the next set of objects. Amazon S3 lists objects in alphabetical order.

> **Note**
>
> This element is returned only if you have the `delimiter` request parameter specified. If the response does not include the `NextMarker` element and it is truncated, you can use the value of the last `Key` element in the response as the `marker` parameter in the subsequent request to get the next set of object keys.

Type: String

Prefix

Keys that begin with the indicated prefix.

Type: String

Errors

NoSuchBucket

The specified bucket does not exist.

HTTP Status Code: 404

Examples

Sample Request

This request returns the objects in `BucketName`.

```
GET / HTTP/1.1
Host: BucketName.s3.<Region>.amazonaws.com
Date: Wed, 12 Oct 2009 17:50:00 GMT
Authorization: authorization string
Content-Type: text/plain
```

Sample Response

This example illustrates one usage of ListObjects.

```
<?xml version="1.0" encoding="UTF-8"?>
<ListBucketResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
    <Name>bucket</Name>
    <Prefix/>
    <Marker/>
    <MaxKeys>1000</MaxKeys>
    <IsTruncated>false</IsTruncated>
    <Contents>
        <Key>my-image.jpg</Key>
        <LastModified>2009-10-12T17:50:30.000Z</LastModified>
        <ETag>"fba9dede5f27731c9771645a39863328"</ETag>
        <Size>434234</Size>
        <StorageClass>STANDARD</StorageClass>
        <Owner>
            <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
            <DisplayName>mtd@amazon.com</DisplayName>
```

```
        </Owner>
    </Contents>
    <Contents>
       <Key>my-third-image.jpg</Key>
         <LastModified>2009-10-12T17:50:30.000Z</LastModified>
         <ETag>"1b2cf535f27731c974343645a3985328"</ETag>
         <Size>64994</Size>
         <StorageClass>STANDARD_IA</StorageClass>
         <Owner>
            <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
            <DisplayName>mtd@amazon.com</DisplayName>
        </Owner>
    </Contents>
</ListBucketResult>
```

Sample Request: Using request parameters

This example lists up to 40 keys in the `quotes` bucket that start with `N` and occur lexicographically after `Ned`.

```
GET /?prefix=N&marker=Ned&max-keys=40 HTTP/1.1
Host: quotes.s3.<Region>.amazonaws.com
Date: Wed, 01 Mar  2006 12:00:00 GMT
Authorization: authorization string
```

Sample Response

This example illustrates one usage of ListObjects.

```
HTTP/1.1 200 OK
x-amz-id-2: gyB+3jRPnrkN98ZajxHXr3u7EFM67bNgSAxexeEHndCX/7GRnfTXxReKUQF28IfP
x-amz-request-id: 3B3C7C725673C630
Date: Wed, 01 Mar  2006 12:00:00 GMT
Content-Type: application/xml
Content-Length: 302
Connection: close
Server: AmazonS3
```

```
<?xml version="1.0" encoding="UTF-8"?>
<ListBucketResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Name>quotes</Name>
  <Prefix>N</Prefix>
  <Marker>Ned</Marker>
  <MaxKeys>40</MaxKeys>
  <IsTruncated>false</IsTruncated>
  <Contents>
    <Key>Nelson</Key>
    <LastModified>2006-01-01T12:00:00.000Z</LastModified>
    <ETag>"828ef3fdfa96f00ad9f27c383fc9ac7f"</ETag>
    <Size>5</Size>
    <StorageClass>STANDARD</StorageClass>
    <Owner>
      <ID>bcaf161ca5fb16fd081034f</ID>
      <DisplayName>webfile</DisplayName>
     </Owner>
  </Contents>
  <Contents>
    <Key>Neo</Key>
    <LastModified>2006-01-01T12:00:00.000Z</LastModified>
    <ETag>"828ef3fdfa96f00ad9f27c383fc9ac7f"</ETag>
    <Size>4</Size>
    <StorageClass>STANDARD</StorageClass>
     <Owner>
      <ID>bcaf1ffd86a5fb16fd081034f</ID>
      <DisplayName>webfile</DisplayName>
    </Owner>
 </Contents>
</ListBucketResult>
```

Sample Request: Using a prefix and delimiter

For this example, we assume that you have the following keys in your bucket:

- `sample.jpg`
- `photos/2006/January/sample.jpg`
- `photos/2006/February/sample2.jpg`
- `photos/2006/February/sample3.jpg`
- `photos/2006/February/sample4.jpg`

The following GET request specifies the `delimiter` parameter with a value of `/`.

```
GET /?delimiter=/ HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
Date: Wed, 01 Mar  2006 12:00:00 GMT
Authorization: authorization string
```

Sample Response

The key `sample.jpg` does not contain the delimiter character, and Amazon S3 returns it in the `Contents` element in the response. However, all of the other keys contain the delimiter character. Amazon S3 groups these keys and returns a single `CommonPrefixes` element with the `Prefix` value `photos/`, which is a substring from the beginning of these keys to the first occurrence of the specified delimiter.

```
<ListBucketResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Name>example-bucket</Name>
  <Prefix></Prefix>
  <Marker></Marker>
  <MaxKeys>1000</MaxKeys>
  <Delimiter>/</Delimiter>
  <IsTruncated>false</IsTruncated>
  <Contents>
    <Key>sample.jpg</Key>
    <LastModified>2011-02-26T01:56:20.000Z</LastModified>
    <ETag>"bf1d737a4d46a19f3bced6905cc8b902"</ETag>
    <Size>142863</Size>
    <Owner>
      <ID>canonical-user-id</ID>
      <DisplayName>display-name</DisplayName>
    </Owner>
    <StorageClass>STANDARD</StorageClass>
  </Contents>
  <CommonPrefixes>
    <Prefix>photos/</Prefix>
  </CommonPrefixes>
</ListBucketResult>
```

Sample Request

The following GET request specifies the `delimiter` parameter with the value `/`, and the `prefix` parameter with the value `photos/2006/`.

```
GET /?prefix=photos/2006/&delimiter=/ HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
Date: Wed, 01 Mar  2006 12:00:00 GMT
Authorization: authorization string
```

Sample Response

In response, Amazon S3 returns only the keys that start with the specified prefix. Amazon S3 uses the delimiter character to group keys that contain the same substring until the first occurrence of the delimiter character after the specified prefix. For each such key group, Amazon S3 returns one `CommonPrefixes` element in the response. The keys grouped under this `CommonPrefixes` element are not returned elsewhere in the response. The value returned in the `CommonPrefixes` element is a substring that starts at the beginning of the key and ends at the first occurrence of the specified delimiter after the prefix.

```
<ListBucketResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Name>example-bucket</Name>
  <Prefix>photos/2006/</Prefix>
  <Marker></Marker>
  <MaxKeys>1000</MaxKeys>
  <Delimiter>/</Delimiter>
  <IsTruncated>false</IsTruncated>

  <CommonPrefixes>
    <Prefix>photos/2006/February/</Prefix>
  </CommonPrefixes>
  <CommonPrefixes>
    <Prefix>photos/2006/January/</Prefix>
  </CommonPrefixes>
</ListBucketResult>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListObjectsV2

Service: Amazon S3

Returns some or all (up to 1,000) of the objects in a bucket with each request. You can use the request parameters as selection criteria to return a subset of the objects in a bucket. A `200 OK` response can contain valid or invalid XML. Make sure to design your application to parse the contents of the response and handle it appropriately. For more information about listing objects, see Listing object keys programmatically in the *Amazon S3 User Guide*. To get a list of your buckets, see ListBuckets.

> **Note**
>
> - **General purpose bucket** - For general purpose buckets, `ListObjectsV2` doesn't return prefixes that are related only to in-progress multipart uploads.
> - **Directory buckets** - For directory buckets, `ListObjectsV2` response includes the prefixes that are related only to in-progress multipart uploads.
> - **Directory buckets** - For directory buckets, you must make requests for this API operation to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://amzn-s3-demo-bucket.s3express-zone-id.region-code.amazonaws.com/key-name` . Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Permissions

- **General purpose bucket permissions** - To use this operation, you must have READ access to the bucket. You must have permission to perform the `s3:ListBucket` action. The bucket owner has this permission by default and can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources in the *Amazon S3 User Guide*.
- **Directory bucket permissions** - To grant access to this API operation on a directory bucket, we recommend that you use the `CreateSession` API operation for session-based authorization. Specifically, you grant the `s3express:CreateSession` permission to the directory bucket in a bucket policy or an IAM identity-based policy. Then, you make the

`CreateSession` API call on the bucket to obtain a session token. With the session token in your request header, you can make API requests to this operation. After the session token expires, you make another `CreateSession` API call to generate a new session token for use. AWS CLI or SDKs create session and refresh the session token automatically to avoid service interruptions when a session expires. For more information about authorization, see `CreateSession`.

Sorting order of returned objects

- **General purpose bucket** - For general purpose buckets, `ListObjectsV2` returns objects in lexicographical order based on their key names.
- **Directory bucket** - For directory buckets, `ListObjectsV2` does not return objects in lexicographical order.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is *`Bucket-name`*`.s3express-`*`zone-id`*`.`*`region-code`*`.amazonaws.com`.

> **Important**
>
> This section describes the latest revision of this action. We recommend that you use this revised API operation for application development. For backward compatibility, Amazon S3 continues to support the prior version of this API operation, ListObjects.

The following operations are related to `ListObjectsV2`:

- GetObject
- PutObject
- CreateBucket

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?list-type=2&continuation-token=ContinuationToken&delimiter=Delimiter&encoding-
type=EncodingType&fetch-owner=FetchOwner&max-keys=MaxKeys&prefix=Prefix&start-
after=StartAfter HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-request-payer: RequestPayer
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-optional-object-attributes: OptionalObjectAttributes
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format *Bucket-name*.s3express-*zone-id*.*region-code*.amazonaws.com. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format *bucket-base-name*--*zone-id*--x-s3 (for example, *amzn-s3-demo-bucket*--*usw2-az1*--x-s3). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

continuation-token

`ContinuationToken` indicates to Amazon S3 that the list is being continued on this bucket with a token. `ContinuationToken` is obfuscated and is not a real key. You can use this `ContinuationToken` for pagination of the list results.

delimiter

A delimiter is a character that you use to group keys.

`CommonPrefixes` is filtered out from results if it is not lexicographically greater than the `StartAfter` value.

> **Note**
>
> - **Directory buckets** - For directory buckets, `/` is the only supported delimiter.
> - **Directory buckets** - When you query `ListObjectsV2` with a delimiter during in-progress multipart uploads, the `CommonPrefixes` response parameter contains the prefixes that are associated with the in-progress multipart uploads. For more information about multipart uploads, see Multipart Upload Overview in the *Amazon S3 User Guide*.

encoding-type

Encoding type used by Amazon S3 to encode the object keys in the response. Responses are encoded only in UTF-8. An object key can contain any Unicode character. However, the XML 1.0 parser can't parse certain characters, such as characters with an ASCII value from 0 to 10. For characters that aren't supported in XML 1.0, you can add this parameter to request that Amazon S3 encode the keys in the response. For more information about characters to avoid in object key names, see Object key naming guidelines.

> **Note**
>
> When using the URL encoding type, non-ASCII characters that are used in an object's key name will be percent-encoded according to UTF-8 code values. For example, the object `test_file(3).png` will appear as `test_file%283%29.png`.

Valid Values: `url`

fetch-owner

The owner field is not present in `ListObjectsV2` by default. If you want to return the owner field with each key in the result, then set the `FetchOwner` field to `true`.

> **Note**
>
> **Directory buckets** - For directory buckets, the bucket owner is returned as the object owner for all objects.

max-keys

Sets the maximum number of keys returned in the response. By default, the action returns up to 1,000 key names. The response might contain fewer keys but will never contain more.

prefix

Limits the response to keys that begin with the specified prefix.

> **Note**
>
> **Directory buckets** - For directory buckets, only prefixes that end in a delimiter (/) are supported.

start-after

StartAfter is where you want Amazon S3 to start listing from. Amazon S3 starts listing after this specified key. StartAfter can be any key in the bucket.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-optional-object-attributes

Specifies the optional fields that you want returned in the response. Fields that you do not specify are not returned.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `RestoreStatus`

x-amz-request-payer

Confirms that the requester knows that she or he will be charged for the list objects request in V2 style. Bucket owners need not specify this parameter in their requests.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

```
x-amz-request-charged: RequestCharged
<?xml version="1.0" encoding="UTF-8"?>
<ListBucketResult>
   <IsTruncated>boolean</IsTruncated>
   <Contents>
      <ChecksumAlgorithm>string</ChecksumAlgorithm>
      ...
      <ChecksumType>string</ChecksumType>
      <ETag>string</ETag>
      <Key>string</Key>
      <LastModified>timestamp</LastModified>
      <Owner>
         <DisplayName>string</DisplayName>
         <ID>string</ID>
      </Owner>
      <RestoreStatus>
         <IsRestoreInProgress>boolean</IsRestoreInProgress>
         <RestoreExpiryDate>timestamp</RestoreExpiryDate>
      </RestoreStatus>
      <Size>long</Size>
      <StorageClass>string</StorageClass>
   </Contents>
   ...
   <Name>string</Name>
   <Prefix>string</Prefix>
   <Delimiter>string</Delimiter>
   <MaxKeys>integer</MaxKeys>
   <CommonPrefixes>
      <Prefix>string</Prefix>
   </CommonPrefixes>
   ...
   <EncodingType>string</EncodingType>
   <KeyCount>integer</KeyCount>
   <ContinuationToken>string</ContinuationToken>
   <NextContinuationToken>string</NextContinuationToken>
   <StartAfter>string</StartAfter>
</ListBucketResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

The following data is returned in XML format by the service.

ListBucketResult

Root level tag for the ListBucketResult parameters.

Required: Yes

CommonPrefixes

All of the keys (up to 1,000) that share the same prefix are grouped together. When counting the total numbers of returns by this API operation, this group of keys is considered as one item.

A response can contain `CommonPrefixes` only if you specify a delimiter.

`CommonPrefixes` contains all (if there are any) keys between `Prefix` and the next occurrence of the string specified by a delimiter.

`CommonPrefixes` lists keys that act like subdirectories in the directory specified by `Prefix`.

For example, if the prefix is `notes/` and the delimiter is a slash (/) as in `notes/summer/july`, the common prefix is `notes/summer/`. All of the keys that roll up into a common prefix count as a single return when calculating the number of returns.

> **Note**
>
> - **Directory buckets** - For directory buckets, only prefixes that end in a delimiter (/) are supported.

- **Directory buckets** - When you query `ListObjectsV2` with a delimiter during in-progress multipart uploads, the `CommonPrefixes` response parameter contains the prefixes that are associated with the in-progress multipart uploads. For more information about multipart uploads, see Multipart Upload Overview in the *Amazon S3 User Guide*.

Type: Array of CommonPrefix data types

Contents

Metadata about each object returned.

Type: Array of Object data types

ContinuationToken

If `ContinuationToken` was sent with the request, it is included in the response. You can use the returned `ContinuationToken` for pagination of the list response.

Type: String

Delimiter

Causes keys that contain the same string between the `prefix` and the first occurrence of the delimiter to be rolled up into a single result element in the `CommonPrefixes` collection. These rolled-up keys are not returned elsewhere in the response. Each rolled-up result counts as only one return against the `MaxKeys` value.

> **Note**
>
> **Directory buckets** - For directory buckets, `/` is the only supported delimiter.

Type: String

EncodingType

Encoding type used by Amazon S3 to encode object key names in the XML response.

If you specify the `encoding-type` request parameter, Amazon S3 includes this element in the response, and returns encoded key name values in the following response elements:

`Delimiter`, `Prefix`, `Key`, and `StartAfter`.

Type: String

Valid Values: `url`

IsTruncated

Set to `false` if all of the results were returned. Set to `true` if more keys are available to return. If the number of results exceeds that specified by `MaxKeys`, all of the results might not be returned.

Type: Boolean

KeyCount

`KeyCount` is the number of keys returned with this request. `KeyCount` will always be less than or equal to the `MaxKeys` field. For example, if you ask for 50 keys, your result will include 50 keys or fewer.

Type: Integer

MaxKeys

Sets the maximum number of keys returned in the response. By default, the action returns up to 1,000 key names. The response might contain fewer keys but will never contain more.

Type: Integer

Name

The bucket name.

Type: String

NextContinuationToken

`NextContinuationToken` is sent when `isTruncated` is true, which means there are more keys in the bucket that can be listed. The next list requests to Amazon S3 can be continued with this `NextContinuationToken`. `NextContinuationToken` is obfuscated and is not a real key

Type: String

Prefix

Keys that begin with the indicated prefix.

> **Note**
>
> **Directory buckets** - For directory buckets, only prefixes that end in a delimiter (/) are supported.

Type: String

StartAfter

If StartAfter was sent with the request, it is included in the response.

> **Note**
>
> This functionality is not supported for directory buckets.

Type: String

Errors

NoSuchBucket

The specified bucket does not exist.

HTTP Status Code: 404

Examples

Sample Request for general purpose buckets: Listing keys

This request returns the objects in `bucket`. The request specifies the `list-type` parameter, which indicates version 2 of the API operation.

```
GET /?list-type=2 HTTP/1.1
Host: bucket.s3.<Region>.amazonaws.com
x-amz-date: 20160430T233541Z
Authorization: authorization string
Content-Type: text/plain
```

Sample Response for general purpose buckets

This example illustrates one usage of ListObjectsV2.

```
<?xml version="1.0" encoding="UTF-8"?>
<ListBucketResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
    <Name>bucket</Name>
    <Prefix/>
    <KeyCount>205</KeyCount>
    <MaxKeys>1000</MaxKeys>
    <IsTruncated>false</IsTruncated>
    <Contents>
        <Key>my-image.jpg</Key>
        <LastModified>2009-10-12T17:50:30.000Z</LastModified>
        <ETag>"fba9dede5f27731c9771645a39863328"</ETag>
        <Size>434234</Size>
        <StorageClass>STANDARD</StorageClass>
    </Contents>
    <Contents>
       ...
    </Contents>
    ...
</ListBucketResult>
```

Sample Request for general purpose buckets: Listing keys using the max-keys, prefix, and start-after parameters

In addition to the `list-type` parameter that indicates version 2 of the API operation, the request also specifies additional parameters to retrieve up to three keys in the `quotes` bucket that start with E and occur lexicographically after `ExampleGuide.pdf`.

```
GET /?list-type=2&max-keys=3&prefix=E&start-after=ExampleGuide.pdf HTTP/1.1
Host: quotes.s3.<Region>.amazonaws.com
x-amz-date: 20160430T232933Z
Authorization: authorization string
```

Sample Response for general purpose buckets

This example illustrates one usage of ListObjectsV2.

```
HTTP/1.1 200 OK
x-amz-id-2: gyB+3jRPnrkN98ZajxHXr3u7EFM67bNgSAxexeEHndCX/7GRnfTXxReKUQF28IfP
x-amz-request-id: 3B3C7C725673C630
Date: Sat, 30 Apr 2016 23:29:37 GMT
Content-Type: application/xml
Content-Length: length
Connection: close
Server: AmazonS3

<?xml version="1.0" encoding="UTF-8"?>
<ListBucketResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Name>quotes</Name>
  <Prefix>E</Prefix>
  <StartAfter>ExampleGuide.pdf</StartAfter>
  <KeyCount>1</KeyCount>
  <MaxKeys>3</MaxKeys>
  <IsTruncated>false</IsTruncated>
  <Contents>
    <Key>ExampleObject.txt</Key>
    <LastModified>2013-09-17T18:07:53.000Z</LastModified>
    <ETag>"599bab3ed2c697f1d26842727561fd94"</ETag>
    <Size>857</Size>
    <StorageClass>REDUCED_REDUNDANCY</StorageClass>
  </Contents>
</ListBucketResult>
```

Sample Request for general purpose buckets: Listing keys by using the prefix and delimiter parameters

This example illustrates the use of the `prefix` and the `delimiter` parameters in the request. For this example, we assume that you have the following keys in your bucket:

- `sample.jpg`
- `photos/2006/January/sample.jpg`
- `photos/2006/February/sample2.jpg`

- photos/2006/February/sample3.jpg
- photos/2006/February/sample4.jpg

The following GET request specifies the delimiter parameter with a value of /.

```
GET /?list-type=2&delimiter=/ HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
x-amz-date: 20160430T235931Z
Authorization: authorization string
```

Sample Response for general purpose buckets

The key sample.jpg does not contain the delimiter character, and Amazon S3 returns it in the Contents element in the response. However, all of the other keys contain the delimiter character. Amazon S3 groups these keys and returns a single CommonPrefixes element with the Prefix value photos/. The Prefix element is a substring that starts at the beginning of these keys and ends at the first occurrence of the specified delimiter.

```
<ListBucketResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Name>example-bucket</Name>
  <Prefix></Prefix>
  <KeyCount>2</KeyCount>
  <MaxKeys>1000</MaxKeys>
  <Delimiter>/</Delimiter>
  <IsTruncated>false</IsTruncated>
  <Contents>
    <Key>sample.jpg</Key>
    <LastModified>2011-02-26T01:56:20.000Z</LastModified>
    <ETag>"bf1d737a4d46a19f3bced6905cc8b902"</ETag>
    <Size>142863</Size>
    <StorageClass>STANDARD</StorageClass>
  </Contents>
  <CommonPrefixes>
    <Prefix>photos/</Prefix>
  </CommonPrefixes>
</ListBucketResult>
```

Sample Request for general purpose buckets

The following request specifies the `delimiter` parameter with the value `/`, and the `prefix` parameter with the value `photos/2006/`.

```
GET /?list-type=2&prefix=photos/2006/&delimiter=/ HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
x-amz-date: 20160501T000433Z
Authorization: authorization string
```

Sample Response for general purpose buckets

In response, Amazon S3 returns only the keys that start with the specified prefix. Further, Amazon S3 uses the delimiter character to group keys that contain the same substring until the first occurrence of the delimiter character after the specified prefix. For each such key group, Amazon S3 returns one `CommonPrefixes` element in the response. The keys grouped under this `CommonPrefixes` element are not returned elsewhere in the response. The `Prefix` value returned in the `CommonPrefixes` element is a substring that starts at the beginning of the key and ends at the first occurrence of the specified delimiter after the prefix.

> **Note**
>
> If you created folders by using the Amazon S3 console, you will see an additional 0-byte object with a key of `photos/2006/`. This object is created because of the way that the console supports folder structures. For more information, see Organizing objects in the Amazon S3 console using folders in the *Amazon S3 User Guide*.

```
<ListBucketResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Name>example-bucket</Name>
  <Prefix>photos/2006/</Prefix>
  <KeyCount>2</KeyCount>
  <MaxKeys>1000</MaxKeys>
  <Delimiter>/</Delimiter>
  <IsTruncated>false</IsTruncated>
```

```
  <CommonPrefixes>
    <Prefix>photos/2006/February/</Prefix>
  </CommonPrefixes>
  <CommonPrefixes>
    <Prefix>photos/2006/January/</Prefix>
  </CommonPrefixes>
</ListBucketResult>
```

Sample Request for general purpose buckets: Using a continuation token

In this example, the initial request returns more than 1,000 keys. In response to this request, Amazon S3 returns the `IsTruncated` element with the value set to `true` and with a `NextContinuationToken` element.

```
GET /?list-type=2 HTTP/1.1
Host: bucket.s3.<Region>.amazonaws.com
Date: Mon, 02 May 2016 23:17:07 GMT
Authorization: authorization string
```

Sample Response for general purpose buckets: Using a continuation token

This example illustrates one usage of ListObjectsV2.

```
HTTP/1.1 200 OK
x-amz-id-2: gyB+3jRPnrkN98ZajxHXr3u7EFM67bNgSAxexeEHndCX/7GRnfTXxReKUQF28IfP
x-amz-request-id: 3B3C7C725673C630
Date: Sat, 30 Apr 2016 23:29:37 GMT
Content-Type: application/xml
Content-Length: length
Connection: close
Server: AmazonS3

<ListBucketResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Name>bucket</Name>
  <Prefix></Prefix>
  <NextContinuationToken>1ueGcxLPRx1Tr/XYExHnhbYLgveDs2J/wm36Hy4vbOwM=</
NextContinuationToken>
```

```
  <KeyCount>1000</KeyCount>
  <MaxKeys>1000</MaxKeys>
  <IsTruncated>true</IsTruncated>
  <Contents>
    <Key>happyface.jpg</Key>
    <LastModified>2014-11-21T19:40:05.000Z</LastModified>
    <ETag>"70ee1738b6b21e2c8a43f3a5ab0eee71"</ETag>
    <Size>11</Size>
    <StorageClass>STANDARD</StorageClass>
  </Contents>
   ...
</ListBucketResult>
```

Sample request for general purpose buckets

In the following subsequent request, we include a `continuation-token` query parameter in the request with the value of the `NextContinuationToken` element from the preceding response.

```
GET /?list-type=2 HTTP/1.1
GET /?list-type=2&continuation-token=1ueGcxLPRx1Tr/XYExHnhbYLgveDs2J/wm36Hy4vbOwM=
 HTTP/1.1

Host: bucket.s3.<Region>.amazonaws.com
Date: Mon, 02 May 2016 23:17:07 GMT
Authorization: authorization string
```

Sample response for general purpose buckets:

Amazon S3 returns a list of the next set of keys starting where the previous request ended.

```
HTTP/1.1 200 OK
x-amz-id-2: gyB+3jRPnrkN98ZajxHXr3u7EFM67bNgSAxexeEHndCX/7GRnfTXxReKUQF28IfP
x-amz-request-id: 3B3C7C725673C630
Date: Sat, 30 Apr 2016 23:29:37 GMT
Content-Type: application/xml
Content-Length: length
```

```
Connection: close
Server: AmazonS3

<ListBucketResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Name>bucket</Name>
  <Prefix></Prefix>
  <ContinuationToken>1ueGcxLPRx1Tr/XYExHnhbYLgveDs2J/wm36Hy4vbOwM=</ContinuationToken>
  <KeyCount>112</KeyCount>
  <MaxKeys>1000</MaxKeys>
  <IsTruncated>false</IsTruncated>
  <Contents>
    <Key>happyfacex.jpg</Key>
    <LastModified>2014-11-21T19:40:05.000Z</LastModified>
    <ETag>"70ee1738b6b21e2c8a43f3a5ab0eee71"</ETag>
    <Size>1111</Size>
    <StorageClass>STANDARD</StorageClass>
  </Contents>
   ...
</ListBucketResult>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListObjectVersions

Service: Amazon S3

Important

End of support notice: Beginning November 21, 2025, Amazon S3 will stop returning `DisplayName`. Update your applications to use canonical IDs (unique identifier for AWS accounts), AWS account ID (12 digit identifier) or IAM ARNs (full resource naming) as a direct replacement of `DisplayName`.

Between July 15, 2025 and November 21, 2025, you will begin to see an increasing rate of missing `DisplayName` in the Owner object.

This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

Note

This operation is not supported for directory buckets.

Returns metadata about all versions of the objects in a bucket. You can also use request parameters as selection criteria to return metadata about a subset of all the object versions.

Important

To use this operation, you must have permission to perform the `s3:ListBucketVersions` action. Be aware of the name difference.

Note

A `200 OK` response can contain valid or invalid XML. Make sure to design your application to parse the contents of the response and handle it appropriately.

To use this operation, you must have READ access to the bucket.

The following operations are related to `ListObjectVersions`:

- ListObjectsV2
- GetObject
- PutObject
- DeleteObject

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /?versions&delimiter=Delimiter&encoding-type=EncodingType&key-marker=KeyMarker&max-
keys=MaxKeys&prefix=Prefix&version-id-marker=VersionIdMarker HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-request-payer: RequestPayer
x-amz-optional-object-attributes: OptionalObjectAttributes
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name that contains the objects.

Required: Yes

delimiter

A delimiter is a character that you specify to group keys. All keys that contain the same string between the `prefix` and the first occurrence of the delimiter are grouped under a single result element in `CommonPrefixes`. These groups are counted as one result against the `max-keys` limitation. These keys are not returned elsewhere in the response.

`CommonPrefixes` is filtered out from results if it is not lexicographically greater than the key-marker.

encoding-type

Encoding type used by Amazon S3 to encode the object keys in the response. Responses are encoded only in UTF-8. An object key can contain any Unicode character. However, the XML 1.0 parser can't parse certain characters, such as characters with an ASCII value from 0 to 10. For characters that aren't supported in XML 1.0, you can add this parameter to request that Amazon S3 encode the keys in the response. For more information about characters to avoid in object key names, see Object key naming guidelines.

> **Note**
>
> When using the URL encoding type, non-ASCII characters that are used in an object's key name will be percent-encoded according to UTF-8 code values. For example, the object `test_file(3).png` will appear as `test_file%283%29.png`.

Valid Values: `url`

key-marker

Specifies the key to start with when listing objects in a bucket.

max-keys

Sets the maximum number of keys returned in the response. By default, the action returns up to 1,000 key names. The response might contain fewer keys but will never contain more. If additional keys satisfy the search criteria, but were not returned because `max-keys` was exceeded, the response contains `<isTruncated>true</isTruncated>`. To return the additional keys, see `key-marker` and `version-id-marker`.

prefix

Use this parameter to select only those keys that begin with the specified prefix. You can use prefixes to separate a bucket into different groupings of keys. (You can think of using `prefix` to make groups in the same way that you'd use a folder in a file system.) You can use `prefix` with `delimiter` to roll up numerous objects into a single result under `CommonPrefixes`.

version-id-marker

Specifies the object version you want to start listing from.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-optional-object-attributes

Specifies the optional fields that you want returned in the response. Fields that you do not specify are not returned.

Valid Values: `RestoreStatus`

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-request-charged: RequestCharged
<?xml version="1.0" encoding="UTF-8"?>
<ListVersionsResult>
   <IsTruncated>boolean</IsTruncated>
   <KeyMarker>string</KeyMarker>
   <VersionIdMarker>string</VersionIdMarker>
   <NextKeyMarker>string</NextKeyMarker>
   <NextVersionIdMarker>string</NextVersionIdMarker>
```

```
    <Version>
       <ChecksumAlgorithm>string</ChecksumAlgorithm>
       ...
       <ChecksumType>string</ChecksumType>
       <ETag>string</ETag>
       <IsLatest>boolean</IsLatest>
       <Key>string</Key>
       <LastModified>timestamp</LastModified>
       <Owner>
          <DisplayName>string</DisplayName>
          <ID>string</ID>
       </Owner>
       <RestoreStatus>
          <IsRestoreInProgress>boolean</IsRestoreInProgress>
          <RestoreExpiryDate>timestamp</RestoreExpiryDate>
       </RestoreStatus>
       <Size>long</Size>
       <StorageClass>string</StorageClass>
       <VersionId>string</VersionId>
    </Version>
    ...
    <DeleteMarker>
       <IsLatest>boolean</IsLatest>
       <Key>string</Key>
       <LastModified>timestamp</LastModified>
       <Owner>
          <DisplayName>string</DisplayName>
          <ID>string</ID>
       </Owner>
       <VersionId>string</VersionId>
    </DeleteMarker>
    ...
    <Name>string</Name>
    <Prefix>string</Prefix>
    <Delimiter>string</Delimiter>
    <MaxKeys>integer</MaxKeys>
    <CommonPrefixes>
       <Prefix>string</Prefix>
    </CommonPrefixes>
    ...
    <EncodingType>string</EncodingType>
</ListVersionsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

The following data is returned in XML format by the service.

ListVersionsResult

Root level tag for the ListVersionsResult parameters.

Required: Yes

CommonPrefixes

All of the keys rolled up into a common prefix count as a single return when calculating the number of returns.

Type: Array of CommonPrefix data types

DeleteMarker

Container for an object that is a delete marker. To learn more about delete markers, see Working with delete markers.

Type: Array of DeleteMarkerEntry data types

Delimiter

The delimiter grouping the included keys. A delimiter is a character that you specify to group keys. All keys that contain the same string between the prefix and the first occurrence of the delimiter are grouped under a single result element in `CommonPrefixes`. These groups are counted as one result against the `max-keys` limitation. These keys are not returned elsewhere in the response.

Type: String

EncodingType

Encoding type used by Amazon S3 to encode object key names in the XML response.

If you specify the `encoding-type` request parameter, Amazon S3 includes this element in the response, and returns encoded key name values in the following response elements:

`KeyMarker, NextKeyMarker, Prefix, Key`, and `Delimiter`.

Type: String

Valid Values: `url`

IsTruncated

A flag that indicates whether Amazon S3 returned all of the results that satisfied the search criteria. If your results were truncated, you can make a follow-up paginated request by using the `NextKeyMarker` and `NextVersionIdMarker` response parameters as a starting place in another request to return the rest of the results.

Type: Boolean

KeyMarker

Marks the last key returned in a truncated response.

Type: String

MaxKeys

Specifies the maximum number of objects to return.

Type: Integer

Name

The bucket name.

Type: String

NextKeyMarker

When the number of responses exceeds the value of `MaxKeys`, `NextKeyMarker` specifies the first key not returned that satisfies the search criteria. Use this value for the key-marker request parameter in a subsequent request.

Type: String

NextVersionIdMarker

When the number of responses exceeds the value of `MaxKeys`, `NextVersionIdMarker` specifies the first object version not returned that satisfies the search criteria. Use this value for the `version-id-marker` request parameter in a subsequent request.

Type: String

Prefix

Selects objects that start with the value supplied by this parameter.

Type: String

Version

Container for version information.

Type: Array of ObjectVersion data types

VersionIdMarker

Marks the last version of the key returned in a truncated response.

Type: String

Examples

Sample Request

The following request returns all of the versions of all of the objects in the specified bucket.

```
GET /?versions HTTP/1.1
Host: BucketName.s3.<Region>.amazonaws.com
Date: Wed, 28 Oct 2009 22:32:00 +0000
```

```
Authorization: authorization string (see Authenticating Requests (AWS Signature Version
  4))
```

Sample Response

This example illustrates one usage of ListObjectVersions.

```
<?xml version="1.0" encoding="UTF-8"?>

<ListVersionsResult xmlns="http://s3.amazonaws.com/doc/2006-03-01">
    <Name>bucket</Name>
    <Prefix>my</Prefix>
    <KeyMarker/>
    <VersionIdMarker/>
    <MaxKeys>5</MaxKeys>
    <IsTruncated>false</IsTruncated>
    <Version>
        <Key>my-image.jpg</Key>
        <VersionId>3/L4kqtJl40Nr8X8gdRQBpUMLUo</VersionId>
        <IsLatest>true</IsLatest>
         <LastModified>2009-10-12T17:50:30.000Z</LastModified>
        <ETag>"fba9dede5f27731c9771645a39863328"</ETag>
        <Size>434234</Size>
        <StorageClass>STANDARD</StorageClass>
        <Owner>
            <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
            <DisplayName>mtd@amazon.com</DisplayName>
        </Owner>
    </Version>
    <DeleteMarker>
        <Key>my-second-image.jpg</Key>
        <VersionId>03jpff543dhffds434rfdsFDN943fdsFkdmqnh892</VersionId>
        <IsLatest>true</IsLatest>
        <LastModified>2009-11-12T17:50:30.000Z</LastModified>
        <Owner>
            <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
            <DisplayName>mtd@amazon.com</DisplayName>
        </Owner>
    </DeleteMarker>
    <Version>
        <Key>my-second-image.jpg</Key>
        <VersionId>QUpfdndhfd8438MNFDN93jdnJFkdmqnh893</VersionId>
```

```
        <IsLatest>false</IsLatest>
        <LastModified>2009-10-10T17:50:30.000Z</LastModified>
        <ETag>"9b2cf535f27731c974343645a3985328"</ETag>
        <Size>166434</Size>
        <StorageClass>STANDARD</StorageClass>
        <Owner>
            <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
            <DisplayName>mtd@amazon.com</DisplayName>
        </Owner>
    </Version>
    <DeleteMarker>
        <Key>my-third-image.jpg</Key>
        <VersionId>03jpff543dhffds434rfdsFDN943fdsFkdmqnh892</VersionId>
        <IsLatest>true</IsLatest>
        <LastModified>2009-10-15T17:50:30.000Z</LastModified>
        <Owner>
            <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
            <DisplayName>mtd@amazon.com</DisplayName>
        </Owner>
    </DeleteMarker>
    <Version>
        <Key>my-third-image.jpg</Key>
        <VersionId>UIORUnfndfhnw89493jJFJ</VersionId>
        <IsLatest>false</IsLatest>
        <LastModified>2009-10-11T12:50:30.000Z</LastModified>
        <ETag>"772cf535f27731c974343645a3985328"</ETag>
        <Size>64</Size>
        <StorageClass>STANDARD</StorageClass>
        <Owner>
            <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
            <DisplayName>mtd@amazon.com</DisplayName>
        </Owner>
     </Version>
</ListVersionsResult>
```

Sample Request

The following request returns objects in the order that they were stored, returning the most recently stored object first, starting with the value for `key-marker`.

```
GET /?versions&key-marker=key2 HTTP/1.1
```

```
Host: s3.amazonaws.com
Pragma: no-cache
Accept: image/gif, image/x-xbitmap, image/jpeg, image/pjpeg, */*
Date: Thu, 10 Dec 2009 22:46:32 +0000
Authorization: signatureValue
```

Sample Response

This example illustrates one usage of ListObjectVersions.

```
<?xml version="1.0" encoding="UTF-8"?>
<ListVersionsResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Name>mtp-versioning-fresh</Name>
  <Prefix/>
  <KeyMarker>key2</KeyMarker>
  <VersionIdMarker/>
  <MaxKeys>1000</MaxKeys>
  <IsTruncated>false</IsTruncated>
  <Version>
    <Key>key3</Key>
    <VersionId>I5VhmK6CDDdQ5Pwfe1gcHZWmHDpcv7gfmfc29UBxsKU.</VersionId>
    <IsLatest>true</IsLatest>
    <LastModified>2009-12-09T00:19:04.000Z</LastModified>
    <ETag>"396fefef536d5ce46c7537ecf978a360"</ETag>
    <Size>217</Size>
    <Owner>
      <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
    </Owner>
    <StorageClass>STANDARD</StorageClass>
  </Version>
  <DeleteMarker>
    <Key>sourcekey</Key>
    <VersionId>qDhprLU80sAlCFLu2DWgXAEDgKzWarn-HS_JU0TvYqs.</VersionId>
    <IsLatest>true</IsLatest>
    <LastModified>2009-12-10T16:38:11.000Z</LastModified>
    <Owner>
      <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
    </Owner>
  </DeleteMarker>
  <Version>
    <Key>sourcekey</Key>
```

```
    <VersionId>wxxQ7ezLaL5JN2Sislq66Syxxo0k7uHTUpb9qiiMxNg.</VersionId>
    <IsLatest>false</IsLatest>
    <LastModified>2009-12-10T16:37:44.000Z</LastModified>
    <ETag>"396fefef536d5ce46c7537ecf978a360"</ETag>
    <Size>217</Size>
    <Owner>
      <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
    </Owner>
    <StorageClass>STANDARD</StorageClass>
  </Version>
</ListVersionsResult>
```

Sample Request Using the prefix Parameter

This example returns objects whose keys begin with `source`.

```
GET /?versions&prefix=source HTTP/1.1
Host: bucket.s3.<Region>.amazonaws.com
Date: Wed, 28 Oct 2009 22:32:00 +0000
Authorization: authorization string
```

Sample Response

This example illustrates one usage of ListObjectVersions.

```
<?xml version="1.0" encoding="UTF-8"?>
<ListVersionsResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Name>mtp-versioning-fresh</Name>
  <Prefix>source</Prefix>
  <KeyMarker/>
  <VersionIdMarker/>
  <MaxKeys>1000</MaxKeys>
  <IsTruncated>false</IsTruncated>
  <DeleteMarker>
    <Key>sourcekey</Key>
    <VersionId>qDhprLU80sAlCFLu2DWgXAEDgKzWarn-HS_JU0TvYqs.</VersionId>
    <IsLatest>true</IsLatest>
    <LastModified>2009-12-10T16:38:11.000Z</LastModified>
```

```
    <Owner>
      <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
    </Owner>
  </DeleteMarker>
  <Version>
    <Key>sourcekey</Key>
    <VersionId>wxxQ7ezLaL5JN2Sislq66Syxxo0k7uHTUpb9qiiMxNg.</VersionId>
    <IsLatest>false</IsLatest>
    <LastModified>2009-12-10T16:37:44.000Z</LastModified>
    <ETag>"396fefef536d5ce46c7537ecf978a360"</ETag>
    <Size>217</Size>
    <Owner>
      <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
    </Owner>
    <StorageClass>STANDARD</StorageClass>
  </Version>
</ListVersionsResult>
```

Sample Request: Using the key-marker and version-id-marker Parameters

The following example returns objects starting at the specified key (`key-marker`) and version ID (`version-id-marker`).

```
GET /?versions&key-marker=key3&version-id-marker=t46ZenlYTZBnj HTTP/1.1
Host: bucket.s3.<Region>.amazonaws.com
Date: Wed, 28 Oct 2009 22:32:00 +0000
Authorization: signatureValue
```

Sample Response

This example illustrates one usage of ListObjectVersions.

```
<?xml version="1.0" encoding="UTF-8"?>
<ListVersionsResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Name>mtp-versioning-fresh</Name>
  <Prefix/>
  <KeyMarker>key3</KeyMarker>
  <VersionIdMarker>t46ZenlYTZBnj</VersionIdMarker>
```

```
  <MaxKeys>1000</MaxKeys>
  <IsTruncated>false</IsTruncated>
  <DeleteMarker>
    <Key>sourcekey</Key>
    <VersionId>qDhprLU80sAlCFLu2DWgXAEDgKzWarn-HS_JU0TvYqs.</VersionId>
    <IsLatest>true</IsLatest>
    <LastModified>2009-12-10T16:38:11.000Z</LastModified>
    <Owner>
      <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
    </Owner>
  </DeleteMarker>
  <Version>
    <Key>sourcekey</Key>
    <VersionId>wxxQ7ezLaL5JN2Sislq66Syxxo0k7uHTUpb9qiiMxNg.</VersionId>
    <IsLatest>false</IsLatest>
    <LastModified>2009-12-10T16:37:44.000Z</LastModified>
    <ETag>"396fefef536d5ce46c7537ecf978a360"</ETag>
    <Size>217</Size>
    <Owner>
      <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
    </Owner>
    <StorageClass>STANDARD</StorageClass>
  </Version>
</ListVersionsResult>
```

Sample Request: Using the key-marker, version-id-marker, and max-keys Parameters

The following request returns up to three (the value of `max-keys`) objects starting with the key specified by `key-marker` and the version ID specified by `version-id-marker`.

```
GET /?versions&key-marker=key3&version-id-marker=t46Z0menlYTZBnj&max-keys=3
Host: bucket.s3.<Region>.amazonaws.com
Date: Wed, 28 Oct 2009 22:32:00 +0000
Authorization: authorization string
```

Sample Response

This example illustrates one usage of ListObjectVersions.

```
<?xml version="1.0" encoding="UTF-8"?>
<ListVersionsResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Name>mtp-versioning-fresh</Name>
  <Prefix/>
  <KeyMarker>key3</KeyMarker>
  <VersionIdMarker>null</VersionIdMarker>
  <NextKeyMarker>key3</NextKeyMarker>
  <NextVersionIdMarker>d-d309mfjFrUmoQ0DBsVqmcMV15OI.</NextVersionIdMarker>
  <MaxKeys>3</MaxKeys>
  <IsTruncated>true</IsTruncated>
  <Version>
    <Key>key3</Key>
    <VersionId>8XECiENpj8pydEDJdd-_VRrvaGKAHOaGMNW7tg6UViI.</VersionId>
    <IsLatest>false</IsLatest>
    <LastModified>2009-12-09T00:18:23.000Z</LastModified>
    <ETag>"396fefef536d5ce46c7537ecf978a360"</ETag>
    <Size>217</Size>
    <Owner>
      <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
    </Owner>
    <StorageClass>STANDARD</StorageClass>
  </Version>
  <Version>
    <Key>key3</Key>
    <VersionId>d-d309mfjFri40QYukDozqBt3UmoQ0DBsVqmcMV15OI.</VersionId>
    <IsLatest>false</IsLatest>
    <LastModified>2009-12-09T00:18:08.000Z</LastModified>
    <ETag>"396fefef536d5ce46c7537ecf978a360"</ETag>
    <Size>217</Size>
    <Owner>
      <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
    </Owner>
    <StorageClass>STANDARD</StorageClass>
  </Version>
</ListVersionsResult>
```

Sample Request: Using the delimiter and prefix Parameters

Assume you have the following keys in your bucket, `example-bucket`.

`photos/2006/January/sample.jpg`

`photos/2006/February/sample.jpg`

`photos/2006/March/sample.jpg`

`videos/2006/March/sample.wmv`

`sample.jpg`

The following `GET` versions request specifies the `delimiter` parameter with the value `/`.

```
GET /?versions&delimiter=/ HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
Date: Wed, 02 Feb 2011 20:34:56 GMT
Authorization: authorization string
```

Sample Response

The list of keys from the specified bucket is shown in the following response.

The response returns the `sample.jpg` key in a `Version` element. However, because all the other keys contain the specified delimiter, a distinct substring, from the beginning of the key to the first occurrence of the delimiter, from each of these keys is returned in a `CommonPrefixes` element. The key substrings, `photos/` and `videos/`, in the `CommonPrefixes` element indicate that there are one or more keys with these key prefixes.

This is a useful scenario if you use key prefixes for your objects to create a logical folder-like structure. In this case, you can interpret the result as the folders `photos/` and `videos/` have one or more objects.

```
<ListVersionsResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Name>mvbucketwithversionon1</Name>
  <Prefix></Prefix>
  <KeyMarker></KeyMarker>
  <VersionIdMarker></VersionIdMarker>
  <MaxKeys>1000</MaxKeys>
  <Delimiter>/</Delimiter>
  <IsTruncated>false</IsTruncated>

  <Version>
    <Key>Sample.jpg</Key>
    <VersionId>toxMzQlBsGyGCz1YuMWMp90cdXLzqOCH</VersionId>
```

```
    <IsLatest>true</IsLatest>
    <LastModified>2011-02-02T18:46:20.000Z</LastModified>
    <ETag>"3305f2cfc46c0f04559748bb039d69ae"</ETag>
    <Size>3191</Size>
    <Owner>
      <ID>852b113e7a2f25102679df27bb0ae12b3f85be6f290b936c4393484be31bebcc</ID>
      <DisplayName>display-name</DisplayName>
    </Owner>
    <StorageClass>STANDARD</StorageClass>
  </Version>

  <CommonPrefixes>
    <Prefix>photos/</Prefix>
  </CommonPrefixes>
  <CommonPrefixes>
    <Prefix>videos/</Prefix>
  </CommonPrefixes>
</ListVersionsResult>
```

Example

In addition to the `delimiter` parameter, you can filter results by adding a `prefix` parameter as shown in the following request.

```
GET /?versions&prefix=photos/2006/&delimiter=/ HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
Date: Wed, 02 Feb 2011 19:34:02 GMT
Authorization: authorization string
```

Example

In this case, the response will include only object keys that start with the specified prefix. The value returned in the `CommonPrefixes` element is a substring from the beginning of the key to the first occurrence of the specified delimiter after the prefix.

> **Note**
>
> If you created folders by using the Amazon S3 console, you will see an additional 0-byte object with a key of `photos/2006/`. This object is created because of the way that the

console supports folder structures. For more information, see Organizing objects in the Amazon S3 console using folders in the *Amazon S3 User Guide*.

```
<?xml version="1.0" encoding="UTF-8"?>
<ListVersionsResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Name>example-bucket</Name>
  <Prefix>photos/2006/</Prefix>
  <KeyMarker></KeyMarker>
  <VersionIdMarker></VersionIdMarker>
  <MaxKeys>1000</MaxKeys>
  <Delimiter>/</Delimiter>
  <IsTruncated>false</IsTruncated>
  <CommonPrefixes>
    <Prefix>photos/2006/February/</Prefix>
  </CommonPrefixes>
  <CommonPrefixes>
    <Prefix>photos/2006/January/</Prefix>
  </CommonPrefixes>
  <CommonPrefixes>
    <Prefix>photos/2006/March/</Prefix>
  </CommonPrefixes>
</ListVersionsResult>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin

- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListParts

Service: Amazon S3

> **Important**
>
> End of support notice: Beginning November 21, 2025, Amazon S3 will stop returning `DisplayName`. Update your applications to use canonical IDs (unique identifier for AWS accounts), AWS account ID (12 digit identifier) or IAM ARNs (full resource naming) as a direct replacement of `DisplayName`.
> Between July 15, 2025 and November 21, 2025, you will begin to see an increasing rate of missing `DisplayName` in the Owner object.
> This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

Lists the parts that have been uploaded for a specific multipart upload.

To use this operation, you must provide the `upload ID` in the request. You obtain this uploadID by sending the initiate multipart upload request through CreateMultipartUpload.

The `ListParts` request returns a maximum of 1,000 uploaded parts. The limit of 1,000 parts is also the default value. You can restrict the number of parts in a response by specifying the `max-parts` request parameter. If your multipart upload consists of more than 1,000 parts, the response returns an `IsTruncated` field with the value of `true`, and a `NextPartNumberMarker` element. To list remaining uploaded parts, in subsequent `ListParts` requests, include the `part-number-marker` query string parameter and set its value to the `NextPartNumberMarker` field value from the previous response.

For more information on multipart uploads, see Uploading Objects Using Multipart Upload in the *Amazon S3 User Guide*.

> **Note**
>
> **Directory buckets** - For directory buckets, you must make requests for this API operation to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://amzn-s3-demo-bucket.s3express-zone-id.region-`

code.amazonaws.com/*key-name* . Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Permissions

- **General purpose bucket permissions** - For information about permissions required to use the multipart upload API, see Multipart Upload and Permissions in the *Amazon S3 User Guide*.

  If the upload was created using server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS) or dual-layer server-side encryption with AWS KMS keys (DSSE-KMS), you must have permission to the `kms:Decrypt` action for the `ListParts` request to succeed.
- **Directory bucket permissions** - To grant access to this API operation on a directory bucket, we recommend that you use the `CreateSession` API operation for session-based authorization. Specifically, you grant the `s3express:CreateSession` permission to the directory bucket in a bucket policy or an IAM identity-based policy. Then, you make the `CreateSession` API call on the bucket to obtain a session token. With the session token in your request header, you can make API requests to this operation. After the session token expires, you make another `CreateSession` API call to generate a new session token for use. AWS CLI or SDKs create session and refresh the session token automatically to avoid service interruptions when a session expires. For more information about authorization, see `CreateSession`.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is *Bucket-name*.s3express-*zone-id*.*region-code*.amazonaws.com.

The following operations are related to `ListParts`:

- CreateMultipartUpload
- UploadPart
- CompleteMultipartUpload
- AbortMultipartUpload

- GetObjectAttributes
- ListMultipartUploads

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /Key+?max-parts=MaxParts&part-number-marker=PartNumberMarker&uploadId=UploadId
 HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-request-payer: RequestPayer
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key: SSECustomerKey
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket to which the parts are being uploaded.

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format `Bucket-name.s3express-zone-id.region-code.amazonaws.com`. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format `bucket-base-name--zone-id--x-s3` (for example, `amzn-s3-demo-bucket--usw2-az1--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access

point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

Key

Object key for which the multipart upload was initiated.

Length Constraints: Minimum length of 1.

Required: Yes

max-parts

Sets the maximum number of parts to return.

part-number-marker

Specifies the part after which listing should begin. Only parts with higher part numbers will be listed.

uploadId

Upload ID identifying the multipart upload whose parts are being listed.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-server-side-encryption-customer-algorithm

The server-side encryption (SSE) algorithm used to encrypt the object. This parameter is needed only when the object was created using a checksum algorithm. For more information, see Protecting data using SSE-C keys in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key

The server-side encryption (SSE) customer managed key. This parameter is needed only when the object was created using a checksum algorithm. For more information, see Protecting data using SSE-C keys in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key-MD5

The MD5 server-side encryption (SSE) customer managed key. This parameter is needed only when the object was created using a checksum algorithm. For more information, see Protecting data using SSE-C keys in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-abort-date: AbortDate
x-amz-abort-rule-id: AbortRuleId
x-amz-request-charged: RequestCharged
<?xml version="1.0" encoding="UTF-8"?>
<ListPartsResult>
   <Bucket>string</Bucket>
   <Key>string</Key>
   <UploadId>string</UploadId>
   <PartNumberMarker>integer</PartNumberMarker>
   <NextPartNumberMarker>integer</NextPartNumberMarker>
   <MaxParts>integer</MaxParts>
   <IsTruncated>boolean</IsTruncated>
   <Part>
      <ChecksumCRC32>string</ChecksumCRC32>
      <ChecksumCRC32C>string</ChecksumCRC32C>
      <ChecksumCRC64NVME>string</ChecksumCRC64NVME>
      <ChecksumSHA1>string</ChecksumSHA1>
      <ChecksumSHA256>string</ChecksumSHA256>
      <ETag>string</ETag>
      <LastModified>timestamp</LastModified>
      <PartNumber>integer</PartNumber>
      <Size>long</Size>
   </Part>
   ...
```

```
    <Initiator>
       <DisplayName>string</DisplayName>
       <ID>string</ID>
    </Initiator>
    <Owner>
       <DisplayName>string</DisplayName>
       <ID>string</ID>
    </Owner>
    <StorageClass>string</StorageClass>
    <ChecksumAlgorithm>string</ChecksumAlgorithm>
    <ChecksumType>string</ChecksumType>
</ListPartsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-abort-date

If the bucket has a lifecycle rule configured with an action to abort incomplete multipart uploads and the prefix in the lifecycle rule matches the object name in the request, then the response includes this header indicating when the initiated multipart upload will become eligible for abort operation. For more information, see Aborting Incomplete Multipart Uploads Using a Bucket Lifecycle Configuration.

The response will also include the `x-amz-abort-rule-id` header that will provide the ID of the lifecycle configuration rule that defines this action.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-abort-rule-id

This header is returned along with the `x-amz-abort-date` header. It identifies applicable lifecycle configuration rule that defines the action to abort incomplete multipart uploads.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

The following data is returned in XML format by the service.

ListPartsResult

Root level tag for the ListPartsResult parameters.

Required: Yes

Bucket

The name of the bucket to which the multipart upload was initiated. Does not return the access point ARN or access point alias if used.

Type: String

ChecksumAlgorithm

The algorithm that was used to create a checksum of the object.

Type: String

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

ChecksumType

The checksum type, which determines how part-level checksums are combined to create an object-level checksum for multipart objects. You can use this header response to verify that the checksum type that is received is the same checksum type that was specified in `CreateMultipartUpload` request. For more information, see Checking object integrity in the Amazon S3 User Guide.

Type: String

Valid Values: `COMPOSITE | FULL_OBJECT`

Initiator

Container element that identifies who initiated the multipart upload. If the initiator is an AWS account, this element provides the same information as the `Owner` element. If the initiator is an IAM User, this element provides the user ARN and display name.

Type: Initiator data type

IsTruncated

Indicates whether the returned list of parts is truncated. A true value indicates that the list was truncated. A list can be truncated if the number of parts exceeds the limit returned in the MaxParts element.

Type: Boolean

Key

Object key for which the multipart upload was initiated.

Type: String

Length Constraints: Minimum length of 1.

MaxParts

Maximum number of parts that were allowed in the response.

Type: Integer

NextPartNumberMarker

When a list is truncated, this element specifies the last part in the list, as well as the value to use for the `part-number-marker` request parameter in a subsequent request.

Type: Integer

Owner

Container element that identifies the object owner, after the object is created. If multipart upload is initiated by an IAM user, this element provides the parent account ID and display name.

> **Note**
>
> **Directory buckets** - The bucket owner is returned as the object owner for all the parts.

Type: Owner data type

Part

Container for elements related to a particular part. A response can contain zero or more `Part` elements.

Type: Array of Part data types

PartNumberMarker

Specifies the part after which listing should begin. Only parts with higher part numbers will be listed.

Type: Integer

StorageClass

The class of storage used to store the uploaded object.

> **Note**
>
> **Directory buckets** - Directory buckets only support `EXPRESS_ONEZONE` (the S3 Express One Zone storage class) in Availability Zones and `ONEZONE_IA` (the S3 One Zone-Infrequent Access storage class) in Dedicated Local Zones.

Type: String

Valid Values: `STANDARD | REDUCED_REDUNDANCY | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | GLACIER | DEEP_ARCHIVE | OUTPOSTS | GLACIER_IR | SNOW | EXPRESS_ONEZONE | FSX_OPENZFS`

UploadId

Upload ID identifying the multipart upload whose parts are being listed.

Type: String

Examples

Sample Request for general purpose buckets

Assume you have uploaded parts with sequential part numbers starting with 1. The following List Parts request specifies `max-parts` and `part-number-marker` query parameters. The request lists the first two parts that follow part number 1, that is, you will get parts 2 and 3 in the response. If more parts exist, the result is a truncated result and therefore the response will return an `IsTruncated` element with the value `true`. The response will also return the `NextPartNumberMarker` element with the value 3, which should be used for the value of the `part-number-marker` request query string parameter in the next ListParts request.

```
GET /example-object?
uploadId=XXBsb2FkIElEIGZvciBlbHZpbmcncyVcdS1tb3ZpZS5tMnRzEEEwbG9hZA&max-parts=2&part-
number-marker=1 HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
Date: Mon, 1 Nov 2010 20:34:56 GMT
Authorization: authorization string
```

Sample Response for general purpose buckets

This example illustrates one usage of ListParts.

```
HTTP/1.1 200 OK
x-amz-id-2: Uuag1LuByRx9e6j5Onimru9pO4ZVKnJ2Qz7/C1NPcfTWAtRPfTaOFg==
x-amz-request-id: 656c76696e67277320726571756573 74
Date: Mon, 1 Nov 2010 20:34:56 GMT
Content-Length: 985
Connection: keep-alive
```

```
Server: AmazonS3

<?xml version="1.0" encoding="UTF-8"?>
<ListPartsResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Bucket>example-bucket</Bucket>
  <Key>example-object</Key>
  <UploadId>XXBsb2FkIElEIGZvciBlbHZpbmcncyVcdS1tb3ZpZS5tMnRzEEEwbG9hZA</UploadId>
  <Initiator>
      <ID>arn:aws:iam::111122223333:user/some-user-11116a31-17b5-4fb7-9df5-
b288870f11xx</ID>
      <DisplayName>umat-user-11116a31-17b5-4fb7-9df5-b288870f11xx</DisplayName>
  </Initiator>
  <Owner>
    <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
    <DisplayName>someName</DisplayName>
  </Owner>
  <StorageClass>STANDARD</StorageClass>
  <PartNumberMarker>1</PartNumberMarker>
  <NextPartNumberMarker>3</NextPartNumberMarker>
  <MaxParts>2</MaxParts>
  <IsTruncated>true</IsTruncated>
  <Part>
    <PartNumber>2</PartNumber>
    <LastModified>2010-11-10T20:48:34.000Z</LastModified>
    <ETag>"7778aef83f66abc1fa1e8477f296d394"</ETag>
    <Size>10485760</Size>
  </Part>
  <Part>
    <PartNumber>3</PartNumber>
    <LastModified>2010-11-10T20:48:33.000Z</LastModified>
    <ETag>"aaaa18db4cc2f85cedef654fccc4a4x8"</ETag>
    <Size>10485760</Size>
  </Part>
</ListPartsResult>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET

- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketAccelerateConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Sets the accelerate configuration of an existing bucket. Amazon S3 Transfer Acceleration is a bucket-level feature that enables you to perform faster data transfers to Amazon S3.

To use this operation, you must have permission to perform the `s3:PutAccelerateConfiguration` action. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources.

The Transfer Acceleration state of a bucket can be set to one of the following two values:

- Enabled – Enables accelerated data transfers to the bucket.
- Suspended – Disables accelerated data transfers to the bucket.

The GetBucketAccelerateConfiguration action returns the transfer acceleration state of a bucket.

After setting the Transfer Acceleration state of a bucket to Enabled, it might take up to thirty minutes before the data transfer rates to the bucket increase.

The name of the bucket used for Transfer Acceleration must be DNS-compliant and must not contain periods (".").

For more information about transfer acceleration, see Transfer Acceleration.

The following operations are related to `PutBucketAccelerateConfiguration`:

- GetBucketAccelerateConfiguration
- CreateBucket

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?accelerate HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
<?xml version="1.0" encoding="UTF-8"?>
<AccelerateConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Status>string</Status>
</AccelerateConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket for which the accelerate configuration is set.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the request when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

Request Body

The request accepts the following data in XML format.

AccelerateConfiguration

Root level tag for the AccelerateConfiguration parameters.

Required: Yes

Status

Specifies the transfer acceleration status of the bucket.

Type: String

Valid Values: `Enabled` | `Suspended`

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample Request: Add transfer acceleration configuration to set acceleration status

The following is an example of a `PUT /?accelerate` request that enables transfer acceleration for the bucket named `examplebucket`.

```
PUT /?accelerate HTTP/1.1
```

```
Host: examplebucket.s3.<Region>.amazonaws.com
Date: Mon, 11 Apr 2016 12:00:00 GMT
Authorization: authorization string
Content-Type: text/plain
Content-Length: length

<AccelerateConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Status>Enabled</Status>
</AccelerateConfiguration>
```

Sample Response

This example illustrates one usage of PutBucketAccelerateConfiguration.

```
HTTP/1.1 200 OK
x-amz-id-2: YgIPIfBiKa2bj0KMg95r/0zo3emzU4dzsD4rcKCHQUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 236A8905248E5A01
Date: Mon, 11 Apr 2016 12:00:00 GMT
Content-Length: 0
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketAcl

Service: Amazon S3

> **Important**
>
> End of support notice: Beginning October 1, 2025, Amazon S3 will discontinue support for creating new Email Grantee Access Control Lists (ACL). Email Grantee ACLs created prior to this date will continue to work and remain accessible through the AWS Management Console, Command Line Interface (CLI), SDKs, and REST API. However, you will no longer be able to create new Email Grantee ACLs.
>
> Between July 15, 2025 and October 1, 2025, you will begin to see an increasing rate of `HTTP 405` errors for requests to Amazon S3 when attempting to create new Email Grantee ACLs.
>
> This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

> **Note**
>
> This operation is not supported for directory buckets.

Sets the permissions on an existing bucket using access control lists (ACL). For more information, see Using ACLs. To set the ACL of a bucket, you must have the `WRITE_ACP` permission.

You can use one of the following two ways to set a bucket's permissions:

- Specify the ACL in the request body
- Specify permissions using request headers

> **Note**
>
> You cannot specify access permission using both the body and the request headers.

Depending on your application needs, you may choose to set the ACL on a bucket using either the request body or the headers. For example, if you have an existing application that updates a bucket ACL using the request body, then you can continue to use that approach.

> **Important**
>
> If your bucket uses the bucket owner enforced setting for S3 Object Ownership, ACLs are disabled and no longer affect permissions. You must use policies to grant access to your bucket and the objects in it. Requests to set ACLs or update ACLs fail and return the `AccessControlListNotSupported` error code. Requests to read ACLs are still supported. For more information, see Controlling object ownership in the *Amazon S3 User Guide*.

Permissions

You can set access permissions by using one of the following methods:

- Specify a canned ACL with the `x-amz-acl` request header. Amazon S3 supports a set of predefined ACLs, known as *canned ACLs*. Each canned ACL has a predefined set of grantees and permissions. Specify the canned ACL name as the value of `x-amz-acl`. If you use this header, you cannot use other access control-specific headers in your request. For more information, see Canned ACL.
- Specify access permissions explicitly with the `x-amz-grant-read`, `x-amz-grant-read-acp`, `x-amz-grant-write-acp`, and `x-amz-grant-full-control` headers. When using these headers, you specify explicit access permissions and grantees (AWS accounts or Amazon S3 groups) who will receive the permission. If you use these ACL-specific headers, you cannot use the `x-amz-acl` header to set a canned ACL. These parameters map to the set of permissions that Amazon S3 supports in an ACL. For more information, see Access Control List (ACL) Overview.

  You specify each grantee as a type=value pair, where the type is one of the following:

  - `id` – if the value specified is the canonical user ID of an AWS account
  - `uri` – if you are granting permissions to a predefined group
  - `emailAddress` – if the value specified is the email address of an AWS account

> **Note**
>
> Using email addresses to specify a grantee is only supported in the following AWS Regions:
>
> - US East (N. Virginia)
> - US West (N. California)
> - US West (Oregon)
> - Asia Pacific (Singapore)
> - Asia Pacific (Sydney)
> - Asia Pacific (Tokyo)
> - Europe (Ireland)
> - South America (São Paulo)
>
> For a list of all the Amazon S3 supported Regions and endpoints, see Regions and Endpoints in the AWS General Reference.

For example, the following `x-amz-grant-write` header grants create, overwrite, and delete objects permission to LogDelivery group predefined by Amazon S3 and two AWS accounts identified by their email addresses.

```
x-amz-grant-write: uri="http://acs.amazonaws.com/groups/s3/
LogDelivery", id="111122223333", id="555566667777"
```

You can use either a canned ACL or specify access permissions explicitly. You cannot do both.

Grantee Values

You can specify the person (grantee) to whom you're assigning access rights (using request elements) in the following ways. For examples of how to specify these grantee values in JSON format, see the AWS CLI example in Enabling Amazon S3 server access logging in the *Amazon S3 User Guide*.

- By the person's ID:

```
<Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:type="CanonicalUser"><ID><>ID<></
ID><DisplayName><>GranteesEmail<></DisplayName> </Grantee>
```

DisplayName is optional and ignored in the request

- By URI:

```
<Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="Group"><URI><>http://acs.amazonaws.com/groups/global/
AuthenticatedUsers<></URI></Grantee>
```

- By Email address:

```
<Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="AmazonCustomerByEmail"><EmailAddress><>Grantees@email.com<></
EmailAddress>&</Grantee>
```

The grantee is resolved to the CanonicalUser and, in a response to a GET Object acl request, appears as the CanonicalUser.

> **Note**
>
> Using email addresses to specify a grantee is only supported in the following AWS Regions:
>
> - US East (N. Virginia)
> - US West (N. California)
> - US West (Oregon)
> - Asia Pacific (Singapore)
> - Asia Pacific (Sydney)
> - Asia Pacific (Tokyo)
> - Europe (Ireland)
> - South America (São Paulo)
>
> For a list of all the Amazon S3 supported Regions and endpoints, see Regions and Endpoints in the AWS General Reference.

The following operations are related to `PutBucketAcl`:

- CreateBucket
- DeleteBucket

- GetObjectAcl

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?acl HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-acl: ACL
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-grant-full-control: GrantFullControl
x-amz-grant-read: GrantRead
x-amz-grant-read-acp: GrantReadACP
x-amz-grant-write: GrantWrite
x-amz-grant-write-acp: GrantWriteACP
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<AccessControlPolicy xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <AccessControlList>
      <Grant>
         <Grantee>
            <DisplayName>string</DisplayName>
            <EmailAddress>string</EmailAddress>
            <ID>string</ID>
            <xsi:type>string</xsi:type>
            <URI>string</URI>
         </Grantee>
         <Permission>string</Permission>
      </Grant>
   </AccessControlList>
   <Owner>
      <DisplayName>string</DisplayName>
      <ID>string</ID>
   </Owner>
</AccessControlPolicy>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket to which to apply the ACL.

Required: Yes

Content-MD5

The Base64 encoded 128-bit `MD5` digest of the data. This header must be used as a message integrity check to verify that the request body was not corrupted in transit. For more information, go to RFC 1864.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

x-amz-acl

The canned ACL to apply to the bucket.

Valid Values: `private | public-read | public-read-write | authenticated-read`

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-grant-full-control

Allows grantee the read, write, read ACP, and write ACP permissions on the bucket.

x-amz-grant-read

Allows grantee to list the objects in the bucket.

x-amz-grant-read-acp

Allows grantee to read the bucket ACL.

x-amz-grant-write

Allows grantee to create new objects in the bucket.

For the bucket and object owners of existing objects, also allows deletions and overwrites of those objects.

x-amz-grant-write-acp

Allows grantee to write the ACL for the applicable bucket.

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the request when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Request Body

The request accepts the following data in XML format.

AccessControlPolicy

Root level tag for the AccessControlPolicy parameters.

Required: Yes

Grants

A list of grants.

Type: Array of Grant data types

Required: No

Owner

Container for the bucket owner's display name and ID.

Type: Owner data type

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample Request: Access permissions specified in the body

The following request grants access permission to the existing `examplebucket` bucket. The request specifies the ACL in the body. In addition to granting full control to the bucket owner, the XML specifies the following grants.

- Grant the `AllUsers` group READ permission on the bucket.
- Grant the `LogDelivery` group WRITE permission on the bucket.
- Grant an AWS account, identified by email address, WRITE_ACP permission.
- Grant an AWS account, identified by canonical user ID, READ_ACP permission.

```
PUT ?acl HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
Content-Length: 1660
x-amz-date: Thu, 12 Apr 2012 20:04:21 GMT
Authorization: authorization string

<AccessControlPolicy xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Owner>
    <ID>852b113e7a2f25102679df27bb0ae12b3f85be6BucketOwnerCanonicalUserID</ID>
    <DisplayName>OwnerDisplayName</DisplayName>
  </Owner>
  <AccessControlList>
    <Grant>
      <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:type="CanonicalUser">
        <ID>852b113e7a2f25102679df27bb0ae12b3f85be6BucketOwnerCanonicalUserID</ID>
        <DisplayName>OwnerDisplayName</DisplayName>
      </Grantee>
```

```
      <Permission>FULL_CONTROL</Permission>
    </Grant>
    <Grant>
      <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="Group">
        <URI xmlns="">http://acs.amazonaws.com/groups/global/AllUsers</URI>
      </Grantee>
      <Permission xmlns="">READ</Permission>
    </Grant>
    <Grant>
      <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="Group">
        <URI xmlns="">http://acs.amazonaws.com/groups/s3/LogDelivery</URI>
      </Grantee>
      <Permission xmlns="">WRITE</Permission>
    </Grant>
    <Grant>
      <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:type="AmazonCustomerByEmail">
        <EmailAddress xmlns="">xyz@amazon.com</EmailAddress>
      </Grantee>
      <Permission xmlns="">WRITE_ACP</Permission>
    </Grant>
    <Grant>
      <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:type="CanonicalUser">
        <ID
 xmlns="">f30716ab7115dcb44a5ef76e9d74b8e20567f63TestAccountCanonicalUserID</ID>
      </Grantee>
      <Permission xmlns="">READ_ACP</Permission>
    </Grant>
  </AccessControlList>
</AccessControlPolicy>
```

Sample Response

This example illustrates one usage of PutBucketAcl.

```
HTTP/1.1 200 OK
x-amz-id-2: NxqO3PNiMHXXGwjgv15LLgUoAmPVmG0xtZw2sxePXLhpIvcyouXDrcQUaWWXcOK0
x-amz-request-id: C651BC9B4E1BD401
Date: Thu, 12 Apr 2012 20:04:28 GMT
Content-Length: 0
Server: AmazonS3
```

Sample Request: Access permissions specified using headers

The following request uses ACL-specific request headers to grant the following permissions:

- Write permission to the Amazon S3 `LogDelivery` group and an AWS account identified by the email `xyz@amazon.com`.
- Read permission to the Amazon S3 `AllUsers` group

```
PUT ?acl HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
x-amz-date: Sun, 29 Apr 2012 22:00:57 GMT
x-amz-grant-write: uri="http://acs.amazonaws.com/groups/s3/LogDelivery",
 emailAddress="xyz@amazon.com"
x-amz-grant-read: uri="http://acs.amazonaws.com/groups/global/AllUsers"
Accept: */*
Authorization: authorization string
```

Sample Response

This example illustrates one usage of PutBucketAcl.

```
HTTP/1.1 200 OK
x-amz-id-2: 0w9iImt23VF9s6QofOTDzelF7mrryz7d04Mw23FQCi4O205Zw28Zn+d340/RytoQ
x-amz-request-id: A6A8F01A38EC7138
Date: Sun, 29 Apr 2012 22:01:10 GMT
Content-Length: 0
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface

- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketAnalyticsConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Sets an analytics configuration for the bucket (specified by the analytics configuration ID). You can have up to 1,000 analytics configurations per bucket.

You can choose to have storage class analysis export analysis reports sent to a comma-separated values (CSV) flat file. See the `DataExport` request element. Reports are updated daily and are based on the object filters that you configure. When selecting data export, you specify a destination bucket and an optional destination prefix where the file is written. You can export the data to a destination bucket in a different account. However, the destination bucket must be in the same Region as the bucket that you are making the PUT analytics configuration to. For more information, see Amazon S3 Analytics – Storage Class Analysis.

> **Important**
>
> You must create a bucket policy on the destination bucket where the exported file is written to grant permissions to Amazon S3 to write objects to the bucket. For an example policy, see Granting Permissions for Amazon S3 Inventory and Storage Class Analysis.

To use this operation, you must have permissions to perform the `s3:PutAnalyticsConfiguration` action. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources.

`PutBucketAnalyticsConfiguration` has the following special errors:

- • *HTTP Error: HTTP 400 Bad Request*
  - *Code: InvalidArgument*
  - *Cause: Invalid argument.*
- • *HTTP Error: HTTP 400 Bad Request*

- *Code: TooManyConfigurations*
- *Cause: You are attempting to create a new configuration but have already reached the 1,000-configuration limit.*
- • *HTTP Error: HTTP 403 Forbidden*
  - *Code: AccessDenied*
  - *Cause: You are not the owner of the specified bucket, or you do not have the s3:PutAnalyticsConfiguration bucket permission to set the configuration on the bucket.*

The following operations are related to `PutBucketAnalyticsConfiguration`:

- GetBucketAnalyticsConfiguration
- DeleteBucketAnalyticsConfiguration
- ListBucketAnalyticsConfigurations

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?analytics&id=Id HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<AnalyticsConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Id>string</Id>
   <Filter>
      <And>
         <Prefix>string</Prefix>
         <Tag>
            <Key>string</Key>
            <Value>string</Value>
         </Tag>
         ...
```

```
      </And>
      <Prefix>string</Prefix>
      <Tag>
         <Key>string</Key>
         <Value>string</Value>
      </Tag>
   </Filter>
   <StorageClassAnalysis>
      <DataExport>
         <Destination>
            <S3BucketDestination>
               <Bucket>string</Bucket>
               <BucketAccountId>string</BucketAccountId>
               <Format>string</Format>
               <Prefix>string</Prefix>
            </S3BucketDestination>
         </Destination>
         <OutputSchemaVersion>string</OutputSchemaVersion>
      </DataExport>
   </StorageClassAnalysis>
</AnalyticsConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket to which an analytics configuration is stored.

Required: Yes

id

The ID that identifies the analytics configuration.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request accepts the following data in XML format.

AnalyticsConfiguration

Root level tag for the AnalyticsConfiguration parameters.

Required: Yes

Filter

The filter used to describe a set of objects for analyses. A filter must have exactly one prefix, one tag, or one conjunction (AnalyticsAndOperator). If no filter is provided, all objects will be considered in any analysis.

Type: AnalyticsFilter data type

Required: No

Id

The ID that identifies the analytics configuration.

Type: String

Required: Yes

StorageClassAnalysis

Contains data related to access patterns to be collected and made available to analyze the tradeoffs between different storage classes.

Type: StorageClassAnalysis data type

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Example 1: Creating an analytics configuration

The following PUT request for the bucket `examplebucket` creates a new or replaces an existing analytics configuration with the ID `report1`. The configuration is defined in the request body.

```
PUT /?analytics&id=report1 HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
Date: Mon, 31 Oct 2016 12:00:00 GMT
Authorization: authorization string
Content-Length: length

<?xml version="1.0" encoding="UTF-8"?>
<AnalyticsConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Id>report1</Id>
  <Filter>
    <And>
      <Prefix>images/</Prefix>
      <Tag>
        <Key>dog</Key>
        <Value>corgi</Value>
      </Tag>
    </And>
  </Filter>
  <StorageClassAnalysis>
    <DataExport>
      <OutputSchemaVersion>V_1</OutputSchemaVersion>
      <Destination>
        <S3BucketDestination>
          <Format>CSV</Format>
          <BucketAccountId>123456789012</BucketAccountId>
          <Bucket>arn:aws:s3:::destination-bucket</Bucket>
          <Prefix>destination-prefix</Prefix>
        </S3BucketDestination>
      </Destination>
    </DataExport>
  </StorageClassAnalysis>
</AnalyticsConfiguration>
```

Sample Response

This example illustrates one usage of PutBucketAnalyticsConfiguration.

```
HTTP/1.1 200 OK
x-amz-id-2: YgIPIfBiKa2bj0KMg95r/0zo3emzU4dzsD4rcKCHQUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 236A8905248E5A01
Date: Mon, 31 Oct 2016 12:00:00 GMT
Content-Length: 0
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketCors

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Sets the `cors` configuration for your bucket. If the configuration exists, Amazon S3 replaces it.

To use this operation, you must be allowed to perform the `s3:PutBucketCORS` action. By default, the bucket owner has this permission and can grant it to others.

You set this configuration on a bucket so that the bucket can service cross-origin requests. For example, you might want to enable a request whose origin is `http://www.example.com` to access your Amazon S3 bucket at `my.example.bucket.com` by using the browser's `XMLHttpRequest` capability.

To enable cross-origin resource sharing (CORS) on a bucket, you add the `cors` subresource to the bucket. The `cors` subresource is an XML document in which you configure rules that identify origins and the HTTP methods that can be executed on your bucket. The document is limited to 64 KB in size.

When Amazon S3 receives a cross-origin request (or a pre-flight OPTIONS request) against a bucket, it evaluates the `cors` configuration on the bucket and uses the first `CORSRule` rule that matches the incoming browser request to enable a cross-origin request. For a rule to match, the following conditions must be met:

- The request's `Origin` header must match `AllowedOrigin` elements.
- The request method (for example, GET, PUT, HEAD, and so on) or the `Access-Control-Request-Method` header in case of a pre-flight `OPTIONS` request must be one of the `AllowedMethod` elements.
- Every header specified in the `Access-Control-Request-Headers` request header of a pre-flight request must match an `AllowedHeader` element.

For more information about CORS, go to Enabling Cross-Origin Resource Sharing in the *Amazon S3 User Guide*.

The following operations are related to `PutBucketCors`:

- GetBucketCors
- DeleteBucketCors
- RESTOPTIONSobject

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?cors HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<CORSConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <CORSRule>
      <AllowedHeader>string</AllowedHeader>
      ...
      <AllowedMethod>string</AllowedMethod>
      ...
      <AllowedOrigin>string</AllowedOrigin>
      ...
      <ExposeHeader>string</ExposeHeader>
      ...
      <ID>string</ID>
      <MaxAgeSeconds>integer</MaxAgeSeconds>
   </CORSRule>
   ...
</CORSConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

Specifies the bucket impacted by the `cors`configuration.

Required: Yes

Content-MD5

The Base64 encoded 128-bit `MD5` digest of the data. This header must be used as a message integrity check to verify that the request body was not corrupted in transit. For more information, go to RFC 1864.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the request when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Request Body

The request accepts the following data in XML format.

CORSConfiguration

Root level tag for the CORSConfiguration parameters.

Required: Yes

CORSRule

A set of origins and methods (cross-origin access that you want to allow). You can add up to 100 rules to the configuration.

Type: Array of CORSRule data types

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Example: CORS configuration on a bucket with two rules

- The first `CORSRule` allows cross-origin PUT, POST, and DELETE requests whose origin is `http://www.example.com` origins. The rule also allows all headers in a pre-flight OPTIONS request through the `Access-Control-Request-Headers` header. Therefore, in response to any pre-flight OPTIONS request, Amazon S3 will return any requested headers.
- The second rule allows cross-origin GET requests from all the origins. The '*' wildcard character refers to all origins.

```
<CORSConfiguration>
 <CORSRule>
   <AllowedOrigin>http://www.example.com</AllowedOrigin>

   <AllowedMethod>PUT</AllowedMethod>
   <AllowedMethod>POST</AllowedMethod>
   <AllowedMethod>DELETE</AllowedMethod>

   <AllowedHeader>*</AllowedHeader>
 </CORSRule>
 <CORSRule>
```

```
    <AllowedOrigin>*</AllowedOrigin>
    <AllowedMethod>GET</AllowedMethod>
  </CORSRule>
</CORSConfiguration>
```

Example: CORS configuration allows cross-origin PUT and POST requests from http://www.example.com

The `cors` configuration also allows additional optional configuration parameters as shown in the following cors configuration on a bucket. For example,

In the preceding configuration, `CORSRule` includes the following additional optional parameters:

- `MaxAgeSeconds`—Specifies the time in seconds that the browser will cache an Amazon S3 response to a pre-flight OPTIONS request for the specified resource. In this example, this parameter is 3000 seconds. Caching enables the browsers to avoid sending pre-flight OPTIONS request to Amazon S3 for repeated requests.
- `ExposeHeader`—Identifies the response header (in this case `x-amz-server-side-encryption`) that you want customers to be able to access from their applications (for example, from a JavaScript `XMLHttpRequest` object).

```
<CORSConfiguration>
 <CORSRule>
   <AllowedOrigin>http://www.example.com</AllowedOrigin>
   <AllowedMethod>PUT</AllowedMethod>
   <AllowedMethod>POST</AllowedMethod>
   <AllowedMethod>DELETE</AllowedMethod>
   <AllowedHeader>*</AllowedHeader>
   <MaxAgeSeconds>3000</MaxAgeSeconds>
   <ExposeHeader>x-amz-server-side-encryption</ExposeHeader>
 </CORSRule>
</CORSConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface

- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketEncryption

Service: Amazon S3

This operation configures default encryption and Amazon S3 Bucket Keys for an existing bucket.

> **Note**
>
> **Directory buckets** - For directory buckets, you must make requests for this API operation to the Regional endpoint. These endpoints support path-style requests in the format `https://s3express-control.region-code.amazonaws.com/bucket-name` . Virtual-hosted-style requests aren't supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

By default, all buckets have a default encryption configuration that uses server-side encryption with Amazon S3 managed keys (SSE-S3).

> **Note**
>
> - **General purpose buckets**
> - You can optionally configure default encryption for a bucket by using server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS) or dual-layer server-side encryption with AWS KMS keys (DSSE-KMS). If you specify default encryption by using SSE-KMS, you can also configure Amazon S3 Bucket Keys. For information about the bucket default encryption feature, see Amazon S3 Bucket Default Encryption in the *Amazon S3 User Guide*.
> - If you use PutBucketEncryption to set your default bucket encryption to SSE-KMS, you should verify that your KMS key ID is correct. Amazon S3 doesn't validate the KMS key ID provided in PutBucketEncryption requests.
> - **Directory buckets** - You can optionally configure default encryption for a bucket by using server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS).
> - We recommend that the bucket's default encryption uses the desired encryption configuration and you don't override the bucket default encryption in your `CreateSession` requests or PUT object requests. Then, new objects are automatically

encrypted with the desired encryption settings. For more information about the encryption overriding behaviors in directory buckets, see Specifying server-side encryption with AWS KMS for new object uploads.

- Your SSE-KMS configuration can only support 1 customer managed key per directory bucket's lifetime. The AWS managed key (`aws/s3`) isn't supported.
- S3 Bucket Keys are always enabled for `GET` and `PUT` operations in a directory bucket and can't be disabled. S3 Bucket Keys aren't supported, when you copy SSE-KMS encrypted objects from general purpose buckets to directory buckets, from directory buckets to general purpose buckets, or between directory buckets, through CopyObject, UploadPartCopy, the Copy operation in Batch Operations, or the import jobs. In this case, Amazon S3 makes a call to AWS KMS every time a copy request is made for a KMS-encrypted object.
- When you specify an AWS KMS customer managed key for encryption in your directory bucket, only use the key ID or key ARN. The key alias format of the KMS key isn't supported.
- For directory buckets, if you use PutBucketEncryption to set your default bucket encryption to SSE-KMS, Amazon S3 validates the KMS key ID provided in PutBucketEncryption requests.

Important

If you're specifying a customer managed KMS key, we recommend using a fully qualified KMS key ARN. If you use a KMS key alias instead, then AWS KMS resolves the key within the requester's account. This behavior can result in data that's encrypted with a KMS key that belongs to the requester, and not the bucket owner.
Also, this action requires AWS Signature Version 4. For more information, see Authenticating Requests (AWS Signature Version 4).

Permissions

- **General purpose bucket permissions** - The `s3:PutEncryptionConfiguration` permission is required in a policy. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Operations and Managing Access Permissions to Your Amazon S3 Resources in the *Amazon S3 User Guide*.

- **Directory bucket permissions** - To grant access to this API operation, you must have the `s3express:PutEncryptionConfiguration` permission in an IAM identity-based policy instead of a bucket policy. Cross-account access to this API operation isn't supported. This operation can only be performed by the AWS account that owns the resource. For more information about directory bucket policies and permissions, see AWS Identity and Access Management (IAM) for S3 Express One Zone in the *Amazon S3 User Guide*.

  To set a directory bucket default encryption with SSE-KMS, you must also have the `kms:GenerateDataKey` and the `kms:Decrypt` permissions in IAM identity-based policies and AWS KMS key policies for the target AWS KMS key.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `s3express-control.`*`region-code`*`.amazonaws.com`.

The following operations are related to `PutBucketEncryption`:

- GetBucketEncryption
- DeleteBucketEncryption

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?encryption HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<ServerSideEncryptionConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Rule>
      <ApplyServerSideEncryptionByDefault>
```

```
            <KMSMasterKeyID>string</KMSMasterKeyID>
            <SSEAlgorithm>string</SSEAlgorithm>
        </ApplyServerSideEncryptionByDefault>
        <BucketKeyEnabled>boolean</BucketKeyEnabled>
    </Rule>
    ...
</ServerSideEncryptionConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

Specifies default encryption for a bucket using server-side encryption with different key options.

Directory buckets - When you use this operation with a directory bucket, you must use path-style requests in the format `https://s3express-control.`*`region-code`*`.amazonaws.com/`*`bucket-name`* . Virtual-hosted-style requests aren't supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must also follow the format *`bucket-base-name--zone-id--x-s3`* (for example, *`DOC-EXAMPLE-BUCKET--usw2-az1--x-s3`*). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*

Required: Yes

Content-MD5

The Base64 encoded 128-bit `MD5` digest of the server-side encryption configuration.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

> **Note**
>
> For directory buckets, this header is not supported in this API operation. If you specify this header, the request fails with the HTTP status code `501 Not Implemented`.

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the request when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

> **Note**
>
> For directory buckets, when you use AWS SDKs, `CRC32` is the default checksum algorithm that's used for performance.

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

Request Body

The request accepts the following data in XML format.

ServerSideEncryptionConfiguration

Root level tag for the ServerSideEncryptionConfiguration parameters.

Required: Yes

Rule

Container for information about a particular server-side encryption configuration rule.

Type: Array of ServerSideEncryptionRule data types

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

In the request, you specify the encryption configuration in the request body. The encryption configuration is specified as XML, as shown in the following examples that show setting encryption using SSE-S3, SSE-KMS, or DSSE-KMS.

Request Body for Setting SSE-S3 for general purpose buckets

This example illustrates one usage of PutBucketEncryption.

```
           <ServerSideEncryptionConfiguration xmlns="http://s3.amazonaws.com/
doc/2006-03-01/">
               <Rule>
                  <ApplyServerSideEncryptionByDefault>
                     <SSEAlgorithm>AES256</SSEAlgorithm>
                  </ApplyServerSideEncryptionByDefault>
               </Rule>
            </ServerSideEncryptionConfiguration>
```

Request Body for Setting SSE-KMS for general purpose buckets

This example illustrates one usage of PutBucketEncryption.

```
            <ServerSideEncryptionConfiguration xmlns="http://s3.amazonaws.com/
doc/2006-03-01/">
                <Rule>
                   <ApplyServerSideEncryptionByDefault>
                       <SSEAlgorithm>aws:kms:dsse</SSEAlgorithm>
                       <KMSKeyID>arn:aws:kms:us-east-1:1234/5678example</KMSKeyID>
                   </ApplyServerSideEncryptionByDefault>
                </Rule>
             </ServerSideEncryptionConfiguration>
```

Set the Default Encryption Configuration for an S3 general purpose bucket

The following is an example of a PUT /? encryption request that specifies to use SSE-KMS encryption.

```
PUT /?encryption HTTP/1.1
Host: examplebucket.<Region>s3.amazonaws.com
Date: Wed, 06 Sep 2017 12:00:00 GMT
Authorization: authorization
Content-Length: length

<ServerSideEncryptionConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Rule>
    <ApplyServerSideEncryptionByDefault>
        <SSEAlgorithm>aws:kms</SSEAlgorithm>
        <KMSKeyID>arn:aws:kms:us-east-1:1234/5678example</KMSKeyID>
    </ApplyServerSideEncryptionByDefault>
</Rule>
</ServerSideEncryptionConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2

- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketIntelligentTieringConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Puts a S3 Intelligent-Tiering configuration to the specified bucket. You can have up to 1,000 S3 Intelligent-Tiering configurations per bucket.

The S3 Intelligent-Tiering storage class is designed to optimize storage costs by automatically moving data to the most cost-effective storage access tier, without performance impact or operational overhead. S3 Intelligent-Tiering delivers automatic cost savings in three low latency and high throughput access tiers. To get the lowest storage cost on data that can be accessed in minutes to hours, you can choose to activate additional archiving capabilities.

The S3 Intelligent-Tiering storage class is the ideal storage class for data with unknown, changing, or unpredictable access patterns, independent of object size or retention period. If the size of an object is less than 128 KB, it is not monitored and not eligible for auto-tiering. Smaller objects can be stored, but they are always charged at the Frequent Access tier rates in the S3 Intelligent-Tiering storage class.

For more information, see Storage class for automatically optimizing frequently and infrequently accessed objects.

Operations related to `PutBucketIntelligentTieringConfiguration` include:

- DeleteBucketIntelligentTieringConfiguration
- GetBucketIntelligentTieringConfiguration
- ListBucketIntelligentTieringConfigurations

> **Note**
>
> You only need S3 Intelligent-Tiering enabled on a bucket if you want to automatically move objects stored in the S3 Intelligent-Tiering storage class to the Archive Access or Deep Archive Access tier.

`PutBucketIntelligentTieringConfiguration` has the following special errors:

HTTP 400 Bad Request Error

Code: InvalidArgument

Cause: Invalid Argument

HTTP 400 Bad Request Error

Code: TooManyConfigurations

Cause: You are attempting to create a new configuration but have already reached the 1,000-configuration limit.

HTTP 403 Forbidden Error

Cause: You are not the owner of the specified bucket, or you do not have the `s3:PutIntelligentTieringConfiguration` bucket permission to set the configuration on the bucket.

Important

You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?intelligent-tiering&id=Id HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<IntelligentTieringConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Id>string</Id>
   <Filter>
      <And>
         <Prefix>string</Prefix>
         <Tag>
            <Key>string</Key>
```

```
            <Value>string</Value>
         </Tag>
         ...
      </And>
      <Prefix>string</Prefix>
      <Tag>
         <Key>string</Key>
         <Value>string</Value>
      </Tag>
   </Filter>
   <Status>string</Status>
   <Tiering>
      <AccessTier>string</AccessTier>
      <Days>integer</Days>
   </Tiering>
   ...
</IntelligentTieringConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the Amazon S3 bucket whose configuration you want to modify or retrieve.

Required: Yes

id

The ID used to identify the S3 Intelligent-Tiering configuration.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request accepts the following data in XML format.

IntelligentTieringConfiguration

Root level tag for the IntelligentTieringConfiguration parameters.

Required: Yes

Filter

Specifies a bucket filter. The configuration only includes objects that meet the filter's criteria.

Type: IntelligentTieringFilter data type

Required: No

Id

The ID used to identify the S3 Intelligent-Tiering configuration.

Type: String

Required: Yes

Status

Specifies the status of the configuration.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

Tiering

Specifies the S3 Intelligent-Tiering storage class tier of the configuration.

Type: Array of Tiering data types

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketInventoryConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

This implementation of the PUT action adds an S3 Inventory configuration (identified by the inventory ID) to the bucket. You can have up to 1,000 inventory configurations per bucket.

Amazon S3 inventory generates inventories of the objects in the bucket on a daily or weekly basis, and the results are published to a flat file. The bucket that is inventoried is called the *source* bucket, and the bucket where the inventory flat file is stored is called the *destination* bucket. The *destination* bucket must be in the same AWS Region as the *source* bucket.

When you configure an inventory for a *source* bucket, you specify the *destination* bucket where you want the inventory to be stored, and whether to generate the inventory daily or weekly. You can also configure what object metadata to include and whether to inventory all object versions or only current versions. For more information, see Amazon S3 Inventory in the Amazon S3 User Guide.

> **Important**
>
> You must create a bucket policy on the *destination* bucket to grant permissions to Amazon S3 to write objects to the bucket in the defined location. For an example policy, see Granting Permissions for Amazon S3 Inventory and Storage Class Analysis.

Permissions

To use this operation, you must have permission to perform the `s3:PutInventoryConfiguration` action. The bucket owner has this permission by default and can grant this permission to others.

The `s3:PutInventoryConfiguration` permission allows a user to create an S3 Inventory report that includes all object metadata fields available and to specify the destination bucket to store the inventory. A user with read access to objects in the destination bucket can also access all object metadata fields that are available in the inventory report.

To restrict access to an inventory report, see Restricting access to an Amazon S3 Inventory report in the *Amazon S3 User Guide*. For more information about the metadata fields available in S3 Inventory, see Amazon S3 Inventory lists in the *Amazon S3 User Guide*. For more information about permissions, see Permissions related to bucket subresource operations and Identity and access management in Amazon S3 in the *Amazon S3 User Guide*.

`PutBucketInventoryConfiguration` has the following special errors:

HTTP 400 Bad Request Error

Code: InvalidArgument

Cause: Invalid Argument

HTTP 400 Bad Request Error

Code: TooManyConfigurations

Cause: You are attempting to create a new configuration but have already reached the 1,000-configuration limit.

HTTP 403 Forbidden Error

Cause: You are not the owner of the specified bucket, or you do not have the `s3:PutInventoryConfiguration` bucket permission to set the configuration on the bucket.

The following operations are related to `PutBucketInventoryConfiguration`:

- GetBucketInventoryConfiguration
- DeleteBucketInventoryConfiguration
- ListBucketInventoryConfigurations

Important

You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?inventory&id=Id HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<InventoryConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Destination>
      <S3BucketDestination>
         <AccountId>string</AccountId>
         <Bucket>string</Bucket>
         <Encryption>
            <SSE-KMS>
               <KeyId>string</KeyId>
            </SSE-KMS>
            <SSE-S3>
            </SSE-S3>
         </Encryption>
         <Format>string</Format>
         <Prefix>string</Prefix>
      </S3BucketDestination>
   </Destination>
   <IsEnabled>boolean</IsEnabled>
   <Filter>
      <Prefix>string</Prefix>
   </Filter>
   <Id>string</Id>
   <IncludedObjectVersions>string</IncludedObjectVersions>
   <OptionalFields>
      <Field>string</Field>
   </OptionalFields>
   <Schedule>
      <Frequency>string</Frequency>
   </Schedule>
</InventoryConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket where the inventory configuration will be stored.

Required: Yes

id

The ID used to identify the inventory configuration.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request accepts the following data in XML format.

InventoryConfiguration

Root level tag for the InventoryConfiguration parameters.

Required: Yes

Destination

Contains information about where to publish the inventory results.

Type: InventoryDestination data type

Required: Yes

Filter

Specifies an inventory filter. The inventory only includes objects that meet the filter's criteria.

Type: InventoryFilter data type

Required: No

Id

The ID used to identify the inventory configuration.

Type: String

Required: Yes

IncludedObjectVersions

Object versions to include in the inventory list. If set to `All`, the list includes all the object versions, which adds the version-related fields `VersionId`, `IsLatest`, and `DeleteMarker` to the list. If set to `Current`, the list does not contain these version-related fields.

Type: String

Valid Values: `All | Current`

Required: Yes

IsEnabled

Specifies whether the inventory is enabled or disabled. If set to `True`, an inventory list is generated. If set to `False`, no inventory list is generated.

Type: Boolean

Required: Yes

OptionalFields

Contains the optional fields that are included in the inventory results.

Type: Array of strings

Valid Values: `Size | LastModifiedDate | StorageClass | ETag | IsMultipartUploaded | ReplicationStatus | EncryptionStatus | ObjectLockRetainUntilDate | ObjectLockMode | ObjectLockLegalHoldStatus | IntelligentTieringAccessTier | BucketKeyStatus | ChecksumAlgorithm | ObjectAccessControlList | ObjectOwner`

Required: No

Schedule

Specifies the schedule for generating inventory results.

Type: InventorySchedule data type

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Example: Create an inventory configuration

The following PUT request and response for the bucket `examplebucket` creates a new or replaces an existing inventory configuration with the ID `report1`. The configuration is defined in the request body.

```
PUT /?inventory&id=report1 HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
Date: Mon, 31 Oct 2016 12:00:00 GMT
Authorization: authorization string
Content-Length: length

<?xml version="1.0" encoding="UTF-8"?>
<InventoryConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Id>report1</Id>
   <IsEnabled>true</IsEnabled>
   <Filter>
      <Prefix>filterPrefix</Prefix>
   </Filter>
   <Destination>
      <S3BucketDestination>
         <Format>CSV</Format>
         <AccountId>123456789012</AccountId>
         <Bucket>arn:aws:s3:::destination-bucket</Bucket>
         <Prefix>prefix1</Prefix>
         <Encryption>
            <SSE-KMS>
               <KeyId>arn:aws:kms:us-
west-2:111122223333:key/1234abcd-12ab-34cd-56ef-1234567890ab</KeyId>
            </SSE-KMS>
         </Encryption>
      </S3BucketDestination>
```

```
    </Destination>
    <Schedule>
       <Frequency>Daily</Frequency>
    </Schedule>
    <IncludedObjectVersions>All</IncludedObjectVersions>
    <OptionalFields>
       <Field>Size</Field>
       <Field>LastModifiedDate</Field>
       <Field>ETag</Field>
       <Field>StorageClass</Field>
       <Field>IsMultipartUploaded</Field>
       <Field>ReplicationStatus</Field>
       <Field>EncryptionStatus</Field>
       <Field>ObjectLockRetainUntilDate</Field>
       <Field>ObjectLockMode</Field>
       <Field>ObjectLockLegalHoldStatus</Field>
    </OptionalFields>
</InventoryConfiguration>
```

```
HTTP/1.1 200 OK
x-amz-id-2: YgIPIfBiKa2bj0KMg95r/0zo3emzU4dzsD4rcKCHQUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 236A8905248E5A01
Date: Mon, 31 Oct 2016 12:00:00 GMT
Content-Length: 0
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3

- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketLifecycle

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

> **Important**
>
> For an updated version of this API, see PutBucketLifecycleConfiguration. This version has been deprecated. Existing lifecycle configurations will work. For new lifecycle configurations, use the updated API.

> **Note**
>
> This operation is not supported for directory buckets.

Creates a new lifecycle configuration for the bucket or replaces an existing lifecycle configuration. For information about lifecycle configuration, see Object Lifecycle Management in the *Amazon S3 User Guide*.

By default, all Amazon S3 resources, including buckets, objects, and related subresources (for example, lifecycle configuration and website configuration) are private. Only the resource owner, the AWS account that created the resource, can access it. The resource owner can optionally grant access permissions to others by writing an access policy. For this operation, users must get the `s3:PutLifecycleConfiguration` permission.

You can also explicitly deny permissions. Explicit denial also supersedes any other permissions. If you want to prevent users or accounts from removing or deleting objects from your bucket, you must deny them permissions for the following actions:

- `s3:DeleteObject`
- `s3:DeleteObjectVersion`
- `s3:PutLifecycleConfiguration`

For more information about permissions, see Managing Access Permissions to your Amazon S3 Resources in the *Amazon S3 User Guide*.

For more examples of transitioning objects to storage classes such as STANDARD_IA or ONEZONE_IA, see Examples of Lifecycle Configuration.

The following operations are related to `PutBucketLifecycle`:

- GetBucketLifecycle(Deprecated)
- GetBucketLifecycleConfiguration
- RestoreObject
- By default, a resource owner—in this case, a bucket owner, which is the AWS account that created the bucket—can perform any of the operations. A resource owner can also grant others permission to perform the operation. For more information, see the following topics in the Amazon S3 User Guide:
  - Specifying Permissions in a Policy
  - Managing Access Permissions to your Amazon S3 Resources

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?lifecycle HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<LifecycleConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Rule>
      <AbortIncompleteMultipartUpload>
         <DaysAfterInitiation>integer</DaysAfterInitiation>
      </AbortIncompleteMultipartUpload>
      <Expiration>
```

```
            <Date>timestamp</Date>
            <Days>integer</Days>
            <ExpiredObjectDeleteMarker>boolean</ExpiredObjectDeleteMarker>
        </Expiration>
        <ID>string</ID>
        <NoncurrentVersionExpiration>
            <NewerNoncurrentVersions>integer</NewerNoncurrentVersions>
            <NoncurrentDays>integer</NoncurrentDays>
        </NoncurrentVersionExpiration>
        <NoncurrentVersionTransition>
            <NewerNoncurrentVersions>integer</NewerNoncurrentVersions>
            <NoncurrentDays>integer</NoncurrentDays>
            <StorageClass>string</StorageClass>
        </NoncurrentVersionTransition>
        <Prefix>string</Prefix>
        <Status>string</Status>
        <Transition>
            <Date>timestamp</Date>
            <Days>integer</Days>
            <StorageClass>string</StorageClass>
        </Transition>
    </Rule>
    ...
</LifecycleConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

Required: Yes

Content-MD5

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the request when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Request Body

The request accepts the following data in XML format.

LifecycleConfiguration

Root level tag for the LifecycleConfiguration parameters.

Required: Yes

Rule

Specifies lifecycle configuration rules for an Amazon S3 bucket.

Type: Array of Rule data types

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample Request: Body of a basic lifecycle configuration

In the request, you specify the lifecycle configuration in the request body. The lifecycle configuration is specified as XML. The following is an example of a basic lifecycle configuration. It specifies one rule. The `Prefix` in the rule identifies objects to which the rule applies. The rule also specifies two actions (`Transition` and `Expiration`). Each action specifies a time line when Amazon S3 should perform the action. The Status indicates whether the rule is enabled or disabled.

```
<LifecycleConfiguration>
    <Rule>
        <ID>sample-rule</ID>
        <Prefix>key-prefix</Prefix>
        <Status>rule-status</Status>
        <Transition>
           <Date>value</Date>
           <StorageClass>storage class</StorageClass>
        </Transition>
        <Expiration>
           <Days>value</Days>
        </Expiration>
    </Rule>
</LifecycleConfiguration>
```

Sample Request: Body of a lifecycle configuration specifying noncurrent versions

If the state of your bucket is versioning-enabled or versioning-suspended, you can have many versions of the same object: one current version and zero or more noncurrent versions. The following lifecycle configuration specifies the actions (`NoncurrentVersionTransition`, `NoncurrentVersionExpiration`) that are specific to noncurrent object versions.

```
<LifecycleConfiguration>
    <Rule>
        <ID>sample-rule</ID>
        <Prefix>key-prefix</Prefix>
        <Status>rule-status</Status>
```

```
        <NoncurrentVersionTransition>
           <NoncurrentDays>value</NoncurrentDays>
           <StorageClass>storage class</StorageClass>
        </NoncurrentVersionTransition>
        <NoncurrentVersionExpiration>
           <NoncurrentDays>value</NoncurrentDays>
        </NoncurrentVersionExpiration>
    </Rule>
</LifecycleConfiguration>
```

Sample Request: Body of a lifecycle configuration that specifies a rule with AbortIncompleteMultipartUpload

You can use the multipart upload to upload large objects in parts. For more information about multipart uploads, see Multipart Upload Overview in the *Amazon S3 User Guide*. With lifecycle configuration, you can tell Amazon S3 to abort incomplete multipart uploads, which are identified by the key name prefix specified in the rule, if they don't complete within a specified number of days. When Amazon S3 aborts a multipart upload, it deletes all parts associated with the upload. This ensures that you don't have incomplete multipart uploads that have left parts stored in Amazon S3, so you don't have to pay storage costs for them. The following is an example lifecycle configuration that specifies a rule with the `AbortIncompleteMultipartUpload` action. This action tells Amazon S3 to abort incomplete multipart uploads seven days after initiation.

```
<LifecycleConfiguration>
    <Rule>
        <ID>sample-rule</ID>
        <Prefix>SomeKeyPrefix</Prefix>
        <Status>rule-status</Status>
        <AbortIncompleteMultipartUpload>
           <DaysAfterInitiation>7</DaysAfterInitiation>
        </AbortIncompleteMultipartUpload>
    </Rule>
</LifecycleConfiguration>
```

Add lifecycle configuration to a bucket that is not versioning-enabled

The following is a sample `PUT /?lifecycle` request that adds the lifecycle configuration to the `examplebucket` bucket. The lifecycle configuration specifies two rules, each with one action:

- The `Transition` action tells Amazon S3 to transition objects with the "documents/" prefix to the GLACIER storage class 30 days after creation.
- The `Expiration` action tells Amazon S3 to delete objects with the "logs/" prefix 365 days after creation.

The sample response follows the sample request.

```
PUT /?lifecycle HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
x-amz-date: Wed, 14 May 2014 02:11:21 GMT
Content-MD5: q6yJDlIkcBaGGfb3QLY69A==
Authorization: authorization string
Content-Length: 415
<LifecycleConfiguration>
  <Rule>
    <ID>id1</ID>
    <Prefix>documents/</Prefix>
    <Status>Enabled</Status>
    <Transition>
      <Days>30</Days>
      <StorageClass>GLACIER</StorageClass>
    </Transition>
  </Rule>
  <Rule>
    <ID>id2</ID>
    <Prefix>logs/</Prefix>
    <Status>Enabled</Status>
    <Expiration>
      <Days>365</Days>
    </Expiration>
  </Rule>
</LifecycleConfiguration>
```

```
HTTP/1.1 200 OK
x-amz-id-2: r+qR7+nhXtJDDIJ0JJYcd+1j5nM/rUFiiiZ/fNbDOsd3JUE8NWMLNHXmvPfwMpdc
x-amz-request-id: 9E26D08072A8EF9E
Date: Wed, 14 May 2014 02:11:22 GMT
Content-Length: 0
Server: AmazonS3
```

Add lifecycle configuration to a bucket that is versioning-enabled

The following is a sample PUT /?lifecycle request that adds the lifecycle configuration to the `examplebucket` bucket. The lifecycle configuration specifies two rules, each with one action. You specify these actions when your bucket is versioning-enabled or versioning is suspended:

- The `NoncurrentVersionExpiration` action tells Amazon S3 to expire noncurrent versions of objects with the "logs/" prefix 100 days after the objects become noncurrent.
- The `NoncurrentVersionTransition` action tells Amazon S3 to transition noncurrent versions of objects with the "documents/" prefix to the GLACIER storage class 30 days after they become noncurrent.

The sample response follows the sample request.

```
PUT /?lifecycle HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
x-amz-date: Wed, 14 May 2014 02:21:48 GMT
Content-MD5: 96rxH9mDqVNKkaZDddgnw==
Authorization: authorization string
Content-Length: 598
<LifecycleConfiguration>
  <Rule>
    <ID>id1</ID>
    <Prefix>logs/</Prefix>
    <Status>Enabled</Status>
    <NoncurrentVersionExpiration>
      <NoncurrentDays>1</NoncurrentDays>
    </NoncurrentVersionExpiration>
  </Rule>
  <Rule>
    <ID>TransitionSoonAfterBecomingNonCurrent</ID>
    <Prefix>documents/</Prefix>
    <Status>Enabled</Status>
    <NoncurrentVersionTransition>
      <NoncurrentDays>0</NoncurrentDays>
      <StorageClass>GLACIER</StorageClass>
    </NoncurrentVersionTransition>
  </Rule>
</LifecycleConfiguration>
```

```
HTTP/1.1 200 OK
x-amz-id-2: aXQ+KbIrmMmoO//3bMdDTw/CnjArwje+J49Hf+j44yRb/VmbIkgIO5A+PT98Cp/6k07hf
+LD2mY=
x-amz-request-id: 02D7EC4C10381EB1
Date: Wed, 14 May 2014 02:21:50 GMT
Content-Length: 0
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketLifecycleConfiguration

Service: Amazon S3

Creates a new lifecycle configuration for the bucket or replaces an existing lifecycle configuration. Keep in mind that this will overwrite an existing lifecycle configuration, so if you want to retain any configuration details, they must be included in the new lifecycle configuration. For information about lifecycle configuration, see Managing your storage lifecycle.

> **Note**
>
> Bucket lifecycle configuration now supports specifying a lifecycle rule using an object key name prefix, one or more object tags, object size, or any combination of these. Accordingly, this section describes the latest API. The previous version of the API supported filtering based only on an object key name prefix, which is supported for backward compatibility. For the related API description, see PutBucketLifecycle.

Rules, Permissions, HTTP Host header syntax

You specify the lifecycle configuration in your request body. The lifecycle configuration is specified as XML consisting of one or more rules. An Amazon S3 Lifecycle configuration can have up to 1,000 rules. This limit is not adjustable.

Bucket lifecycle configuration supports specifying a lifecycle rule using an object key name prefix, one or more object tags, object size, or any combination of these. Accordingly, this section describes the latest API. The previous version of the API supported filtering based only on an object key name prefix, which is supported for backward compatibility for general purpose buckets. For the related API description, see PutBucketLifecycle.

> **Note**
>
> Lifecyle configurations for directory buckets only support expiring objects and cancelling multipart uploads. Expiring of versioned objects,transitions and tag filters are not supported.

A lifecycle rule consists of the following:

- A filter identifying a subset of objects to which the rule applies. The filter can be based on a key name prefix, object tags, object size, or any combination of these.

- A status indicating whether the rule is in effect.
- One or more lifecycle transition and expiration actions that you want Amazon S3 to perform on the objects identified by the filter. If the state of your bucket is versioning-enabled or versioning-suspended, you can have many versions of the same object (one current version and zero or more noncurrent versions). Amazon S3 provides predefined actions that you can specify for current and noncurrent object versions.

For more information, see Object Lifecycle Management and Lifecycle Configuration Elements.

- **General purpose bucket permissions** - By default, all Amazon S3 resources are private, including buckets, objects, and related subresources (for example, lifecycle configuration and website configuration). Only the resource owner (that is, the AWS account that created it) can access the resource. The resource owner can optionally grant access permissions to others by writing an access policy. For this operation, a user must have the `s3:PutLifecycleConfiguration` permission.

  You can also explicitly deny permissions. An explicit deny also supersedes any other permissions. If you want to block users or accounts from removing or deleting objects from your bucket, you must deny them permissions for the following actions:

  - `s3:DeleteObject`
  - `s3:DeleteObjectVersion`
  - `s3:PutLifecycleConfiguration`

    For more information about permissions, see Managing Access Permissions to Your Amazon S3 Resources.

- **Directory bucket permissions** - You must have the `s3express:PutLifecycleConfiguration` permission in an IAM identity-based policy to use this operation. Cross-account access to this API operation isn't supported. The resource owner can optionally grant access permissions to others by creating a role or user for them as long as they are within the same account as the owner and resource.

  For more information about directory bucket policies and permissions, see Authorizing Regional endpoint APIs with IAM in the *Amazon S3 User Guide*.

> **Note**
>
> **Directory buckets** - For directory buckets, you must make requests for this API operation to the Regional endpoint. These endpoints support path-

style requests in the format `https://s3express-control.region-code.amazonaws.com/bucket-name` . Virtual-hosted-style requests aren't supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Directory buckets - The HTTP Host header syntax is `s3express-control.region.amazonaws.com`.

The following operations are related to `PutBucketLifecycleConfiguration`:

- GetBucketLifecycleConfiguration
- DeleteBucketLifecycle

Important

You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?lifecycle HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-transition-default-minimum-object-size: TransitionDefaultMinimumObjectSize
<?xml version="1.0" encoding="UTF-8"?>
<LifecycleConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Rule>
      <AbortIncompleteMultipartUpload>
         <DaysAfterInitiation>integer</DaysAfterInitiation>
      </AbortIncompleteMultipartUpload>
      <Expiration>
         <Date>timestamp</Date>
         <Days>integer</Days>
         <ExpiredObjectDeleteMarker>boolean</ExpiredObjectDeleteMarker>
      </Expiration>
```

```
        <Filter>
           <And>
              <ObjectSizeGreaterThan>long</ObjectSizeGreaterThan>
              <ObjectSizeLessThan>long</ObjectSizeLessThan>
              <Prefix>string</Prefix>
              <Tag>
                 <Key>string</Key>
                 <Value>string</Value>
              </Tag>
              ...
           </And>
           <ObjectSizeGreaterThan>long</ObjectSizeGreaterThan>
           <ObjectSizeLessThan>long</ObjectSizeLessThan>
           <Prefix>string</Prefix>
           <Tag>
              <Key>string</Key>
              <Value>string</Value>
           </Tag>
        </Filter>
        <ID>string</ID>
        <NoncurrentVersionExpiration>
           <NewerNoncurrentVersions>integer</NewerNoncurrentVersions>
           <NoncurrentDays>integer</NoncurrentDays>
        </NoncurrentVersionExpiration>
        <NoncurrentVersionTransition>
           <NewerNoncurrentVersions>integer</NewerNoncurrentVersions>
           <NoncurrentDays>integer</NoncurrentDays>
           <StorageClass>string</StorageClass>
        </NoncurrentVersionTransition>
        ...
        <Prefix>string</Prefix>
        <Status>string</Status>
        <Transition>
           <Date>timestamp</Date>
           <Days>integer</Days>
           <StorageClass>string</StorageClass>
        </Transition>
        ...
     </Rule>
     ...
  </LifecycleConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket for which to set the configuration.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

> **Note**
>
> This parameter applies to general purpose buckets only. It is not supported for directory bucket lifecycle configurations.

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the request when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

x-amz-transition-default-minimum-object-size

Indicates which default minimum object size behavior is applied to the lifecycle configuration.

> **Note**
>
> This parameter applies to general purpose buckets only. It is not supported for directory bucket lifecycle configurations.

- `all_storage_classes_128K` - Objects smaller than 128 KB will not transition to any storage class by default.
- `varies_by_storage_class` - Objects smaller than 128 KB will transition to Glacier Flexible Retrieval or Glacier Deep Archive storage classes. By default, all other storage classes will prevent transitions smaller than 128 KB.

To customize the minimum object size for any transition you can add a filter that specifies a custom `ObjectSizeGreaterThan` or `ObjectSizeLessThan` in the body of your transition rule. Custom filters always take precedence over the default transition behavior.

Valid Values: `varies_by_storage_class | all_storage_classes_128K`

Request Body

The request accepts the following data in XML format.

LifecycleConfiguration

Root level tag for the LifecycleConfiguration parameters.

Required: Yes

Rule

A lifecycle rule for individual objects in an Amazon S3 bucket.

Type: Array of LifecycleRule data types

Required: Yes

Response Syntax

```
HTTP/1.1 200
x-amz-transition-default-minimum-object-size: TransitionDefaultMinimumObjectSize
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-transition-default-minimum-object-size

Indicates which default minimum object size behavior is applied to the lifecycle configuration.

> **Note**
>
> This parameter applies to general purpose buckets only. It is not supported for directory bucket lifecycle configurations.

- `all_storage_classes_128K` - Objects smaller than 128 KB will not transition to any storage class by default.
- `varies_by_storage_class` - Objects smaller than 128 KB will transition to Glacier Flexible Retrieval or Glacier Deep Archive storage classes. By default, all other storage classes will prevent transitions smaller than 128 KB.

To customize the minimum object size for any transition you can add a filter that specifies a custom `ObjectSizeGreaterThan` or `ObjectSizeLessThan` in the body of your transition rule. Custom filters always take precedence over the default transition behavior.

Valid Values: `varies_by_storage_class | all_storage_classes_128K`

Examples

Example 1: Add lifecycle configuration - bucket not versioning-enabled

The following lifecycle configuration for a general purpose bucket specifies two rules, each with one action.

- The `Transition` action requests Amazon S3 to transition objects with the "documents/" prefix to the GLACIER storage class 30 days after creation.
- The `Expiration` action requests Amazon S3 to delete objects with the "logs/" prefix 365 days after creation.

```
<LifecycleConfiguration>
  <Rule>
    <ID>id1</ID>
    <Filter>
       <Prefix>documents/</Prefix>
    </Filter>
    <Status>Enabled</Status>
    <Transition>
      <Days>30</Days>
      <StorageClass>GLACIER</StorageClass>
    </Transition>
  </Rule>
  <Rule>
    <ID>id2</ID>
    <Filter>
       <Prefix>logs/</Prefix>
    </Filter>
    <Status>Enabled</Status>
    <Expiration>
      <Days>365</Days>
    </Expiration>
  </Rule>
</LifecycleConfiguration>
```

Example 2: Adding a lifecycle configuration to a general purpose bucket

The following is a sample `PUT /?lifecycle` request that adds the preceding lifecycle configuration to a general purpose bucket.

```
PUT /?lifecycle HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
x-amz-date: Wed, 14 May 2014 02:11:21 GMT
Content-MD5: q6yJDlIkcBaGGfb3QLY69A==
Authorization: authorization string
Content-Length: 415

<LifecycleConfiguration>
  <Rule>
    <ID>id1</ID>
```

```
    <Filter>
       <Prefix>documents/</Prefix>
    </Filter>
    <Status>Enabled</Status>
    <Transition>
      <Days>30</Days>
      <StorageClass>GLACIER</StorageClass>
    </Transition>
  </Rule>
  <Rule>
    <ID>id2</ID>
    <Filter>
       <Prefix>logs/</Prefix>
    </Filter>
    <Status>Enabled</Status>
    <Expiration>
      <Days>365</Days>
    </Expiration>
  </Rule>
</LifecycleConfiguration>
```

Sample Response

This example illustrates one usage of PutBucketLifecycleConfiguration.

```
HTTP/1.1 200 OK
x-amz-id-2: r+qR7+nhXtJDDIJ0JJYcd+1j5nM/rUFiiiZ/fNbDOsd3JUE8NWMLNHXmvPfwMpdc
x-amz-request-id: 9E26D08072A8EF9E
Date: Wed, 14 May 2014 02:11:22 GMT
Content-Length: 0
Server: AmazonS3
```

Example 3: Add a lifecycle configuration - bucket is versioning-enabled

The following lifecycle configuration for a general purpose bucket specifies two rules, each with one action for Amazon S3 to perform. You specify these actions when your bucket is versioning-enabled or versioning is suspended:

- The `NoncurrentVersionExpiration` action requests Amazon S3 to expire noncurrent versions of objects with the "logs/" prefix 100 days after the objects become noncurrent.

- The `NoncurrentVersionTransition` action requests Amazon S3 to transition noncurrent versions of objects with the "documents/" prefix to the GLACIER storage class 30 days after they become noncurrent.

```
<LifeCycleConfiguration>
  <Rule>
    <ID>DeleteAfterBecomingNonCurrent</ID>
    <Filter>
       <Prefix>logs/</Prefix>
    </Filter>
    <Status>Enabled</Status>
    <NoncurrentVersionExpiration>
      <NoncurrentDays>100</NoncurrentDays>
    </NoncurrentVersionExpiration>
  </Rule>
  <Rule>
    <ID>TransitionAfterBecomingNonCurrent</ID>
    <Filter>
       <Prefix>documents/</Prefix>
    </Filter>
    <Status>Enabled</Status>
    <NoncurrentVersionTransition>
      <NoncurrentDays>30</NoncurrentDays>
      <StorageClass>GLACIER</StorageClass>
    </NoncurrentVersionTransition>
  </Rule>
</LifeCycleConfiguration>
```

Example 4: Add a lifecycle configuration to a general purpose bucket

The following is a sample `PUT /?lifecycle` request that adds the preceding lifecycle configuration to a `examplebucket` bucket.

```
PUT /?lifecycle HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
x-amz-date: Wed, 14 May 2014 02:21:48 GMT
Content-MD5: 96rxH9mDqVNKkaZDddgnw==
Authorization: authorization string
```

```
Content-Length: 598

<LifeCycleConfiguration>
  <Rule>
    <ID>DeleteAfterBecomingNonCurrent</ID>
    <Filter>
       <Prefix>logs/</Prefix>
    </Filter>
    <Status>Enabled</Status>
    <NoncurrentVersionExpiration>
      <NoncurrentDays>1</NoncurrentDays>
    </NoncurrentVersionExpiration>
  </Rule>
  <Rule>
    <ID>TransitionSoonAfterBecomingNonCurrent</ID>
    <Filter>
       <Prefix>documents/</Prefix>
    </Filter>
    <Status>Enabled</Status>
    <NoncurrentVersionTransition>
      <NoncurrentDays>0</NoncurrentDays>
      <StorageClass>GLACIER</StorageClass>
    </NoncurrentVersionTransition>
  </Rule>
</LifeCycleConfiguration>
```

Sample Response

This example illustrates one usage of PutBucketLifecycleConfiguration.

```
HTTP/1.1 200 OK
x-amz-id-2: aXQ+KbIrmMmoO//3bMdDTw/CnjArwje+J49Hf+j44yRb/VmbIkgIO5A+PT98Cp/6k07hf
+LD2mY=
x-amz-request-id: 02D7EC4C10381EB1
Date: Wed, 14 May 2014 02:21:50 GMT
Content-Length: 0
Server: AmazonS3
```

Example 5: Add a lifecycle configuration to a directory bucket

The following lifecycle configuration specifies two rules, each with one action for Amazon S3 to perform:

- The `Expiration` action requests Amazon S3 to expire objects with object size between 500B to 64000B and the `"myprefix/"` prefix 7 days after their creation.
- The `AbortIncompleteMultipartUpload` action requests Amazon S3 to abort incomplete multipart uploads 3 days after their initiation.

```
PUT /?lifecycle HTTP/1.1
Host: s3express-control.us-west-2.amazonaws.com
x-amz-sdk-checksum-algorithm: CRC32
x-amz-checksum-crc32: UCqxTw==

<LifeCycleConfiguration>
  <Rule>
    <ID>Lifecycle expiration rule</ID>
    <Filter>
        <And>
            <Prefix>myprefix/</Prefix>
            <ObjectSizeGreaterThan>500</ObjectSizeGreaterThan>
            <ObjectSizeLessThan>64000</ObjectSizeLessThan>
        <And>
    <Filter>
    <Status>Enabled</Status>
    <Expiration>
         <Days>7</Days>
    <Expiration>
  </Rule>
  <Rule>
    <ID>MPU Rule</ID>
    <Filter>
       <Prefix>another_prefix/</Prefix>
    </Filter>
    <Status>Enabled</Status>
    <AbortIncompleteMultipartUpload>
      <DaysAfterInitiation>3</DaysAfterInitiation>
    </AbortIncompleteMultipartUpload>
  </Rule>
```

```
</LifeCycleConfiguration>
```

Sample Response

This example illustrates one usage of `PutBucketLifecycleConfiguration` in directory buckets

```
HTTP/1.1 200 OK
Server: AmazonS3
x-amz-request-id: 02D7EC4C10381EB1
x-amz-id-2: kc3B1Ns0xqzIdJNd
Content-Type: application/xml
Content-Length: 0
Date: Tue, 12 Nov 2024 18:59:45 GMT
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketLogging

Service: Amazon S3

> **Important**
>
> End of support notice: Beginning October 1, 2025, Amazon S3 will discontinue support for creating new Email Grantee Access Control Lists (ACL). Email Grantee ACLs created prior to this date will continue to work and remain accessible through the AWS Management Console, Command Line Interface (CLI), SDKs, and REST API. However, you will no longer be able to create new Email Grantee ACLs.
>
> Between July 15, 2025 and October 1, 2025, you will begin to see an increasing rate of `HTTP 405` errors for requests to Amazon S3 when attempting to create new Email Grantee ACLs.
>
> This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

> **Note**
>
> This operation is not supported for directory buckets.

Set the logging parameters for a bucket and to specify permissions for who can view and modify the logging parameters. All logs are saved to buckets in the same AWS Region as the source bucket. To set the logging status of a bucket, you must be the bucket owner.

The bucket owner is automatically granted FULL_CONTROL to all logs. You use the `Grantee` request element to grant access to other people. The `Permissions` request element specifies the kind of access the grantee has to the logs.

> **Important**
>
> If the target bucket for log delivery uses the bucket owner enforced setting for S3 Object Ownership, you can't use the `Grantee` request element to grant access to others.

Permissions can only be granted using policies. For more information, see Permissions for server access log delivery in the *Amazon S3 User Guide*.

Grantee Values

You can specify the person (grantee) to whom you're assigning access rights (by using request elements) in the following ways. For examples of how to specify these grantee values in JSON format, see the AWS CLI example in Enabling Amazon S3 server access logging in the *Amazon S3 User Guide*.

- By the person's ID:

  ```
  <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="CanonicalUser"><ID><>ID<></ID><DisplayName><>GranteesEmail<></DisplayName> </Grantee>
  ```

  `DisplayName` is optional and ignored in the request.

- By Email address:

  ```
  <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="AmazonCustomerByEmail"><EmailAddress><>Grantees@email.com<></EmailAddress></Grantee>
  ```

  The grantee is resolved to the `CanonicalUser` and, in a response to a `GETObjectAcl` request, appears as the CanonicalUser.

- By URI:

  ```
  <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="Group"><URI><>http://acs.amazonaws.com/groups/global/AuthenticatedUsers<></URI></Grantee>
  ```

To enable logging, you use `LoggingEnabled` and its children request elements. To disable logging, you use an empty `BucketLoggingStatus` request element:

```
<BucketLoggingStatus xmlns="http://doc.s3.amazonaws.com/2006-03-01" />
```

For more information about server access logging, see Server Access Logging in the *Amazon S3 User Guide*.

For more information about creating a bucket, see CreateBucket. For more information about returning the logging status of a bucket, see GetBucketLogging.

The following operations are related to `PutBucketLogging`:

- PutObject
- DeleteBucket
- CreateBucket
- GetBucketLogging

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?logging HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<BucketLoggingStatus xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <LoggingEnabled>
      <TargetBucket>string</TargetBucket>
      <TargetGrants>
         <Grant>
            <Grantee>
               <DisplayName>string</DisplayName>
               <EmailAddress>string</EmailAddress>
               <ID>string</ID>
               <xsi:type>string</xsi:type>
               <URI>string</URI>
            </Grantee>
            <Permission>string</Permission>
         </Grant>
      </TargetGrants>
```

```
      <TargetObjectKeyFormat>
         <PartitionedPrefix>
            <PartitionDateSource>string</PartitionDateSource>
         </PartitionedPrefix>
         <SimplePrefix>
         </SimplePrefix>
      </TargetObjectKeyFormat>
      <TargetPrefix>string</TargetPrefix>
   </LoggingEnabled>
</BucketLoggingStatus>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket for which to set the logging parameters.

Required: Yes

Content-MD5

The MD5 hash of the `PutBucketLogging` request body.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the request when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

Request Body

The request accepts the following data in XML format.

BucketLoggingStatus

Root level tag for the BucketLoggingStatus parameters.

Required: Yes

LoggingEnabled

Describes where logs are stored and the prefix that Amazon S3 assigns to all log object keys for a bucket. For more information, see PUT Bucket logging in the *Amazon S3 API Reference*.

Type: LoggingEnabled data type

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample Request

This request enables logging and gives the grantee of the bucket READ access to the logs.

Buckets that use the bucket owner enforced setting for Object Ownership to disable ACLs don't support target grants. For more information, see Permissions for server access log delivery in the *Amazon S3 User Guide*.

```
PUT ?logging HTTP/1.1
Host: quotes.s3.<Region>.amazonaws.com
```

```
Content-Length: 214
Date: Wed, 25 Nov 2009 12:00:00 GMT
Authorization: authorization string

<?xml version="1.0" encoding="UTF-8"?>
<BucketLoggingStatus xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <LoggingEnabled>
    <TargetBucket>mybucketlogs</TargetBucket>
    <TargetPrefix>mybucket-access_log-/</TargetPrefix>
    <TargetGrants>
      <Grant>
        <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
          xsi:type="AmazonCustomerByEmail">
          <EmailAddress>user@company.com</EmailAddress>
        </Grantee>
        <Permission>READ</Permission>
      </Grant>
    </TargetGrants>
  </LoggingEnabled>
</BucketLoggingStatus>
```

Sample Response

This example illustrates one usage of PutBucketLogging.

```
HTTP/1.1 200 OK
x-amz-id-2: YgIPIfBiKa2bj0KMg95r/0zo3emzU4dzsD4rcKCHQUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 236A8905248E5A01
Date: Wed, 01 Mar  2006 12:00:00 GMT
```

Sample Request: Disabling logging

This request disables logging on the bucket `quotes`.

```
PUT ?logging HTTP/1.1
Host: quotes.s3.<Region>.amazonaws.com
Content-Length: 214
Date: Wed, 25 Nov 2009 12:00:00 GMT
Authorization: authorization string
```

```
<?xml version="1.0" encoding="UTF-8"?>
<BucketLoggingStatus xmlns="http://doc.s3.amazonaws.com/2006-03-01" />
```

Sample Response

This example illustrates one usage of PutBucketLogging.

```
HTTP/1.1 200 OK
x-amz-id-2: YgIPIfBiKa2bj0KMg95r/0zo3emzU4dzsD4rcKCHQUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 236A8905248E5A01
Date: Wed, 01 Mar  2006 12:00:00 GMT
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketMetricsConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Sets a metrics configuration (specified by the metrics configuration ID) for the bucket. You can have up to 1,000 metrics configurations per bucket. If you're updating an existing metrics configuration, note that this is a full replacement of the existing metrics configuration. If you don't include the elements you want to keep, they are erased.

To use this operation, you must have permissions to perform the `s3:PutMetricsConfiguration` action. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources.

For information about CloudWatch request metrics for Amazon S3, see Monitoring Metrics with Amazon CloudWatch.

The following operations are related to `PutBucketMetricsConfiguration`:

- DeleteBucketMetricsConfiguration
- GetBucketMetricsConfiguration
- ListBucketMetricsConfigurations

`PutBucketMetricsConfiguration` has the following special error:

- Error code: `TooManyConfigurations`
  - Description: You are attempting to create a new configuration but have already reached the 1,000-configuration limit.
  - HTTP Status Code: HTTP 400 Bad Request

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?metrics&id=Id HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<MetricsConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Id>string</Id>
   <Filter>
      <AccessPointArn>string</AccessPointArn>
      <And>
         <AccessPointArn>string</AccessPointArn>
         <Prefix>string</Prefix>
         <Tag>
            <Key>string</Key>
            <Value>string</Value>
         </Tag>
         ...
      </And>
      <Prefix>string</Prefix>
      <Tag>
         <Key>string</Key>
         <Value>string</Value>
      </Tag>
   </Filter>
</MetricsConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket for which the metrics configuration is set.

Required: Yes

id

The ID used to identify the metrics configuration. The ID has a 64 character limit and can only contain letters, numbers, periods, dashes, and underscores.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request accepts the following data in XML format.

MetricsConfiguration

Root level tag for the MetricsConfiguration parameters.

Required: Yes

Filter

Specifies a metrics configuration filter. The metrics configuration will only include objects that meet the filter's criteria. A filter must be a prefix, an object tag, an access point ARN, or a conjunction (MetricsAndOperator).

Type: MetricsFilter data type

Required: No

Id

The ID used to identify the metrics configuration. The ID has a 64 character limit and can only contain letters, numbers, periods, dashes, and underscores.

Type: String

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

First Sample Request

Put a metric configuration that enables metrics for an entire bucket.

```
PUT /?metrics&id=EntireBucket HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
x-amz-date: Thu, 15 Nov 2016 00:17:21 GMT
Authorization: signatureValue
Content-Length: 159

<?xml version="1.0" encoding="UTF-8"?>
<MetricsConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
    <Id>EntireBucket</Id>
</MetricsConfiguration>
```

First Sample Response

This example illustrates one usage of PutBucketMetricsConfiguration.

```
HTTP/1.1 204 No Content
x-amz-id-2: ITnGT1y4REXAMPLEPi4hklTXouTf0hccUjo0iCPEXAMPLEutBj3M7fPGlWO2SEWp
x-amz-request-id: 51991EXAMPLE5321
Date: Thu, 15 Nov 2016 00:17:22 GMT
Server: AmazonS3
```

Second Sample Request

Put a metrics configuration that enables metrics for objects that start with a particular prefix and also have specific tags applied.

```
PUT /?metrics&id=ImportantBlueDocuments HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
x-amz-date: Thu, 15 Nov 2016 00:17:29 GMT
Authorization: signatureValue
Content-Length: 480

<?xml version="1.0" encoding="UTF-8"?>
<MetricsConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
    <Id>ImportantBlueDocuments</Id>
    <Filter>
        <And>
            <Prefix>documents/</Prefix>
            <Tag>
                <Key>priority</Key>
                <Value>high</Value>
            </Tag>
            <Tag>
                <Key>class</Key>
                <Value>blue</Value>
            </Tag>
        </And>
    </Filter>
</MetricsConfiguration>
```

Second Sample Response

This example illustrates one usage of PutBucketMetricsConfiguration.

```
HTTP/1.1 204 No Content
x-amz-id-2: ITnGT1y4REXAMPLEPi4hklTXouTf0hccUjo0iCPEXAMPLEutBj3M7fPGlWO2SEWp
x-amz-request-id: 51991EXAMPLE5321
Date: Thu, 15 Nov 2016 00:17:29 GMT
Server: AmazonS3
```

Third Sample Request

Put a metrics configuration that enables metrics for a specific access point.

```
PUT /?metrics&id=ImportantDocumentsAccessPoint HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
x-amz-date: Thu, 26 Aug 2021 00:17:29 GMT
Authorization: signatureValue
Content-Length: 480

<?xml version="1.0" encoding="UTF-8"?>
<MetricsConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
    <Id>ImportantDocumentsAccessPoint</Id>
    <Filter>
        <AccessPointArn>arn:aws:s3:us-west-2:123456789012:accesspoint/test</
AccessPointArn>
    </Filter>
</MetricsConfiguration>
```

Thirds Sample Response

This example illustrates one usage of PutBucketMetricsConfiguration.

```
HTTP/1.1 204 No Content
x-amz-id-2: ITnGT1y4REXAMPLEPi4hklTXouTf0hccUjo0iCPEXAMPLEutBj3M7fPGlWO2SEWp
x-amz-request-id: 51991EXAMPLE5321
Date: Thu, 26 Aug 2021 00:17:29 GMT
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin

- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketNotification

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

No longer used, see the PutBucketNotificationConfiguration operation.

Request Syntax

```
PUT /?notification HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<NotificationConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <TopicConfiguration>
      <Event>string</Event>
      <Event>string</Event>
      ...
      <Id>string</Id>
      <Topic>string</Topic>
   </TopicConfiguration>
   <QueueConfiguration>
      <Event>string</Event>
      <Event>string</Event>
      ...
      <Id>string</Id>
      <Queue>string</Queue>
   </QueueConfiguration>
   <CloudFunctionConfiguration>
      <CloudFunction>string</CloudFunction>
      <Event>string</Event>
      <Event>string</Event>
      ...
      <Id>string</Id>
      <InvocationRole>string</InvocationRole>
   </CloudFunctionConfiguration>
</NotificationConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket.

Required: Yes

Content-MD5

The MD5 hash of the `PutPublicAccessBlock` request body.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the request when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Request Body

The request accepts the following data in XML format.

NotificationConfiguration

Root level tag for the NotificationConfiguration parameters.

Required: Yes

CloudFunctionConfiguration

Container for specifying the AWS Lambda notification configuration.

Type: CloudFunctionConfiguration data type

Required: No

QueueConfiguration

This data type is deprecated. This data type specifies the configuration for publishing messages to an Amazon Simple Queue Service (Amazon SQS) queue when Amazon S3 detects specified events.

Type: QueueConfigurationDeprecated data type

Required: No

TopicConfiguration

This data type is deprecated. A container for specifying the configuration for publication of messages to an Amazon Simple Notification Service (Amazon SNS) topic when Amazon S3 detects specified events.

Type: TopicConfigurationDeprecated data type

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface

- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketNotificationConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Enables notifications of specified events for a bucket. For more information about event notifications, see Configuring Event Notifications.

Using this API, you can replace an existing notification configuration. The configuration is an XML file that defines the event types that you want Amazon S3 to publish and the destination where you want Amazon S3 to publish an event notification when it detects an event of the specified type.

By default, your bucket has no event notifications configured. That is, the notification configuration will be an empty `NotificationConfiguration`.

```
<NotificationConfiguration>

</NotificationConfiguration>
```

This action replaces the existing notification configuration with the configuration you include in the request body.

After Amazon S3 receives this request, it first verifies that any Amazon Simple Notification Service (Amazon SNS) or Amazon Simple Queue Service (Amazon SQS) destination exists, and that the bucket owner has permission to publish to it by sending a test notification. In the case of AWS Lambda destinations, Amazon S3 verifies that the Lambda function permissions grant Amazon S3 permission to invoke the function from the Amazon S3 bucket. For more information, see Configuring Notifications for Amazon S3 Events.

You can disable notifications by adding the empty NotificationConfiguration element.

For more information about the number of event notification configurations that you can create per bucket, see Amazon S3 service quotas in *AWS General Reference*.

By default, only the bucket owner can configure notifications on a bucket. However, bucket owners can use a bucket policy to grant permission to other users to set this configuration with the required `s3:PutBucketNotification` permission.

> **Note**
>
> The PUT notification is an atomic operation. For example, suppose your notification configuration includes SNS topic, SQS queue, and Lambda function configurations. When you send a PUT request with this configuration, Amazon S3 sends test messages to your SNS topic. If the message fails, the entire PUT action will fail, and Amazon S3 will not add the configuration to your bucket.

If the configuration in the request body includes only one `TopicConfiguration` specifying only the `s3:ReducedRedundancyLostObject` event type, the response will also include the `x-amz-sns-test-message-id` header containing the message ID of the test notification sent to the topic.

The following action is related to `PutBucketNotificationConfiguration`:

- GetBucketNotificationConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?notification HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-skip-destination-validation: SkipDestinationValidation
<?xml version="1.0" encoding="UTF-8"?>
<NotificationConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <TopicConfiguration>
      <Event>string</Event>
      ...
      <Filter>
         <S3Key>
            <FilterRule>
```

```
                <Name>string</Name>
                <Value>string</Value>
            </FilterRule>
            ...
        </S3Key>
    </Filter>
    <Id>string</Id>
    <Topic>string</Topic>
</TopicConfiguration>
...
<QueueConfiguration>
    <Event>string</Event>
    ...
    <Filter>
        <S3Key>
            <FilterRule>
                <Name>string</Name>
                <Value>string</Value>
            </FilterRule>
            ...
        </S3Key>
    </Filter>
    <Id>string</Id>
    <Queue>string</Queue>
</QueueConfiguration>
...
<CloudFunctionConfiguration>
    <Event>string</Event>
    ...
    <Filter>
        <S3Key>
            <FilterRule>
                <Name>string</Name>
                <Value>string</Value>
            </FilterRule>
            ...
        </S3Key>
    </Filter>
    <Id>string</Id>
    <CloudFunction>string</CloudFunction>
</CloudFunctionConfiguration>
...
<EventBridgeConfiguration>
</EventBridgeConfiguration>
```

```
</NotificationConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-skip-destination-validation

Skips validation of Amazon SQS, Amazon SNS, and AWS Lambda destinations. True or false value.

Request Body

The request accepts the following data in XML format.

NotificationConfiguration

Root level tag for the NotificationConfiguration parameters.

Required: Yes

CloudFunctionConfiguration

Describes the AWS Lambda functions to invoke and the events for which to invoke them.

Type: Array of LambdaFunctionConfiguration data types

Required: No

EventBridgeConfiguration

Enables delivery of events to Amazon EventBridge.

Type: EventBridgeConfiguration data type

Required: No

QueueConfiguration

The Amazon Simple Queue Service queues to publish messages to and the events for which to publish messages.

Type: Array of QueueConfiguration data types

Required: No

TopicConfiguration

The topic to which notifications are sent and the events for which notifications are generated.

Type: Array of TopicConfiguration data types

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Example 1: Configure notification to invoke a cloud function in Lambda

The following notification configuration includes CloudFunctionConfiguration, which identifies the event type for which Amazon S3 can invoke a cloud function and the name of the cloud function to invoke.

```
<NotificationConfiguration>
  <CloudFunctionConfiguration>
    <Id>ObjectCreatedEvents</Id>
    <CloudFunction>arn:aws:lambda:us-west-2:35667example:function:CreateThumbnail</
CloudFunction>
    <Event>s3:ObjectCreated:*</Event>
```

```
  </CloudFunctionConfiguration>
</NotificationConfiguration>
```

Example

The following PUT uploads the notification configuration. The action replaces the existing notification configuration.

```
PUT http://s3.<Region>.amazonaws.com/examplebucket?notification= HTTP/1.1
User-Agent: s3curl 2.0
Host: s3.amazonaws.com
Pragma: no-cache
Accept: */*
Proxy-Connection: Keep-Alive
Authorization: authorization string
Date: Mon, 13 Oct 2014 23:14:52 +0000
Content-Length: length

[request body]
```

Sample Response

This example illustrates one usage of PutBucketNotificationConfiguration.

```
HTTP/1.1 200 OK
x-amz-id-2: 8+FlwagBSoT2qpMaGlfCUkRkFR5W3OeS7UhhoBb17j+kqvpS2cSFlgJ5coLd53d2
x-amz-request-id: E5BA4600A3937335
Date: Fri, 31 Oct 2014 01:49:50 GMT
Content-Length: 0
Server: AmazonS3
```

Example 2: Configure a notification with multiple destinations

The following notification configuration includes the topic and queue configurations:

- A topic configuration identifying an SNS topic for Amazon S3 to publish events of the `s3:ReducedRedundancyLostObject` type.

- A queue configuration identifying an SQS queue for Amazon S3 to publish events of the `s3:ObjectCreated:*` type.

```
<NotificationConfiguration>
  <TopicConfiguration>
    <Topic>arn:aws:sns:us-east-1:356671443308:s3notificationtopic2</Topic>
    <Event>s3:ReducedRedundancyLostObject</Event>
  </TopicConfiguration>
  <QueueConfiguration>
    <Queue>arn:aws:sqs:us-east-1:356671443308:s3notificationqueue</Queue>
    <Event>s3:ObjectCreated:*</Event>
  </QueueConfiguration>
</NotificationConfiguration>
```

Example

The following PUT request against the notification subresource of the `examplebucket` bucket sends the preceding notification configuration in the request body. The action replaces the existing notification configuration on the bucket.

```
PUT http://s3.<Region>.amazonaws.com/examplebucket?notification= HTTP/1.1
User-Agent: s3curl 2.0
Host: s3.amazonaws.com
Pragma: no-cache
Accept: */*
Proxy-Connection: Keep-Alive
Authorization: authorization string
Date: Mon, 13 Oct 2014 22:58:43 +0000
Content-Length: 391
Expect: 100-continue
```

Example 3: Configure a notification with object key name filtering

The following notification configuration contains a queue configuration identifying an Amazon SQS queue for Amazon S3 to publish events to of the `s3:ObjectCreated:Put` type. The events

will be published whenever an object that has a prefix of `images/` and a `.jpg` suffix is PUT to a bucket. For more examples of notification configurations that use filtering, see Configuring Event Notifications.

```
<NotificationConfiguration>
  <QueueConfiguration>
      <Id>1</Id>
      <Filter>
          <S3Key>
              <FilterRule>
                  <Name>prefix</Name>
                  <Value>images/</Value>
              </FilterRule>
              <FilterRule>
                  <Name>suffix</Name>
                  <Value>.jpg</Value>
              </FilterRule>
          </S3Key>
     </Filter>
     <Queue>arn:aws:sqs:us-west-2:444455556666:s3notificationqueue</Queue>
     <Event>s3:ObjectCreated:Put</Event>
  </QueueConfiguration>
</NotificationConfiguration>
```

Example

The following PUT request against the notification subresource of the `examplebucket` bucket sends the preceding notification configuration in the request body. The action replaces the existing notification configuration on the bucket.

```
PUT http://s3.<Region>.amazonaws.com/examplebucket?notification= HTTP/1.1
User-Agent: s3curl 2.0
Host: s3.amazonaws.com
Pragma: no-cache
Accept: */*
Proxy-Connection: Keep-Alive
Authorization: authorization string
Date: Mon, 13 Oct 2014 22:58:43 +0000
```

```
Content-Length: length
Expect: 100-continue
```

Sample Response

This example illustrates one usage of PutBucketNotificationConfiguration.

```
HTTP/1.1 200 OK
x-amz-id-2: SlvJLkfunoAGILZK3KqHSSUq4kwbudkrROmESoHOpDacULy+cxRoR1Svrfoyvg2A
x-amz-request-id: BB1BA8E12D6A80B7
Date: Mon, 13 Oct 2014 22:58:44 GMT
Content-Length: 0
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketOwnershipControls

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Creates or modifies `OwnershipControls` for an Amazon S3 bucket. To use this operation, you must have the `s3:PutBucketOwnershipControls` permission. For more information about Amazon S3 permissions, see Specifying permissions in a policy.

For information about Amazon S3 Object Ownership, see Using object ownership.

The following operations are related to `PutBucketOwnershipControls`:

- GetBucketOwnershipControls
- DeleteBucketOwnershipControls

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?ownershipControls HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
<?xml version="1.0" encoding="UTF-8"?>
<OwnershipControls xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Rule>
      <ObjectOwnership>string</ObjectOwnership>
   </Rule>
   ...
```

```
</OwnershipControls>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the Amazon S3 bucket whose `OwnershipControls` you want to set.

Required: Yes

Content-MD5

The MD5 hash of the `OwnershipControls` request body.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the object when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum-`*`algorithm`* header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

Request Body

The request accepts the following data in XML format.

OwnershipControls

Root level tag for the OwnershipControls parameters.

Required: Yes

Rule

The container element for an ownership control rule.

Type: Array of OwnershipControlsRule data types

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample Request with BucketOwnerEnforced OwnershipControls

The following request puts a bucket `OwnershipControls` that specifies BucketOwnerEnforced.

```
         PUT /amzn-s3-demo-bucket?ownershipControls= HTTP/1.1
         Host:amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
         x-amz-date: 20211130T230132Z
         x-amz-content-sha256:
 bafb46c18574a73704c8227aef060df1c12ea0d964e19b949d06e9f763805fe2
         Authorization: authorization string

         <?xml version="1.0" encoding="UTF-8"?>
         <OwnershipControls xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
           <Rule>
             <ObjectOwnership>BucketOwnerEnforced</ObjectOwnership>
           </Rule>
         </OwnershipControls>
```

Sample Response with BucketOwnerEnforced OwnershipControls

This example illustrates one usage of PutBucketOwnershipControls.

```
          HTTP/1.1 200 OK
          x-amz-id-2: zkDVX0gbz8oKcjNz7GPz8XhXkhNArHtA8/
WOf5hyEj6SbisSRdqITZvSuAMik7HK4PY+izDZZI0=
          x-amz-request-id: BK7Y8M3G7Z0RFRCP
          Date: Tue, 30 Nov 2021 23:01:33 GMT
          Content-Length: 0
          Server: AmazonS3
```

Sample Request with BucketOwnerPreferred OwnershipControls

The following request puts a bucket `OwnershipControls` that specifies BucketOwnerPreferred.

```
          PUT /amzn-s3-demo-bucket?ownershipControls= HTTP/1.1
          Host:amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
          x-amz-date: 20200618T230132Z
          x-amz-content-sha256:
 bafb46c18574a73704c8227aef060df1c12ea0d964e19b949d06e9f763805fe2
          Authorization: authorization string

          <?xml version="1.0" encoding="UTF-8"?>
          <OwnershipControls xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
            <Rule>
              <ObjectOwnership>BucketOwnerPreferred</ObjectOwnership>
            </Rule>
          </OwnershipControls>
```

Sample Response with BucketOwnerPreferred OwnershipControls

This example illustrates one usage of PutBucketOwnershipControls.

```
          HTTP/1.1 200 OK
          x-amz-id-2: zkDVX0gbz8oKcjNz7GPz8XhXkhNArHtA8/
WOf5hyEj6SbisSRdqITZvSuAMik7HK4PY+izDZZI0=
          x-amz-request-id: BK7Y8M3G7Z0RFRCP
          Date: Thu, 18 Jun 2020 23:01:33 GMT
          Content-Length: 0
          Server: AmazonS3
```

Sample Request with ObjectWriter OwnershipControls

The following request puts a bucket `OwnershipControls` that specifies ObjectWriter.

```
          PUT /amzn-s3-demo-bucket?ownershipControls= HTTP/1.1
          Host:amzn-s3-demo-bucket.s3.<Region>.amazonaws.com
          x-amz-date: 20200618T230132Z
          x-amz-content-sha256:
 bafb46c18574a73704c8227aef060df1c12ea0d964e19b949d06e9f763805fe2
          Authorization: authorization string

          <?xml version="1.0" encoding="UTF-8"?>
          <OwnershipControls xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
            <Rule>
              <ObjectOwnership>ObjectWriter</ObjectOwnership>
            </Rule>
          </OwnershipControls>
```

Sample Response with ObjectWriter OwnershipControls

This example illustrates one usage of PutBucketOwnershipControls.

```
          HTTP/1.1 200 OK
          x-amz-id-2: zkDVX0gbz8oKcjNz7GPz8XhXkhNArHtA8/
WOf5hyEj6SbisSRdqITZvSuAMik7HK4PY+izDZZI0=
          x-amz-request-id: BK7Y8M3G7Z0RFRCP
          Date: Thu, 18 Jun 2020 23:01:33 GMT
          Content-Length: 0
          Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketPolicy

Service: Amazon S3

Applies an Amazon S3 bucket policy to an Amazon S3 bucket.

> **Note**
>
> **Directory buckets** - For directory buckets, you must make requests for this API operation to the Regional endpoint. These endpoints support path-style requests in the format `https://s3express-control.`*`region-code`*`.amazonaws.com/`*`bucket-name`* . Virtual-hosted-style requests aren't supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Permissions

If you are using an identity other than the root user of the AWS account that owns the bucket, the calling identity must both have the `PutBucketPolicy` permissions on the specified bucket and belong to the bucket owner's account in order to use this operation.

If you don't have `PutBucketPolicy` permissions, Amazon S3 returns a `403 Access Denied` error. If you have the correct permissions, but you're not using an identity that belongs to the bucket owner's account, Amazon S3 returns a `405 Method Not Allowed` error.

> **Important**
>
> To ensure that bucket owners don't inadvertently lock themselves out of their own buckets, the root principal in a bucket owner's AWS account can perform the `GetBucketPolicy`, `PutBucketPolicy`, and `DeleteBucketPolicy` API actions, even if their bucket policy explicitly denies the root principal's access. Bucket owner root principals can only be blocked from performing these API actions by VPC endpoint policies and AWS Organizations policies.

- **General purpose bucket permissions** - The `s3:PutBucketPolicy` permission is required in a policy. For more information about general purpose buckets bucket policies, see Using Bucket Policies and User Policies in the *Amazon S3 User Guide*.

- **Directory bucket permissions** - To grant access to this API operation, you must have the `s3express:PutBucketPolicy` permission in an IAM identity-based policy instead of a bucket policy. Cross-account access to this API operation isn't supported. This operation can only be performed by the AWS account that owns the resource. For more information about directory bucket policies and permissions, see AWS Identity and Access Management (IAM) for S3 Express One Zone in the *Amazon S3 User Guide*.

Example bucket policies

General purpose buckets example bucket policies - See Bucket policy examples in the *Amazon S3 User Guide*.

Directory bucket example bucket policies - See Example bucket policies for S3 Express One Zone in the *Amazon S3 User Guide*.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `s3express-control.`*`region-code`*`.amazonaws.com`.

The following operations are related to `PutBucketPolicy`:

- CreateBucket
- DeleteBucket

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?policy HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-confirm-remove-self-bucket-access: ConfirmRemoveSelfBucketAccess
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

```
{ Policy in JSON format }
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket.

Directory buckets - When you use this operation with a directory bucket, you must use path-style requests in the format `https://s3express-control.region-code.amazonaws.com/bucket-name` . Virtual-hosted-style requests aren't supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must also follow the format `bucket-base-name--zone-id--x-s3` (for example, `DOC-EXAMPLE-BUCKET--usw2-az1--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*

Required: Yes

Content-MD5

The MD5 hash of the request body.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-confirm-remove-self-bucket-access

Set this parameter to true to confirm that you want to remove your permissions to change this bucket policy in the future.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

> **Note**
>
> For directory buckets, this header is not supported in this API operation. If you specify this header, the request fails with the HTTP status code `501 Not Implemented`.

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the request when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum-`*`algorithm`* or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`.

For the `x-amz-checksum-`*`algorithm`* header, replace *`algorithm`* with the supported algorithm from the following list:

- `CRC32`
- `CRC32C`
- `CRC64NVME`
- `SHA1`
- `SHA256`

For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If the individual checksum value you provide through `x-amz-checksum-`*`algorithm`* doesn't match the checksum algorithm you set through `x-amz-sdk-checksum-algorithm`, Amazon S3 fails the request with a `BadDigest` error.

> **Note**
>
> For directory buckets, when you use AWS SDKs, `CRC32` is the default checksum algorithm that's used for performance.

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

Request Body

The request accepts the following data in JSON format.

Policy

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample Request for general purpose buckets

The following request shows the PUT individual policy request for the bucket.

```
PUT /?policy HTTP/1.1
Host: bucket.s3.<Region>.amazonaws.com
Date: Tue, 04 Apr 2010 20:34:56 GMT
Authorization: authorization string

{
"Version":"2008-10-17",
"Id":"aaaa-bbbb-cccc-dddd",
"Statement" : [
    {
        "Effect":"Allow",
        "Sid":"1",
        "Principal" : {
            "AWS":["111122223333","444455556666"]
        },
        "Action":["s3:*"],
        "Resource":"arn:aws:s3:::bucket/*"
    }
 ]
```

```
}
```

Sample Response for general purpose buckets

This example illustrates one usage of PutBucketPolicy.

```
HTTP/1.1 204 No Content
x-amz-id-2: Uuag1LuByR5Onimru9SAMPLEAtRPfTaOFg==
x-amz-request-id: 656c76696e6727732SAMPLE7374
Date: Tue, 04 Apr 2010 20:34:56 GMT
Connection: keep-alive
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketReplication

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Creates a replication configuration or replaces an existing one. For more information, see Replication in the *Amazon S3 User Guide*.

Specify the replication configuration in the request body. In the replication configuration, you provide the name of the destination bucket or buckets where you want Amazon S3 to replicate objects, the IAM role that Amazon S3 can assume to replicate objects on your behalf, and other relevant information. You can invoke this request for a specific AWS Region by using the `aws:RequestedRegion` condition key.

A replication configuration must include at least one rule, and can contain a maximum of 1,000. Each rule identifies a subset of objects to replicate by filtering the objects in the source bucket. To choose additional subsets of objects to replicate, add a rule for each subset.

To specify a subset of the objects in the source bucket to apply a replication rule to, add the Filter element as a child of the Rule element. You can filter objects based on an object key prefix, one or more object tags, or both. When you add the Filter element in the configuration, you must also add the following elements: `DeleteMarkerReplication`, `Status`, and `Priority`.

> **Note**
>
> If you are using an earlier version of the replication configuration, Amazon S3 handles replication of delete markers differently. For more information, see Backward Compatibility.

For information about enabling versioning on a bucket, see Using Versioning.

Handling Replication of Encrypted Objects

By default, Amazon S3 doesn't replicate objects that are stored at rest using server-side encryption with KMS keys. To replicate AWS KMS-encrypted objects, add the following: `SourceSelectionCriteria`, `SseKmsEncryptedObjects`, `Status`,

`EncryptionConfiguration`, and `ReplicaKmsKeyID`. For information about replication configuration, see Replicating Objects Created with SSE Using KMS keys.

For information on `PutBucketReplication` errors, see List of replication-related error codes

Permissions

To create a `PutBucketReplication` request, you must have `s3:PutReplicationConfiguration` permissions for the bucket.

By default, a resource owner, in this case the AWS account that created the bucket, can perform this operation. The resource owner can also grant others permissions to perform the operation. For more information about permissions, see Specifying Permissions in a Policy and Managing Access Permissions to Your Amazon S3 Resources.

> **Note**
>
> To perform this operation, the user or role performing the action must have the iam:PassRole permission.

The following operations are related to `PutBucketReplication`:

- GetBucketReplication
- DeleteBucketReplication

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?replication HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-bucket-object-lock-token: Token
```

```
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<ReplicationConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Role>string</Role>
   <Rule>
      <DeleteMarkerReplication>
         <Status>string</Status>
      </DeleteMarkerReplication>
      <Destination>
         <AccessControlTranslation>
            <Owner>string</Owner>
         </AccessControlTranslation>
         <Account>string</Account>
         <Bucket>string</Bucket>
         <EncryptionConfiguration>
            <ReplicaKmsKeyID>string</ReplicaKmsKeyID>
         </EncryptionConfiguration>
         <Metrics>
            <EventThreshold>
               <Minutes>integer</Minutes>
            </EventThreshold>
            <Status>string</Status>
         </Metrics>
         <ReplicationTime>
            <Status>string</Status>
            <Time>
               <Minutes>integer</Minutes>
            </Time>
         </ReplicationTime>
         <StorageClass>string</StorageClass>
      </Destination>
      <ExistingObjectReplication>
         <Status>string</Status>
      </ExistingObjectReplication>
      <Filter>
         <And>
            <Prefix>string</Prefix>
            <Tag>
               <Key>string</Key>
               <Value>string</Value>
            </Tag>
            ...
         </And>
         <Prefix>string</Prefix>
```

```
            <Tag>
               <Key>string</Key>
               <Value>string</Value>
            </Tag>
         </Filter>
         <ID>string</ID>
         <Prefix>string</Prefix>
         <Priority>integer</Priority>
         <SourceSelectionCriteria>
            <ReplicaModifications>
               <Status>string</Status>
            </ReplicaModifications>
            <SseKmsEncryptedObjects>
               <Status>string</Status>
            </SseKmsEncryptedObjects>
         </SourceSelectionCriteria>
         <Status>string</Status>
      </Rule>
      ...
</ReplicationConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket

Required: Yes

Content-MD5

The Base64 encoded 128-bit `MD5` digest of the data. You must use this header as a message integrity check to verify that the request body was not corrupted in transit. For more information, see RFC 1864.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

x-amz-bucket-object-lock-token

A token to allow Object Lock to be enabled for an existing bucket.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the request when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Request Body

The request accepts the following data in XML format.

ReplicationConfiguration

Root level tag for the ReplicationConfiguration parameters.

Required: Yes

Role

The Amazon Resource Name (ARN) of the AWS Identity and Access Management (IAM) role that Amazon S3 assumes when replicating objects. For more information, see How to Set Up Replication in the *Amazon S3 User Guide*.

Type: String

Required: Yes

Rule

A container for one or more replication rules. A replication configuration must have at least one rule and can contain a maximum of 1,000 rules.

Type: Array of ReplicationRule data types

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample Request: Add a replication configuration

The following is a sample PUT request that creates a replication subresource on the specified bucket and saves the replication configuration in it. The replication configuration specifies a rule to replicate objects to the DOC-EXAMPLE-BUCKET bucket. The rule includes a filter to replicate only the objects created with the key name prefix TaxDocs and that have two specific tags.

After you add a replication configuration to your bucket, Amazon S3 assumes the AWS Identity and Access Management (IAM) role specified in the configuration to replicate objects on behalf of the bucket owner. The bucket owner is the AWS account that created the bucket.

Filtering using the <Filter> element is supported in the latest XML configuration. If you are using an earlier version of the XML configuration, you can filter only on key prefix. In that case, you add the <Prefix> element as a child of the <Rule>.

For more examples of replication configuration, see Replication Configuration Overview in the *Amazon S3 User Guide.*

```
PUT /?replication HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
Date: Wed, 11 Feb 2015 02:11:21 GMT
Content-MD5: q6yJDlIkcBaGGfb3QLY69A==
Authorization: authorization string
Content-Length: length
```

```
<ReplicationConfiguration>
  <Role>arn:aws:iam::35667example:role/CrossRegionReplicationRoleForS3</Role>
  <Rule>
    <ID>rule1</ID>
    <Status>Enabled</Status>
    <Priority>1</Priority>
    <DeleteMarkerReplication>
       <Status>Disabled</Status>
    </DeleteMarkerReplication>
    <Filter>
       <And>
           <Prefix>TaxDocs</Prefix>
           <Tag>
             <Key>key1</Key>
             <Value>value1</Value>
           </Tag>
           <Tag>
             <Key>key1</Key>
             <Value>value1</Value>
           </Tag>
       </And>
    </Filter>
    <Destination>
      <Bucket>arn:aws:s3:::DOC-EXAMPLE-BUCKET</Bucket>
    </Destination>
  </Rule>
</ReplicationConfiguration>
```

Sample Response

This example illustrates one usage of PutBucketReplication.

```
HTTP/1.1 200 OK
x-amz-id-2: r+qR7+nhXtJDDIJ0JJYcd+1j5nM/rUFiiiZ/fNbDOsd3JUE8NWMLNHXmvPfwMpdc
x-amz-request-id: 9E26D08072A8EF9E
Date: Wed, 11 Feb 2015 02:11:22 GMT
Content-Length: 0
Server: AmazonS3
```

Sample Request: Add a Replication Configuration with Amazon S3 Replication Time Control Enabled

You can use S3 Replication Time Control (S3 RTC) to replicate your data in the same AWS Region or across different AWS Regions in a predictable time frame. S3 RTC replicates 99.99 percent of new objects stored in Amazon S3 within 15 minutes. For more information, see Replicating objects using Replication Time Control.

```
PUT /?replication HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
Date: Wed, 11 Feb 2015 02:11:21 GMT
Content-MD5: q6yJDlIkcBaGGfb3QLY69A==
Authorization: authorization string
Content-Length: length
x-amz-bucket-object-lock-token: Token
<?xml version="1.0" encoding="UTF-8"?>

<ReplicationConfiguration>
  <Role>arn:aws:iam::35667example:role/CrossRegionReplicationRoleForS3</Role>
  <Rule>
    <ID>rule1</ID>
    <Status>Enabled</Status>
    <Priority>1</Priority>
    <Filter>
       <And>
           <Prefix>TaxDocs</Prefix>
           <Tag>
             <Key>key1</Key>
             <Value>value1</Value>
           </Tag>
           <Tag>
             <Key>key1</Key>
             <Value>value1</Value>
           </Tag>
       </And>
    </Filter>
    <Destination>
      <Bucket>arn:aws:s3:::DOC-EXAMPLE-BUCKET</Bucket>
      <Metrics>
         <Status>Enabled</Status>
         <EventThreshold>
            <Minutes>15</Minutes>
```

```
          </EventThreshold>
       </Metrics>
       <ReplicationTime>
          <Status>Enabled</Status>
          <Time>
             <Minutes>15</Minutes>
          </Time>
       </ReplicationTime>
     </Destination>
   </Rule>
</ReplicationConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketRequestPayment

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Sets the request payment configuration for a bucket. By default, the bucket owner pays for downloads from the bucket. This configuration parameter enables the bucket owner (only) to specify that the person requesting the download will be charged for the download. For more information, see Requester Pays Buckets.

The following operations are related to `PutBucketRequestPayment`:

- CreateBucket
- GetBucketRequestPayment

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?requestPayment HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<RequestPaymentConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Payer>string</Payer>
</RequestPaymentConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name.

Required: Yes

Content-MD5

The Base64 encoded 128-bit `MD5` digest of the data. You must use this header as a message integrity check to verify that the request body was not corrupted in transit. For more information, see RFC 1864.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the request when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Request Body

The request accepts the following data in XML format.

RequestPaymentConfiguration

Root level tag for the RequestPaymentConfiguration parameters.

Required: Yes

Payer

Specifies who pays for the download and request fees.

Type: String

Valid Values: `Requester | BucketOwner`

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample Request

This request creates a Requester Pays bucket named `colorpictures`.

```
PUT ?requestPayment HTTP/1.1
Host: colorpictures.s3.<Region>.amazonaws.com
Content-Length: 173
Date: Wed, 01 Mar  2006 12:00:00 GMT
Authorization: authorization string

<RequestPaymentConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Payer>Requester</Payer>
</RequestPaymentConfiguration>
```

Sample Response

Delete the metric configuration with a specified ID, which disables the CloudWatch metrics with the `ExampleMetrics` value for the `FilterId` dimension.

```
HTTP/1.1 200 OK
x-amz-id-2: YgIPIfBiKa2bj0KMg95r/0zo3emzU4dzsD4rcKCHQUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 236A8905248E5A01
Date: Wed, 01 Mar  2006 12:00:00 GMT
Location: /colorpictures
Content-Length: 0
Connection: close
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketTagging

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Sets the tags for a bucket.

Use tags to organize your AWS bill to reflect your own cost structure. To do this, sign up to get your AWS account bill with tag key values included. Then, to see the cost of combined resources, organize your billing information according to resources with the same tag key values. For example, you can tag several resources with a specific application name, and then organize your billing information to see the total cost of that application across several services. For more information, see Cost Allocation and Tagging and Using Cost Allocation in Amazon S3 Bucket Tags.

> **Note**
>
> When this operation sets the tags for a bucket, it will overwrite any current tags the bucket already has. You cannot use this operation to add tags to an existing list of tags.

To use this operation, you must have permissions to perform the `s3:PutBucketTagging` action. The bucket owner has this permission by default and can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources.

`PutBucketTagging` has the following special errors. For more Amazon S3 errors see, Error Responses.

- `InvalidTag` - The tag provided was not a valid tag. This error can occur if the tag did not pass input validation. For more information, see Using Cost Allocation in Amazon S3 Bucket Tags.
- `MalformedXML` - The XML provided does not match the schema.
- `OperationAborted` - A conflicting conditional action is currently in progress against this resource. Please try again.
- `InternalError` - The service was unable to apply the provided tag to the bucket.

The following operations are related to `PutBucketTagging`:

- GetBucketTagging
- DeleteBucketTagging

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?tagging HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<Tagging xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <TagSet>
      <Tag>
         <Key>string</Key>
         <Value>string</Value>
      </Tag>
   </TagSet>
</Tagging>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name.

Required: Yes

Content-MD5

The Base64 encoded 128-bit `MD5` digest of the data. You must use this header as a message integrity check to verify that the request body was not corrupted in transit. For more information, see RFC 1864.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the request when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Request Body

The request accepts the following data in XML format.

Tagging

Root level tag for the Tagging parameters.

Required: Yes

TagSet

A collection for a set of tags

Type: Array of Tag data types

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample Request: Add tag set to a bucket

The following request adds a tag set to the existing `examplebucket` bucket.

```
PUT ?tagging HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
Content-Length: 1660
x-amz-date: Thu, 12 Apr 2012 20:04:21 GMT
Authorization: authorization string

<Tagging>
  <TagSet>
    <Tag>
      <Key>Project</Key>
      <Value>Project One</Value>
    </Tag>
    <Tag>
      <Key>User</Key>
      <Value>jsmith</Value>
    </Tag>
  </TagSet>
</Tagging>
```

Sample Response

This example illustrates one usage of PutBucketTagging.

```
HTTP/1.1 204 No Content
x-amz-id-2: YgIPIfBiKa2bj0KMgUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 236A8905248E5A01
Date: Wed, 01 Oct  2012 12:00:00 GMT
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketVersioning

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

> **Note**
>
> When you enable versioning on a bucket for the first time, it might take a short amount of time for the change to be fully propagated. While this change is propagating, you might encounter intermittent `HTTP 404 NoSuchKey` errors for requests to objects created or updated after enabling versioning. We recommend that you wait for 15 minutes after enabling versioning before issuing write operations (PUT or `DELETE`) on objects in the bucket.

Sets the versioning state of an existing bucket.

You can set the versioning state with one of the following values:

Enabled—Enables versioning for the objects in the bucket. All objects added to the bucket receive a unique version ID.

Suspended—Disables versioning for the objects in the bucket. All objects added to the bucket receive the version ID null.

If the versioning state has never been set on a bucket, it has no versioning state; a GetBucketVersioning request does not return a versioning state value.

In order to enable MFA Delete, you must be the bucket owner. If you are the bucket owner and want to enable MFA Delete in the bucket versioning configuration, you must include the `x-amz-mfa request` header and the `Status` and the `MfaDelete` request elements in a request to set the versioning state of the bucket.

> **Important**
>
> If you have an object expiration lifecycle configuration in your non-versioned bucket and you want to maintain the same permanent delete behavior when you enable

versioning, you must add a noncurrent expiration policy. The noncurrent expiration lifecycle configuration will manage the deletes of the noncurrent object versions in the version-enabled bucket. (A version-enabled bucket maintains one current and zero or more noncurrent object versions.) For more information, see Lifecycle and Versioning.

The following operations are related to `PutBucketVersioning`:

- CreateBucket
- DeleteBucket
- GetBucketVersioning

Important

You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?versioning HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-mfa: MFA
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<VersioningConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <MfaDelete>string</MfaDelete>
   <Status>string</Status>
</VersioningConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name.

Required: Yes

Content-MD5

>The Base64 encoded 128-bit `MD5` digest of the data. You must use this header as a message integrity check to verify that the request body was not corrupted in transit. For more information, see RFC 1864.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-mfa

The concatenation of the authentication device's serial number, a space, and the value that is displayed on your authentication device. The serial number is the number that uniquely identifies the MFA device. For physical MFA devices, this is the unique serial number that's provided with the device. For virtual MFA devices, the serial number is the device ARN. For more information, see Enabling versioning on buckets and Configuring MFA delete in the *Amazon Simple Storage Service User Guide*.

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the request when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

Request Body

The request accepts the following data in XML format.

VersioningConfiguration

Root level tag for the VersioningConfiguration parameters.

Required: Yes

MFADelete

Specifies whether MFA delete is enabled in the bucket versioning configuration. This element is only returned if the bucket has been configured with MFA delete. If the bucket has never been so configured, this element is not returned.

Type: String

Valid Values: `Enabled | Disabled`

Required: No

Status

The versioning state of the bucket.

Type: String

Valid Values: `Enabled | Suspended`

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample Request

The following request enables versioning for the specified bucket.

```
PUT /?versioning HTTP/1.1
Host: bucket.s3.<Region>.amazonaws.com
Date: Wed, 01 Mar  2006 12:00:00 GMT
Authorization: authorization string
Content-Type: text/plain
Content-Length: 124

<VersioningConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Status>Enabled</Status>
</VersioningConfiguration>
```

Sample Response

This example illustrates one usage of PutBucketVersioning.

```
HTTP/1.1 200 OK
x-amz-id-2: YgIPIfBiKa2bj0KMg95r/0zo3emzU4dzsD4rcKCHQUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 236A8905248E5A01
Date: Wed, 01 Mar  2006 12:00:00 GMT3
```

Sample Request

The following request suspends versioning for the specified bucket.

```
PUT /?versioning HTTP/1.1
Host: bucket.s3.<Region>.amazonaws.com
Date: Wed, 12 Oct 2009 17:50:00 GMT
Authorization: authorization string
Content-Type: text/plain
Content-Length: 124

<VersioningConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Status>Suspended</Status>
</VersioningConfiguration>
```

Sample Response

This example illustrates one usage of PutBucketVersioning.

```
HTTP/1.1 200 OK
x-amz-id-2: YgIPIfBiKa2bj0KMg95r/0zo3emzU4dzsD4rcKCHQUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 236A8905248E5A01
Date: Wed, 01 Mar  2006 12:00:00 GMT
```

Sample Request

The following request enables versioning and MFA Delete on a bucket. Note the space between `[SerialNumber]` and `[TokenCode]` and that you must include `Status` whenever you use `MfaDelete`.

```
PUT /?versioning HTTP/1.1
Host: bucket.s3.<Region>.amazonaws.com
Date: Wed, 12 Oct 2009 17:50:00 GMT
x-amz-mfa:[SerialNumber] [TokenCode]
Authorization: authorization string
Content-Type: text/plain
Content-Length: 124

<VersioningConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Status>Enabled</Status>
   <MfaDelete>Enabled</MfaDelete>
</VersioningConfiguration>
```

Sample Response

This example illustrates one usage of PutBucketVersioning.

```
HTTPS/1.1 200 OK
x-amz-id-2: YgIPIfBiKa2bj0KMg95r/0zo3emzU4dzsD4rcKCHQUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 236A8905248E5A01
Date: Wed, 01 Mar  2006 12:00:00 GMT
```

```
Location: /colorpictures
Content-Length: 0
Connection: close
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketWebsite

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Sets the configuration of the website that is specified in the `website` subresource. To configure a bucket as a website, you can add this subresource on the bucket with website configuration information such as the file name of the index document and any redirect rules. For more information, see Hosting Websites on Amazon S3.

This PUT action requires the `S3:PutBucketWebsite` permission. By default, only the bucket owner can configure the website attached to a bucket; however, bucket owners can allow other users to set the website configuration by writing a bucket policy that grants them the `S3:PutBucketWebsite` permission.

To redirect all website requests sent to the bucket's website endpoint, you add a website configuration with the following elements. Because all requests are sent to another website, you don't need to provide index document name for the bucket.

- `WebsiteConfiguration`
- `RedirectAllRequestsTo`
- `HostName`
- `Protocol`

If you want granular control over redirects, you can use the following elements to add routing rules that describe conditions for redirecting requests and information about the redirect destination. In this case, the website configuration must provide an index document for the bucket, because some requests might not be redirected.

- `WebsiteConfiguration`
- `IndexDocument`
- `Suffix`
- `ErrorDocument`

- `Key`
- `RoutingRules`
- `RoutingRule`
- `Condition`
- `HttpErrorCodeReturnedEquals`
- `KeyPrefixEquals`
- `Redirect`
- `Protocol`
- `HostName`
- `ReplaceKeyPrefixWith`
- `ReplaceKeyWith`
- `HttpRedirectCode`

Amazon S3 has a limitation of 50 routing rules per website configuration. If you require more than 50 routing rules, you can use object redirect. For more information, see Configuring an Object Redirect in the *Amazon S3 User Guide*.

The maximum request length is limited to 128 KB.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?website HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<WebsiteConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <ErrorDocument>
```

```
      <Key>string</Key>
   </ErrorDocument>
   <IndexDocument>
      <Suffix>string</Suffix>
   </IndexDocument>
   <RedirectAllRequestsTo>
      <HostName>string</HostName>
      <Protocol>string</Protocol>
   </RedirectAllRequestsTo>
   <RoutingRules>
      <RoutingRule>
         <Condition>
            <HttpErrorCodeReturnedEquals>string</HttpErrorCodeReturnedEquals>
            <KeyPrefixEquals>string</KeyPrefixEquals>
         </Condition>
         <Redirect>
            <HostName>string</HostName>
            <HttpRedirectCode>string</HttpRedirectCode>
            <Protocol>string</Protocol>
            <ReplaceKeyPrefixWith>string</ReplaceKeyPrefixWith>
            <ReplaceKeyWith>string</ReplaceKeyWith>
         </Redirect>
      </RoutingRule>
   </RoutingRules>
</WebsiteConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name.

Required: Yes

Content-MD5

The Base64 encoded 128-bit `MD5` digest of the data. You must use this header as a message integrity check to verify that the request body was not corrupted in transit. For more information, see RFC 1864.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the request when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Request Body

The request accepts the following data in XML format.

WebsiteConfiguration

Root level tag for the WebsiteConfiguration parameters.

Required: Yes

ErrorDocument

The name of the error document for the website.

Type: ErrorDocument data type

Required: No

IndexDocument

The name of the index document for the website.

Type: IndexDocument data type

Required: No

RedirectAllRequestsTo

The redirect behavior for every request to this bucket's website endpoint.

> **Important**
>
> If you specify this property, you can't specify any other property.

Type: RedirectAllRequestsTo data type

Required: No

RoutingRules

Rules that define when a redirect is applied and the redirect behavior.

Type: Array of RoutingRule data types

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Example 1: Configure bucket as a website (add website configuration)

The following request configures a bucket example.com as a website. The configuration in the request specifies index.html as the index document. It also specifies the optional error document, SomeErrorDocument.html.

```
PUT ?website HTTP/1.1
Host: example.com.s3.<Region>.amazonaws.com
Content-Length: 256
Date: Thu, 27 Jan 2011 12:00:00 GMT
```

```
Authorization: signatureValue

<WebsiteConfiguration xmlns='http://s3.amazonaws.com/doc/2006-03-01/'>
    <IndexDocument>
        <Suffix>index.html</Suffix>
    </IndexDocument>
    <ErrorDocument>
        <Key>SomeErrorDocument.html</Key>
    </ErrorDocument>
</WebsiteConfiguration>
```

Sample Response

This example illustrates one usage of PutBucketWebsite.

```
HTTP/1.1 200 OK
x-amz-id-2: YgIPIfBiKa2bj0KMgUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 80CD4368BD211111
Date: Thu, 27 Jan 2011 00:00:00 GMT
Content-Length: 0
Server: AmazonS3
```

Example 2: Configure bucket as a website but redirect all requests

The following request configures a bucket `www.example.com` as a website. However, the configuration specifies that all GET requests for the www.example.com bucket's website endpoint will be redirected to host example.com. This redirect can be useful when you want to serve requests for both `http://www.example.com` and `http://example.com`, but you want to maintain the website content in only one bucket, in this case, `example.com`.

```
PUT ?website HTTP/1.1
Host: www.example.com.s3.<Region>.amazonaws.com
Content-Length: length-value
Date: Thu, 27 Jan 2011 12:00:00 GMT
Authorization: signatureValue

<WebsiteConfiguration xmlns='http://s3.amazonaws.com/doc/2006-03-01/'>
   <RedirectAllRequestsTo>
```

```
      <HostName>example.com</HostName>
    </RedirectAllRequestsTo>
</WebsiteConfiguration>
```

Example 3: Configure bucket as a website and specify optional redirection rules

Example 1 is the simplest website configuration. It configures a bucket as a website by providing only an index document and an error document. You can further customize the website configuration by adding routing rules that redirect requests for one or more objects. For example, suppose that your bucket contained the following objects:

- index.html
- docs/article1.html
- docs/article2.html

If you decided to rename the folder from `docs/` to `documents/`, you would need to redirect requests for prefix `/docs` to `documents/`. For example, a request for docs/article1.html will need to be redirected to documents/article1.html.

In this case, you update the website configuration and add a routing rule as shown in the following request.

```
PUT ?website HTTP/1.1
Host: www.example.com.s3.<Region>.amazonaws.com
Content-Length: length-value
Date: Thu, 27 Jan 2011 12:00:00 GMT
Authorization: signatureValue

<WebsiteConfiguration xmlns='http://s3.amazonaws.com/doc/2006-03-01/'>
  <IndexDocument>
    <Suffix>index.html</Suffix>
  </IndexDocument>
  <ErrorDocument>
    <Key>Error.html</Key>
  </ErrorDocument>

  <RoutingRules>
    <RoutingRule>
    <Condition>
```

```
      <KeyPrefixEquals>docs/</KeyPrefixEquals>
    </Condition>
    <Redirect>
      <ReplaceKeyPrefixWith>documents/</ReplaceKeyPrefixWith>
    </Redirect>
    </RoutingRule>
  </RoutingRules>
</WebsiteConfiguration>
```

Example 4: Configure a bucket as a website and redirect errors

You can use a routing rule to specify a condition that checks for a specific HTTP error code. When a page request results in this error, you can optionally reroute requests. For example, you might route requests to another host and optionally process the error. The routing rule in the following requests redirects requests to an EC2 instance in the event of an HTTP error 404. For illustration, the redirect also inserts an object key prefix `report-404/` in the redirect. For example, if you request a page `ExamplePage.html` and it results in an HTTP 404 error, the request is routed to a page `report-404/testPage.html` on the specified EC2 instance. If there is no routing rule and the HTTP error 404 occurred, then `Error.html` would be returned.

```
PUT ?website HTTP/1.1
Host: www.example.com.s3.<Region>.amazonaws.com
Content-Length: 580
Date: Thu, 27 Jan 2011 12:00:00 GMT
Authorization: signatureValue

<WebsiteConfiguration xmlns='http://s3.amazonaws.com/doc/2006-03-01/'>
  <IndexDocument>
    <Suffix>index.html</Suffix>
  </IndexDocument>
  <ErrorDocument>
    <Key>Error.html</Key>
  </ErrorDocument>

  <RoutingRules>
    <RoutingRule>
    <Condition>
      <HttpErrorCodeReturnedEquals>404</HttpErrorCodeReturnedEquals >
    </Condition>
    <Redirect>
```

```
      <HostName>ec2-11-22-333-44.compute-1.amazonaws.com</HostName>
      <ReplaceKeyPrefixWith>report-404/</ReplaceKeyPrefixWith>
    </Redirect>
    </RoutingRule>
  </RoutingRules>
</WebsiteConfiguration>
```

Example 5: Configure a bucket as a website and redirect folder requests to a page

Suppose you have the following pages in your bucket:

- images/photo1.jpg
- images/photo2.jpg
- images/photo3.jpg

Now you want to route requests for all pages with the images/ prefix to go to a single page, errorpage.html. You can add a website configuration to your bucket with the routing rule shown in the following request.

```
PUT ?website HTTP/1.1
Host: www.example.com.s3.<Region>.amazonaws.com
Content-Length: 481
Date: Thu, 27 Jan 2011 12:00:00 GMT
Authorization: signatureValue

<WebsiteConfiguration xmlns='http://s3.amazonaws.com/doc/2006-03-01/'>
  <IndexDocument>
    <Suffix>index.html</Suffix>
  </IndexDocument>
  <ErrorDocument>
    <Key>Error.html</Key>
  </ErrorDocument>

  <RoutingRules>
    <RoutingRule>
    <Condition>
      <KeyPrefixEquals>images/</KeyPrefixEquals>
    </Condition>
    <Redirect>
```

```
      <ReplaceKeyWith>errorpage.html</ReplaceKeyWith>
    </Redirect>
    </RoutingRule>
  </RoutingRules>
</WebsiteConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutObject

Service: Amazon S3

Important

End of support notice: Beginning October 1, 2025, Amazon S3 will discontinue support for creating new Email Grantee Access Control Lists (ACL). Email Grantee ACLs created prior to this date will continue to work and remain accessible through the AWS Management Console, Command Line Interface (CLI), SDKs, and REST API. However, you will no longer be able to create new Email Grantee ACLs.

Between July 15, 2025 and October 1, 2025, you will begin to see an increasing rate of `HTTP 405` errors for requests to Amazon S3 when attempting to create new Email Grantee ACLs.

This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

Adds an object to a bucket.

Note

- Amazon S3 never adds partial objects; if you receive a success response, Amazon S3 added the entire object to the bucket. You cannot use `PutObject` to only update a single piece of metadata for an existing object. You must put the entire object with updated metadata if you want to update some values.
- If your bucket uses the bucket owner enforced setting for Object Ownership, ACLs are disabled and no longer affect permissions. All objects written to the bucket by any account will be owned by the bucket owner.
- **Directory buckets** - For directory buckets, you must make requests for this API operation to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://amzn-s3-demo-bucket.s3express-zone-id.region-code.amazonaws.com/key-name` . Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more

information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Amazon S3 is a distributed system. If it receives multiple write requests for the same object simultaneously, it overwrites all but the last object written. However, Amazon S3 provides features that can modify this behavior:

- **S3 Object Lock** - To prevent objects from being deleted or overwritten, you can use Amazon S3 Object Lock in the *Amazon S3 User Guide*.

  > **Note**
  >
  > This functionality is not supported for directory buckets.

- **If-None-Match** - Uploads the object only if the object key name does not already exist in the specified bucket. Otherwise, Amazon S3 returns a `412 Precondition Failed` error. If a conflicting operation occurs during the upload, S3 returns a `409 ConditionalRequestConflict` response. On a 409 failure, retry the upload.

  Expects the * character (asterisk).

  For more information, see Add preconditions to S3 operations with conditional requests in the *Amazon S3 User Guide* or RFC 7232.

  > **Note**
  >
  > This functionality is not supported for S3 on Outposts.

- **S3 Versioning** - When you enable versioning for a bucket, if Amazon S3 receives multiple write requests for the same object simultaneously, it stores all versions of the objects. For each write request that is made to the same object, Amazon S3 automatically generates a unique version ID of that object being stored in Amazon S3. You can retrieve, replace, or delete any version of the object. For more information about versioning, see Adding Objects to Versioning-Enabled Buckets in the *Amazon S3 User Guide*. For information about returning the versioning state of a bucket, see GetBucketVersioning.

> **Note**
>
> This functionality is not supported for directory buckets.

Permissions

- **General purpose bucket permissions** - The following permissions are required in your policies when your `PutObject` request includes specific headers.
  - **`s3:PutObject`** - To successfully complete the `PutObject` request, you must always have the `s3:PutObject` permission on a bucket to add an object to it.
  - **`s3:PutObjectAcl`** - To successfully change the objects ACL of your `PutObject` request, you must have the `s3:PutObjectAcl`.
  - **`s3:PutObjectTagging`** - To successfully set the tag-set with your `PutObject` request, you must have the `s3:PutObjectTagging`.
- **Directory bucket permissions** - To grant access to this API operation on a directory bucket, we recommend that you use the `CreateSession` API operation for session-based authorization. Specifically, you grant the `s3express:CreateSession` permission to the directory bucket in a bucket policy or an IAM identity-based policy. Then, you make the `CreateSession` API call on the bucket to obtain a session token. With the session token in your request header, you can make API requests to this operation. After the session token expires, you make another `CreateSession` API call to generate a new session token for use. AWS CLI or SDKs create session and refresh the session token automatically to avoid service interruptions when a session expires. For more information about authorization, see `CreateSession`.

  If the object is encrypted with SSE-KMS, you must also have the `kms:GenerateDataKey` and `kms:Decrypt` permissions in IAM identity-based policies and AWS KMS key policies for the AWS KMS key.

Data integrity with Content-MD5

- **General purpose bucket** - To ensure that data is not corrupted traversing the network, use the `Content-MD5` header. When you use this header, Amazon S3 checks the object against the provided MD5 value and, if they do not match, Amazon S3 returns an error. Alternatively, when the object's ETag is its MD5 digest, you can calculate the MD5 while putting the object to Amazon S3 and compare the returned ETag to the calculated MD5 value.

- **Directory bucket** - This functionality is not supported for directory buckets.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `Bucket-name.s3express-zone-id.region-code.amazonaws.com`.

For more information about related Amazon S3 APIs, see the following:

- CopyObject
- DeleteObject

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /Key+ HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-acl: ACL
Cache-Control: CacheControl
Content-Disposition: ContentDisposition
Content-Encoding: ContentEncoding
Content-Language: ContentLanguage
Content-Length: ContentLength
Content-MD5: ContentMD5
Content-Type: ContentType
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-checksum-crc32: ChecksumCRC32
x-amz-checksum-crc32c: ChecksumCRC32C
x-amz-checksum-crc64nvme: ChecksumCRC64NVME
x-amz-checksum-sha1: ChecksumSHA1
x-amz-checksum-sha256: ChecksumSHA256
Expires: Expires
If-Match: IfMatch
If-None-Match: IfNoneMatch
x-amz-grant-full-control: GrantFullControl
```

```
x-amz-grant-read: GrantRead
x-amz-grant-read-acp: GrantReadACP
x-amz-grant-write-acp: GrantWriteACP
x-amz-write-offset-bytes: WriteOffsetBytes
x-amz-server-side-encryption: ServerSideEncryption
x-amz-storage-class: StorageClass
x-amz-website-redirect-location: WebsiteRedirectLocation
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key: SSECustomerKey
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-server-side-encryption-aws-kms-key-id: SSEKMSKeyId
x-amz-server-side-encryption-context: SSEKMSEncryptionContext
x-amz-server-side-encryption-bucket-key-enabled: BucketKeyEnabled
x-amz-request-payer: RequestPayer
x-amz-tagging: Tagging
x-amz-object-lock-mode: ObjectLockMode
x-amz-object-lock-retain-until-date: ObjectLockRetainUntilDate
x-amz-object-lock-legal-hold: ObjectLockLegalHoldStatus
x-amz-expected-bucket-owner: ExpectedBucketOwner

Body
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name to which the PUT action was initiated.

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format *Bucket-name*`.s3express-`*zone-id*`.`*region-code*`.amazonaws.com`. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format *bucket-base-name*`--`*zone-id*`--x-s3` (for example, *amzn-s3-demo-bucket*`--`*usw2-az1*`--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN,

you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

Cache-Control

Can be used to specify caching behavior along the request/reply chain. For more information, see http://www.w3.org/Protocols/rfc2616/rfc2616-sec14.html#sec14.9.

Content-Disposition

Specifies presentational information for the object. For more information, see https://www.rfc-editor.org/rfc/rfc6266#section-4.

Content-Encoding

Specifies what content encodings have been applied to the object and thus what decoding mechanisms must be applied to obtain the media-type referenced by the Content-Type header field. For more information, see https://www.rfc-editor.org/rfc/rfc9110.html#field.content-encoding.

Content-Language

The language the content is in.

Content-Length

Size of the body in bytes. This parameter is useful when the size of the body cannot be determined automatically. For more information, see https://www.rfc-editor.org/rfc/rfc9110.html#name-content-length.

Content-MD5

The Base64 encoded 128-bit `MD5` digest of the message (without the headers) according to RFC 1864. This header can be used as a message integrity check to verify that the data is the same data that was originally sent. Although it is optional, we recommend using the Content-MD5 mechanism as an end-to-end integrity check. For more information about REST request authentication, see REST Authentication.

> **Note**
>
> The `Content-MD5` or `x-amz-sdk-checksum-algorithm` header is required for any request to upload an object with a retention period configured using Amazon S3 Object Lock. For more information, see Uploading objects to an Object Lock enabled bucket in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Content-Type

A standard MIME type describing the format of the contents. For more information, see https://www.rfc-editor.org/rfc/rfc9110.html#name-content-type.

Expires

The date and time at which the object is no longer cacheable. For more information, see https://www.rfc-editor.org/rfc/rfc7234#section-5.3.

If-Match

Uploads the object only if the ETag (entity tag) value provided during the WRITE operation matches the ETag of the object in S3. If the ETag values do not match, the operation returns a `412 Precondition Failed` error.

If a conflicting operation occurs during the upload S3 returns a `409 ConditionalRequestConflict` response. On a 409 failure you should fetch the object's ETag and retry the upload.

Expects the ETag value as a string.

For more information about conditional requests, see RFC 7232, or Conditional requests in the *Amazon S3 User Guide*.

If-None-Match

Uploads the object only if the object key name does not already exist in the bucket specified. Otherwise, Amazon S3 returns a `412 Precondition Failed` error.

If a conflicting operation occurs during the upload S3 returns a `409 ConditionalRequestConflict` response. On a 409 failure you should retry the upload.

Expects the '*' (asterisk) character.

For more information about conditional requests, see RFC 7232, or Conditional requests in the *Amazon S3 User Guide*.

Key

Object key for which the PUT action was initiated.

Length Constraints: Minimum length of 1.

Required: Yes

x-amz-acl

The canned ACL to apply to the object. For more information, see Canned ACL in the *Amazon S3 User Guide*.

When adding a new object, you can use headers to grant ACL-based permissions to individual AWS accounts or to predefined groups defined by Amazon S3. These permissions are then added to the ACL on the object. By default, all objects are private. Only the owner has full access control. For more information, see Access Control List (ACL) Overview and Managing ACLs Using the REST API in the *Amazon S3 User Guide*.

If the bucket that you're uploading objects to uses the bucket owner enforced setting for S3 Object Ownership, ACLs are disabled and no longer affect permissions. Buckets that use

this setting only accept PUT requests that don't specify an ACL or PUT requests that specify bucket owner full control ACLs, such as the `bucket-owner-full-control` canned ACL or an equivalent form of this ACL expressed in the XML format. PUT requests that contain other ACLs (for example, custom grants to certain AWS accounts) fail and return a `400` error with the error code `AccessControlListNotSupported`. For more information, see Controlling ownership of objects and disabling ACLs in the *Amazon S3 User Guide*.

> **Note**
>
> - This functionality is not supported for directory buckets.
> - This functionality is not supported for Amazon S3 on Outposts.

Valid Values: `private | public-read | public-read-write | authenticated-read | aws-exec-read | bucket-owner-read | bucket-owner-full-control`

x-amz-checksum-crc32

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 32-bit `CRC32` checksum of the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-crc32c

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 32-bit `CRC32C` checksum of the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-crc64nvme

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 64-bit `CRC64NVME` checksum of the object. The `CRC64NVME` checksum is always a full object checksum. For more information, see Checking object integrity in the Amazon S3 User Guide.

x-amz-checksum-sha1

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 160-bit `SHA1` digest of the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-sha256

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 256-bit SHA256 digest of the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-grant-full-control

Gives the grantee READ, READ_ACP, and WRITE_ACP permissions on the object.

> **Note**
>
> - This functionality is not supported for directory buckets.
> - This functionality is not supported for Amazon S3 on Outposts.

x-amz-grant-read

Allows grantee to read the object data and its metadata.

> **Note**
>
> - This functionality is not supported for directory buckets.
> - This functionality is not supported for Amazon S3 on Outposts.

x-amz-grant-read-acp

Allows grantee to read the object ACL.

> **Note**
>
> - This functionality is not supported for directory buckets.
> - This functionality is not supported for Amazon S3 on Outposts.

x-amz-grant-write-acp

Allows grantee to write the ACL for the applicable object.

> **Note**
>
> - This functionality is not supported for directory buckets.
> - This functionality is not supported for Amazon S3 on Outposts.

x-amz-object-lock-legal-hold

Specifies whether a legal hold will be applied to this object. For more information about S3 Object Lock, see Object Lock in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `ON` | `OFF`

x-amz-object-lock-mode

The Object Lock mode that you want to apply to this object.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `GOVERNANCE` | `COMPLIANCE`

x-amz-object-lock-retain-until-date

The date and time when you want this object's Object Lock to expire. Must be formatted as a timestamp parameter.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the object when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum-`*`algorithm`* or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`.

For the `x-amz-checksum-`*`algorithm`* header, replace *`algorithm`* with the supported algorithm from the following list:

- `CRC32`
- `CRC32C`
- `CRC64NVME`
- `SHA1`
- `SHA256`

For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If the individual checksum value you provide through `x-amz-checksum-`*`algorithm`* doesn't match the checksum algorithm you set through `x-amz-sdk-checksum-algorithm`, Amazon S3 fails the request with a `BadDigest` error.

> **Note**
>
> The `Content-MD5` or `x-amz-sdk-checksum-algorithm` header is required for any request to upload an object with a retention period configured using Amazon S3 Object Lock. For more information, see Uploading objects to an Object Lock enabled bucket in the *Amazon S3 User Guide*.

For directory buckets, when you use AWS SDKs, `CRC32` is the default checksum algorithm that's used for performance.

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

x-amz-server-side-encryption

The server-side encryption algorithm that was used when you store this object in Amazon S3 or Amazon FSx.

- **General purpose buckets** - You have four mutually exclusive options to protect data using server-side encryption in Amazon S3, depending on how you choose to manage the encryption keys. Specifically, the encryption key options are Amazon S3 managed keys (SSE-S3), AWS KMS keys (SSE-KMS or DSSE-KMS), and customer-provided keys (SSE-C). Amazon S3 encrypts data with server-side encryption by using Amazon S3 managed keys (SSE-S3) by default. You can optionally tell Amazon S3 to encrypt data at rest by using server-side encryption with other key options. For more information, see Using Server-Side Encryption in the *Amazon S3 User Guide*.
- **Directory buckets** - For directory buckets, there are only two supported options for server-side encryption: server-side encryption with Amazon S3 managed keys (SSE-S3) (`AES256`) and server-side encryption with AWS KMS keys (SSE-KMS) (`aws:kms`). We recommend that the bucket's default encryption uses the desired encryption configuration and you don't override the bucket default encryption in your `CreateSession` requests or PUT object requests. Then, new objects are automatically encrypted with the desired encryption settings. For more information, see Protecting data with server-side encryption in the *Amazon S3 User Guide*. For more information about the encryption overriding behaviors in directory buckets, see Specifying server-side encryption with AWS KMS for new object uploads.

  In the Zonal endpoint API calls (except CopyObject and UploadPartCopy) using the REST API, the encryption request headers must match the encryption settings that are specified in the `CreateSession` request. You can't override the values of the encryption settings (`x-amz-`

server-side-encryption, x-amz-server-side-encryption-aws-kms-key-id, x-amz-server-side-encryption-context, and x-amz-server-side-encryption-bucket-key-enabled) that are specified in the CreateSession request. You don't need to explicitly specify these encryption settings values in Zonal endpoint API calls, and Amazon S3 will use the encryption settings values from the CreateSession request to protect new objects in the directory bucket.

> **Note**
>
> When you use the CLI or the AWS SDKs, for CreateSession, the session token refreshes automatically to avoid service interruptions when a session expires. The CLI or the AWS SDKs use the bucket's default encryption configuration for the CreateSession request. It's not supported to override the encryption settings values in the CreateSession request. So in the Zonal endpoint API calls (except CopyObject and UploadPartCopy), the encryption request headers must match the default encryption configuration of the directory bucket.

- **S3 access points for Amazon FSx** - When accessing data stored in Amazon FSx file systems using S3 access points, the only valid server side encryption option is aws:fsx. All Amazon FSx file systems have encryption configured by default and are encrypted at rest. Data is automatically encrypted before being written to the file system, and automatically decrypted as it is read. These processes are handled transparently by Amazon FSx.

Valid Values: AES256 | aws:fsx | aws:kms | aws:kms:dsse

x-amz-server-side-encryption-aws-kms-key-id

Specifies the AWS KMS key ID (Key ID, Key ARN, or Key Alias) to use for object encryption. If the KMS key doesn't exist in the same account that's issuing the command, you must use the full Key ARN not the Key ID.

General purpose buckets - If you specify x-amz-server-side-encryption with aws:kms or aws:kms:dsse, this header specifies the ID (Key ID, Key ARN, or Key Alias) of the AWS KMS key to use. If you specify x-amz-server-side-encryption:aws:kms or x-amz-server-side-encryption:aws:kms:dsse, but do not provide x-amz-server-side-encryption-aws-kms-key-id, Amazon S3 uses the AWS managed key (aws/s3) to protect the data.

Directory buckets - To encrypt data using SSE-KMS, it's recommended to specify the x-amz-server-side-encryption header to aws:kms. Then, the x-amz-server-side-

`encryption-aws-kms-key-id` header implicitly uses the bucket's default KMS customer managed key ID. If you want to explicitly set the `x-amz-server-side-encryption-aws-kms-key-id` header, it must match the bucket's default customer managed key (using key ID or ARN, not alias). Your SSE-KMS configuration can only support 1 customer managed key per directory bucket's lifetime. The AWS managed key (`aws/s3`) isn't supported. Incorrect key specification results in an HTTP `400 Bad Request` error.

x-amz-server-side-encryption-bucket-key-enabled

Specifies whether Amazon S3 should use an S3 Bucket Key for object encryption with server-side encryption using AWS Key Management Service (AWS KMS) keys (SSE-KMS).

General purpose buckets - Setting this header to `true` causes Amazon S3 to use an S3 Bucket Key for object encryption with SSE-KMS. Also, specifying this header with a PUT action doesn't affect bucket-level settings for S3 Bucket Key.

Directory buckets - S3 Bucket Keys are always enabled for `GET` and `PUT` operations in a directory bucket and can’t be disabled. S3 Bucket Keys aren't supported, when you copy SSE-KMS encrypted objects from general purpose buckets to directory buckets, from directory buckets to general purpose buckets, or between directory buckets, through CopyObject, UploadPartCopy, the Copy operation in Batch Operations, or the import jobs. In this case, Amazon S3 makes a call to AWS KMS every time a copy request is made for a KMS-encrypted object.

x-amz-server-side-encryption-context

Specifies the AWS KMS Encryption Context as an additional encryption context to use for object encryption. The value of this header is a Base64 encoded string of a UTF-8 encoded JSON, which contains the encryption context as key-value pairs. This value is stored as object metadata and automatically gets passed on to AWS KMS for future `GetObject` operations on this object.

General purpose buckets - This value must be explicitly added during `CopyObject` operations if you want an additional encryption context for your object. For more information, see Encryption context in the *Amazon S3 User Guide*.

Directory buckets - You can optionally provide an explicit encryption context value. The value must match the default encryption context - the bucket Amazon Resource Name (ARN). An additional encryption context value is not supported.

x-amz-server-side-encryption-customer-algorithm

Specifies the algorithm to use when encrypting the object (for example, AES256).

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key

Specifies the customer-provided encryption key for Amazon S3 to use in encrypting data. This value is used to store the object and then it is discarded; Amazon S3 does not store the encryption key. The key must be appropriate for use with the algorithm specified in the `x-amz-server-side-encryption-customer-algorithm` header.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key-MD5

Specifies the 128-bit MD5 digest of the encryption key according to RFC 1321. Amazon S3 uses this header for a message integrity check to ensure that the encryption key was transmitted without error.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-storage-class

By default, Amazon S3 uses the STANDARD Storage Class to store newly created objects. The STANDARD storage class provides high durability and high availability. Depending on performance needs, you can specify a different Storage Class. For more information, see Storage Classes in the *Amazon S3 User Guide*.

> **Note**
>
> - Directory buckets only support `EXPRESS_ONEZONE` (the S3 Express One Zone storage class) in Availability Zones and `ONEZONE_IA` (the S3 One Zone-Infrequent Access storage class) in Dedicated Local Zones.
> - Amazon S3 on Outposts only uses the OUTPOSTS Storage Class.

Valid Values: `STANDARD | REDUCED_REDUNDANCY | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | GLACIER | DEEP_ARCHIVE | OUTPOSTS | GLACIER_IR | SNOW | EXPRESS_ONEZONE | FSX_OPENZFS`

x-amz-tagging

The tag-set for the object. The tag-set must be encoded as URL Query parameters. (For example, "Key1=Value1")

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-website-redirect-location

If the bucket is configured as a website, redirects requests for this object to another object in the same bucket or to an external URL. Amazon S3 stores the value of this header in the object metadata. For information about object metadata, see Object Key and Metadata in the *Amazon S3 User Guide*.

In the following example, the request header sets the redirect to an object (anotherPage.html) in the same bucket:

```
x-amz-website-redirect-location: /anotherPage.html
```

In the following example, the request header sets the object redirect to another website:

```
x-amz-website-redirect-location: http://www.example.com/
```

For more information about website hosting in Amazon S3, see Hosting Websites on Amazon S3 and How to Configure Website Page Redirects in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-write-offset-bytes

Specifies the offset for appending data to existing objects in bytes. The offset must be equal to the size of the existing object being appended to. If no object exists, setting this header to 0 will create a new object.

> **Note**
>
> This functionality is only supported for objects in the Amazon S3 Express One Zone storage class in directory buckets.

Request Body

The request accepts the following binary data.

Body

Response Syntax

```
HTTP/1.1 200
x-amz-expiration: Expiration
ETag: ETag
x-amz-checksum-crc32: ChecksumCRC32
x-amz-checksum-crc32c: ChecksumCRC32C
x-amz-checksum-crc64nvme: ChecksumCRC64NVME
x-amz-checksum-sha1: ChecksumSHA1
x-amz-checksum-sha256: ChecksumSHA256
x-amz-checksum-type: ChecksumType
x-amz-server-side-encryption: ServerSideEncryption
x-amz-version-id: VersionId
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-server-side-encryption-aws-kms-key-id: SSEKMSKeyId
x-amz-server-side-encryption-context: SSEKMSEncryptionContext
x-amz-server-side-encryption-bucket-key-enabled: BucketKeyEnabled
```

```
x-amz-object-size: Size
x-amz-request-charged: RequestCharged
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

ETag

Entity tag for the uploaded object.

General purpose buckets - To ensure that data is not corrupted traversing the network, for objects where the ETag is the MD5 digest of the object, you can calculate the MD5 while putting an object to Amazon S3 and compare the returned ETag to the calculated MD5 value.

Directory buckets - The ETag for the object in a directory bucket isn't the MD5 digest of the object.

x-amz-checksum-crc32

The Base64 encoded, 32-bit `CRC32` `checksum` of the object. This checksum is only be present if the checksum was uploaded with the object. When you use an API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-crc32c

The Base64 encoded, 32-bit `CRC32C` checksum of the object. This checksum is only present if the checksum was uploaded with the object. When you use an API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-crc64nvme

The Base64 encoded, 64-bit `CRC64NVME` checksum of the object. This header is present if the object was uploaded with the `CRC64NVME` checksum algorithm, or if it was uploaded without a checksum (and Amazon S3 added the default checksum, `CRC64NVME`, to the uploaded

object). For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the Amazon S3 User Guide.

x-amz-checksum-sha1

The Base64 encoded, 160-bit SHA1 digest of the object. This will only be present if the object was uploaded with the object. When you use the API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-sha256

The Base64 encoded, 256-bit SHA256 digest of the object. This will only be present if the object was uploaded with the object. When you use an API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-type

This header specifies the checksum type of the object, which determines how part-level checksums are combined to create an object-level checksum for multipart objects. For `PutObject` uploads, the checksum type is always `FULL_OBJECT`. You can use this header as a data integrity check to verify that the checksum type that is received is the same checksum that was specified. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Valid Values: `COMPOSITE | FULL_OBJECT`

x-amz-expiration

If the expiration is configured for the object (see PutBucketLifecycleConfiguration) in the *Amazon S3 User Guide*, the response includes this header. It includes the `expiry-date` and `rule-id` key-value pairs that provide information about object expiration. The value of the `rule-id` is URL-encoded.

> **Note**
>
> Object expiration information is not returned in directory buckets and this header returns the value "`NotImplemented`" in all responses for directory buckets.

x-amz-object-size

The size of the object in bytes. This value is only be present if you append to an object.

> **Note**
>
> This functionality is only supported for objects in the Amazon S3 Express One Zone storage class in directory buckets.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-server-side-encryption

The server-side encryption algorithm used when you store this object in Amazon S3 or Amazon FSx.

> **Note**
>
> When accessing data stored in Amazon FSx file systems using S3 access points, the only valid server side encryption option is `aws:fsx`.

Valid Values: `AES256` | `aws:fsx` | `aws:kms` | `aws:kms:dsse`

x-amz-server-side-encryption-aws-kms-key-id

If present, indicates the ID of the KMS key that was used for object encryption.

x-amz-server-side-encryption-bucket-key-enabled

Indicates whether the uploaded object uses an S3 Bucket Key for server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS).

x-amz-server-side-encryption-context

If present, indicates the AWS KMS Encryption Context to use for object encryption. The value of this header is a Base64 encoded string of a UTF-8 encoded JSON, which contains the encryption context as key-value pairs. This value is stored as object metadata and automatically gets passed on to AWS KMS for future `GetObject` operations on this object.

x-amz-server-side-encryption-customer-algorithm

If server-side encryption with a customer-provided encryption key was requested, the response will include this header to confirm the encryption algorithm that's used.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key-MD5

If server-side encryption with a customer-provided encryption key was requested, the response will include this header to provide the round-trip message integrity verification of the customer-provided encryption key.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-version-id

Version ID of the object.

If you enable versioning for a bucket, Amazon S3 automatically generates a unique version ID for the object being stored. Amazon S3 returns this ID in the response. When you enable versioning for a bucket, if Amazon S3 receives multiple write requests for the same object simultaneously, it stores all of the objects. For more information about versioning, see Adding

Objects to Versioning-Enabled Buckets in the *Amazon S3 User Guide*. For information about returning the versioning state of a bucket, see GetBucketVersioning.

> **Note**
>
> This functionality is not supported for directory buckets.

Errors

EncryptionTypeMismatch

The existing object was created with a different encryption type. Subsequent write requests must include the appropriate encryption parameters in the request or while creating the session.

HTTP Status Code: 400

InvalidRequest

You may receive this error in multiple cases. Depending on the reason for the error, you may receive one of the messages below:

- Cannot specify both a write offset value and user-defined object metadata for existing objects.
- Checksum Type mismatch occurred, expected checksum Type: sha1, actual checksum Type: crc32c.
- Request body cannot be empty when 'write offset' is specified.

HTTP Status Code: 400

InvalidWriteOffset

The write offset value that you specified does not match the current object size.

HTTP Status Code: 400

TooManyParts

You have attempted to add more parts than the maximum of 10000 that are allowed for this object. You can use the CopyObject operation to copy this object to another and then add more data to the newly copied object.

HTTP Status Code: 400

Examples

Example 1 for general purpose buckets: Upload an object

The following request stores the `my-image.jpg` file in the `myBucket` bucket.

```
PUT /my-image.jpg HTTP/1.1
Host: myBucket.s3.<Region>.amazonaws.com
Date: Wed, 12 Oct 2009 17:50:00 GMT
Authorization: authorization string
Content-Type: text/plain
Content-Length: 11434
x-amz-meta-author: Janet
Expect: 100-continue
[11434 bytes of object data]
```

Sample Response for general purpose buckets: Versioning suspended

This example illustrates one usage of PutObject.

```
HTTP/1.1 100 Continue

HTTP/1.1 200 OK
x-amz-id-2: LriYPLdmOdAiIfgSm/F1YsViT1LW94/xUQxMsF7xiEb1a0wiIOIxl+zbwZ163pt7
x-amz-request-id: 0A49CE4060975EAC
Date: Wed, 12 Oct 2009 17:50:00 GMT
ETag: "1b2cf535f27731c974343645a3985328"
Content-Length: 0
Connection: close
Server: AmazonS3
```

Sample Response for general purpose buckets: Expiration rule created using lifecycle configuration

If an expiration rule that was created on the bucket using lifecycle configuration applies to the object, you get a response with an `x-amz-expiration` header, as shown in the following response. For more information, see Transitioning Objects: General Considerations.

```
HTTP/1.1 100 Continue

HTTP/1.1 200 OK
x-amz-id-2: LriYPLdmOdAiIfgSm/F1YsViT1LW94/xUQxMsF7xiEb1a0wiIOIxl+zbwZ163pt7
x-amz-request-id: 0A49CE4060975EAC
Date: Wed, 12 Oct 2009 17:50:00 GMT
x-amz-expiration: expiry-date="Fri, 23 Dec 2012 00:00:00 GMT", rule-id="1"
ETag: "1b2cf535f27731c974343645a3985328"
Content-Length: 0
Connection: close
Server: AmazonS3
```

Sample Response for general purpose buckets: Versioning enabled

If the bucket has versioning enabled, the response includes the `x-amz-version-id` header.

```
HTTP/1.1 100 Continue

HTTP/1.1 200 OK
x-amz-id-2: LriYPLdmOdAiIfgSm/F1YsViT1LW94/xUQxMsF7xiEb1a0wiIOIxl+zbwZ163pt7
x-amz-request-id: 0A49CE4060975EAC
x-amz-version-id: 43jfkodU8493jnFJD9fjj3HHNVfdsQUIFDNsidf038jfdsjGFDSIRp
Date: Wed, 12 Oct 2009 17:50:00 GMT
ETag: "fbacf535f27731c9771645a39863328"
Content-Length: 0
Connection: close
Server: AmazonS3
```

Example 2 for general purpose buckets: Specifying the Reduced Redundancy Storage Class

The following request stores the image, `my-image.jpg`, in the `myBucket` bucket. The request specifies the `x-amz-storage-class` header to request that the object is stored using the REDUCED_REDUNDANCY storage class.

```
PUT /my-image.jpg HTTP/1.1
Host: myBucket.s3.<Region>.amazonaws.com
```

```
Date: Wed, 12 Oct 2009 17:50:00 GMT
Authorization: authorization string
Content-Type: image/jpeg
Content-Length: 11434
Expect: 100-continue
x-amz-storage-class: REDUCED_REDUNDANCY
```

Sample Response for general purpose buckets

This example illustrates one usage of PutObject.

```

HTTP/1.1 100 Continue

HTTP/1.1 200 OK
x-amz-id-2: LriYPLdmOdAiIfgSm/F1YsViT1LW94/xUQxMsF7xiEb1a0wiIOIxl+zbwZ163pt7
x-amz-request-id: 0A49CE4060975EAC
Date: Wed, 12 Oct 2009 17:50:00 GMT
ETag: "1b2cf535f27731c974343645a3985328"
Content-Length: 0
Connection: close
Server: AmazonS3
```

Example 3 for general purpose buckets: Uploading an object and specifying access permissions explicitly

The following request stores the `TestObject.txt` file in the `myBucket` bucket. The request specifies various ACL headers to grant permission to AWS accounts that are specified with a canonical user ID and an email address.

```

PUT TestObject.txt HTTP/1.1
Host: myBucket.s3.<Region>.amazonaws.com
x-amz-date: Fri, 13 Apr 2012 05:40:14 GMT
Authorization: authorization string
x-amz-grant-write-acp: id=8a6925ce4adf588a4532142d3f74dd8c71fa124ExampleCanonicalUserID
x-amz-grant-full-control: emailAddress="ExampleUser@amazon.com"
x-amz-grant-write: emailAddress="ExampleUser1@amazon.com",
 emailAddress="ExampleUser2@amazon.com"
Content-Length: 300
```

```
Expect: 100-continue
Connection: Keep-Alive

...Object data in the body...
```

Sample Response for general purpose buckets

This example illustrates one usage of PutObject.

```
HTTP/1.1 200 OK
x-amz-id-2: RUxG2sZJUfS+ezeAS2i0Xj6w/ST6xqF/8pFNHjTjTrECW56SCAUWGg+7QLVoj1GH
x-amz-request-id: 8D017A90827290BA
Date: Fri, 13 Apr 2012 05:40:25 GMT
ETag: "dd038b344cf9553547f8b395a814b274"
Content-Length: 0
Server: AmazonS3
```

Example 4 for general purpose buckets: Using a canned ACL to set access permissions

The following request stores the `TestObject.txt` file in the myBucket bucket. The request uses an `x-amz-acl` header to specify a canned ACL that grants READ permission to the public.

```
PUT TestObject.txt HTTP/1.1
Host: myBucket.s3.<Region>.amazonaws.com
x-amz-date: Fri, 13 Apr 2012 05:54:57 GMT
x-amz-acl: public-read
Authorization: authorization string
Content-Length: 300
Expect: 100-continue
Connection: Keep-Alive

...Object data in the body...
```

Sample Response for general purpose buckets

This example illustrates one usage of PutObject.

```
HTTP/1.1 200 OK
x-amz-id-2: Yd6PSJxJFQeTYJ/3dDO7miqJfVMXXW0S2Hijo3WFs4bz6oe2QCVXasxXLZdMfASd
x-amz-request-id: 80DF413BB3D28A25
Date: Fri, 13 Apr 2012 05:54:59 GMT
ETag: "dd038b344cf9553547f8b395a814b274"
Content-Length: 0
Server: AmazonS3
```

Example 5 for general purpose buckets: Upload an object (Request server-side encryption using a customer-provided encryption key)

This example of an upload object requests server-side encryption and provides an encryption key.

```
PUT /example-object HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
Accept: */*
Authorization:authorization string
Date: Wed, 28 May 2014 19:31:11 +0000
x-amz-server-side-encryption-customer-key:g0lCfA3Dv40jZz5SQJ1ZukLRFqtI5WorC/8SEEXAMPLE

x-amz-server-side-encryption-customer-key-MD5:ZjQrne1X/iTcskbY2example
x-amz-server-side-encryption-customer-algorithm:AES256
```

Sample Response for general purpose buckets

In the response, Amazon S3 returns the encryption algorithm and MD5 of the encryption key that you specified when uploading the object. The ETag that is returned is not the MD5 of the object.

```
HTTP/1.1 200 OK
x-amz-id-2: 7qoYGN7uMuFuYS6m7a4lszH6in+hccE+4DXPmDZ7C9KqucjnZC1gI5mshai6fbMG
x-amz-request-id: 06437EDD40C407C7
Date: Wed, 28 May 2014 19:31:12 GMT
x-amz-server-side-encryption-customer-algorithm: AES256
x-amz-server-side-encryption-customer-key-MD5: ZjQrne1X/iTcskbY2example
ETag: "ae89237c20e759c5f479ece02c642f59"
```

Example 6 for general purpose buckets: Upload an object and specify tags

This example of an upload object request specifies the optional `x-amz-tagging` header to add tags to the object.

After the object is created, Amazon S3 stores the specified object tags in the tagging subresource that is associated with the object. For more information about tagging, see Object Tagging and Access Control Policies in the *Amazon S3 User Guide*.

```
PUT /example-object HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
Accept: */*
Authorization:authorization string
Date: Thu, 22 Sep 2016 21:58:13 GMT
x-amz-tagging: tag1=value1&tag2=value2

[... bytes of object data]
```

Sample Response for general purpose buckets

This example illustrates one usage of PutObject.

```
HTTP/1.1 200 OK
x-amz-id-2: 7qoYGN7uMuFuYS6m7a4lszH6in+hccE+4DXPmDZ7C9KqucjnZC1gI5mshai6fbMG
x-amz-request-id: 06437EDD40C407C7
Date: Thu, 22 Sep 2016 21:58:17 GMT
```

Example 7 for general purpose buckets: Upload an object and specify the checksum algorithm

This example of an upload object request specifies the additional checksum algorithm to use to verify the content of the object. For more information about using additional checksums, see Checking object integrity in the *Amazon S3 User Guide*.

```
PUT /example-object HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
x-amz-date: Mon, 22 Mar 2021 23:00:00 GMT
Authorization: authorization string
```

```
Content-Length: 268435456
x-amz-checksum-sha256: 0ea4be78f6c3948588172edc6d8789ffe3cec461f385e0ac447e581731c429b5
[268435456 bytes of object data in the body]
```

Sample Response for general purpose buckets

This example illustrates one usage of PutObject.

```
HTTP/1.1 200 OK
x-amz-id-2: 7qoYGN7uMuFuYS6m7a4lszH6in+hccE+4DXPmDZ7C9KqucjnZC1gI5mshai6fbMG
x-amz-request-id: 49CFA2051300FBE9
Date: Mon, 22 Mar 2021 23:00:12 GMT
```

Example 8 for directory buckets: Upload an object and append to it

The following request creates the `my-application.log` file in the `mybucket` bucket, and appends to it afterwards.

```
PUT /my-application.log HTTP/1.1
Host: mybucket--usw2-az1--x-s3
Date: Fri, 22 Nov 2024 17:50:00 GMT
Authorization: authorization string
Content-Type: text/plain
Content-Length: 1048576
[1048576 bytes of object data]

PUT /my-application.log HTTP/1.1
Host: mybucket--usw2-az1--x-s3
Date: Fri, 22 Nov 2024 17:50:00 GMT
Authorization: authorization string
Content-Type: text/plain
Content-Length: 524288
x-amz-write-offset-bytes: 1048576
[524288 bytes of object data]
```

Sample Response for directory buckets

This example illustrates one usage of PutObject.

```
HTTP/1.1 200 OK
x-amz-request-id: 06437EDD40C407C7
x-amz-id-2: 7qoYGN7uMuFuYS6m7a4lszH6in+hccE+4DXPmDZ7C9KqucjnZC1gI5mshai6fbMG
etag: "ae89237c20e759c5f479ece02c642f59"
x-amz-object-size: 1572864
```

Constraints (AI generated)

This content was generated using AI technology that has in-depth knowledge of AWS API operations. Provide feedback on this content.

For Encryption parameters:

- You must not pass parameters that don't apply to the type of encryption that you're setting. For example, you cannot pass both `SSECustomerKey`, which is used for server-side encryption with customer-provided keys (SSE-C), and `SSEKMSKeyId`, which is used for server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS), in the same request.
- When using server-side encryption with customer-provided keys (SSE-C), you must pass all three parameters: `SSECustomerAlgorithm`, `SSECustomerKey`, and `SSECustomerKeyMD5`. In addition, the value of `SSECustomerAlgorithm` must be `AES256`.
- When using server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS), you must set the value of `ServerSideEncryption` to `aws:kms`. You can also use `SSEKMSKeyId` to specify the ARN for a specific customer managed KMS encryption key. Additionally, you cannot pass `SSECustomerAlgorithm` when using SSE-KMS.

For Object Lock parameters:

- Object Lock parameters must be paired. If you specify `ObjectLockMode`, you must also specify `ObjectLockRetainUntilDate`, and vice versa. Either specify both parameters or neither one.

For Checksum parameters:

- When you specify a particular `ChecksumAlgorithm` value, you can only pass the checksum parameter that corresponds to that algorithm. For example, if you specify the value `CRC32` for `ChecksumAlgorithm`, you must only pass `ChecksumCRC32` for the CRC-32 algorithm. In this case, you cannot pass any of the following parameters, which are specific to the CRC-32C

(`CRC32C`), SHA-1 (`SHA1`), and SHA-256 (`SHA256`) checksum algorithms respectively: `ChecksumCRC32C`, `ChecksumSHA1`, or `ChecksumSHA256`.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutObjectAcl

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Uses the `acl` subresource to set the access control list (ACL) permissions for a new or existing object in an S3 bucket. You must have the `WRITE_ACP` permission to set the ACL of an object. For more information, see What permissions can I grant? in the *Amazon S3 User Guide*.

This functionality is not supported for Amazon S3 on Outposts.

Depending on your application needs, you can choose to set the ACL on an object using either the request body or the headers. For example, if you have an existing application that updates a bucket ACL using the request body, you can continue to use that approach. For more information, see Access Control List (ACL) Overview in the *Amazon S3 User Guide*.

> **Important**
>
> If your bucket uses the bucket owner enforced setting for S3 Object Ownership, ACLs are disabled and no longer affect permissions. You must use policies to grant access to your bucket and the objects in it. Requests to set ACLs or update ACLs fail and return the `AccessControlListNotSupported` error code. Requests to read ACLs are still supported. For more information, see Controlling object ownership in the *Amazon S3 User Guide*.

Permissions

You can set access permissions using one of the following methods:

- Specify a canned ACL with the `x-amz-acl` request header. Amazon S3 supports a set of predefined ACLs, known as canned ACLs. Each canned ACL has a predefined set of grantees and permissions. Specify the canned ACL name as the value of `x-amz-acl`. If you use this header, you cannot use other access control-specific headers in your request. For more information, see Canned ACL.

- Specify access permissions explicitly with the `x-amz-grant-read`, `x-amz-grant-read-acp`, `x-amz-grant-write-acp`, and `x-amz-grant-full-control` headers. When using these headers, you specify explicit access permissions and grantees (AWS accounts or Amazon S3 groups) who will receive the permission. If you use these ACL-specific headers, you cannot use `x-amz-acl` header to set a canned ACL. These parameters map to the set of permissions that Amazon S3 supports in an ACL. For more information, see Access Control List (ACL) Overview.

  You specify each grantee as a type=value pair, where the type is one of the following:

  - `id` – if the value specified is the canonical user ID of an AWS account
  - `uri` – if you are granting permissions to a predefined group
  - `emailAddress` – if the value specified is the email address of an AWS account

  > **Note**
  >
  > Using email addresses to specify a grantee is only supported in the following AWS Regions:
  >
  > - US East (N. Virginia)
  > - US West (N. California)
  > - US West (Oregon)
  > - Asia Pacific (Singapore)
  > - Asia Pacific (Sydney)
  > - Asia Pacific (Tokyo)
  > - Europe (Ireland)
  > - South America (São Paulo)
  >
  > For a list of all the Amazon S3 supported Regions and endpoints, see Regions and Endpoints in the AWS General Reference.

  For example, the following `x-amz-grant-read` header grants list objects permission to the two AWS accounts identified by their email addresses.

  ```
  x-amz-grant-read: emailAddress="xyz@amazon.com",
  emailAddress="abc@amazon.com"
  ```

  You can use either a canned ACL or specify access permissions explicitly. You cannot do both.

Grantee Values

You can specify the person (grantee) to whom you're assigning access rights (using request elements) in the following ways. For examples of how to specify these grantee values in JSON format, see the AWS CLI example in Enabling Amazon S3 server access logging in the *Amazon S3 User Guide*.

- By the person's ID:

  ```
  <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-
  instance" xsi:type="CanonicalUser"><ID><>ID<></
  ID><DisplayName><>GranteesEmail<></DisplayName> </Grantee>
  ```

  DisplayName is optional and ignored in the request.

- By URI:

  ```
  <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:type="Group"><URI><>http://acs.amazonaws.com/groups/global/
  AuthenticatedUsers<></URI></Grantee>
  ```

- By Email address:

  ```
  <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:type="AmazonCustomerByEmail"><EmailAddress><>Grantees@email.com<></
  EmailAddress>lt;/Grantee>
  ```

  The grantee is resolved to the CanonicalUser and, in a response to a GET Object acl request, appears as the CanonicalUser.

  Note

  Using email addresses to specify a grantee is only supported in the following AWS Regions:

  - US East (N. Virginia)
  - US West (N. California)
  - US West (Oregon)
  - Asia Pacific (Singapore)
  - Asia Pacific (Sydney)
  - Asia Pacific (Tokyo)

- Europe (Ireland)
- South America (São Paulo)

For a list of all the Amazon S3 supported Regions and endpoints, see Regions and Endpoints in the AWS General Reference.

Versioning

The ACL of an object is set at the object version level. By default, PUT sets the ACL of the current version of an object. To set the ACL of a different version, use the `versionId` subresource.

The following operations are related to `PutObjectAcl`:

- CopyObject
- GetObject

Important

You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /{Key+}?acl&versionId=VersionId HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-acl: ACL
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-grant-full-control: GrantFullControl
x-amz-grant-read: GrantRead
x-amz-grant-read-acp: GrantReadACP
x-amz-grant-write: GrantWrite
x-amz-grant-write-acp: GrantWriteACP
x-amz-request-payer: RequestPayer
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
```

```
<AccessControlPolicy xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <AccessControlList>
      <Grant>
         <Grantee>
            <DisplayName>string</DisplayName>
            <EmailAddress>string</EmailAddress>
            <ID>string</ID>
            <xsi:type>string</xsi:type>
            <URI>string</URI>
         </Grantee>
         <Permission>string</Permission>
      </Grant>
   </AccessControlList>
   <Owner>
      <DisplayName>string</DisplayName>
      <ID>string</ID>
   </Owner>
</AccessControlPolicy>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name that contains the object to which you want to attach the ACL.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts

access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

Content-MD5

The Base64 encoded 128-bit `MD5` digest of the data. This header must be used as a message integrity check to verify that the request body was not corrupted in transit. For more information, go to RFC 1864.>

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

Key

Key for which the PUT action was initiated.

Length Constraints: Minimum length of 1.

Required: Yes

versionId

Version ID used to reference a specific version of the object.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-acl

The canned ACL to apply to the object. For more information, see Canned ACL.

Valid Values: `private | public-read | public-read-write | authenticated-read | aws-exec-read | bucket-owner-read | bucket-owner-full-control`

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-grant-full-control

Allows grantee the read, write, read ACP, and write ACP permissions on the bucket.

This functionality is not supported for Amazon S3 on Outposts.

x-amz-grant-read

Allows grantee to list the objects in the bucket.

This functionality is not supported for Amazon S3 on Outposts.

x-amz-grant-read-acp

Allows grantee to read the bucket ACL.

This functionality is not supported for Amazon S3 on Outposts.

x-amz-grant-write

Allows grantee to create new objects in the bucket.

For the bucket and object owners of existing objects, also allows deletions and overwrites of those objects.

x-amz-grant-write-acp

Allows grantee to write the ACL for the applicable bucket.

This functionality is not supported for Amazon S3 on Outposts.

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the object when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Request Body

The request accepts the following data in XML format.

AccessControlPolicy

Root level tag for the AccessControlPolicy parameters.

Required: Yes

Grants

A list of grants.

Type: Array of Grant data types

Required: No

Owner

Container for the bucket owner's display name and ID.

Type: Owner data type

Required: No

Response Syntax

```
HTTP/1.1 200
x-amz-request-charged: RequestCharged
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

Errors

NoSuchKey

The specified key does not exist.

HTTP Status Code: 404

Examples

Sample Request

The following request grants access permission to an existing object. The request specifies the ACL in the body. In addition to granting full control to the object owner, the XML specifies full control to an AWS account identified by its canonical user ID.

```
PUT /my-image.jpg?acl HTTP/1.1
Host: bucket.s3.<Region>.amazonaws.com
Date: Wed, 28 Oct 2009 22:32:00 GMT
Authorization: authorization string
Content-Length: 124
```

```
<AccessControlPolicy>
  <Owner>
    <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
    <DisplayName>CustomersName@amazon.com</DisplayName>
  </Owner>
  <AccessControlList>
    <Grant>
      <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:type="CanonicalUser">
        <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeeExampleCanonicalUserID</ID>
        <DisplayName>CustomerName@amazon.com</DisplayName>
      </Grantee>
      <Permission>FULL_CONTROL</Permission>
    </Grant>
  </AccessControlList>
</AccessControlPolicy>
```

Sample Response

The following shows a sample response when versioning on the bucket is enabled.

```
HTTP/1.1 200 OK
x-amz-id-2: eftixk72aD6Ap51T9AS1ed4OpIszj7UDNEHGran
x-amz-request-id: 318BC8BC148832E5
x-amz-version-id: 3/L4kqtJlcpXrof3vjVBH40Nr8X8gdRQBpUMLUo
Date: Wed, 28 Oct 2009 22:32:00 GMT
Last-Modified: Sun, 1 Jan 2006 12:00:00 GMT
Content-Length: 0
Connection: close
Server: AmazonS3
```

Sample Request: Setting the ACL of a specified object version

The following request sets the ACL on the specified version of the object.

```
PUT /my-image.jpg?acl&versionId=3HL4kqtJlcpXroDTDmJ+rmSpXd3dIbrHY+MTRCxf3vjVBH40Nrjfkd
 HTTP/1.1
Host: bucket.s3.<Region>.amazonaws.com
```

```
Date: Wed, 28 Oct 2009 22:32:00 GMT
Authorization: authorization string
Content-Length: 124

<AccessControlPolicy>
  <Owner>
    <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
    <DisplayName>mtd@amazon.com</DisplayName>
  </Owner>
  <AccessControlList>
    <Grant>
      <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:type="CanonicalUser">
        <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
        <DisplayName>mtd@amazon.com</DisplayName>
      </Grantee>
      <Permission>FULL_CONTROL</Permission>
    </Grant>
  </AccessControlList>
</AccessControlPolicy>
```

Sample Response

This example illustrates one usage of PutObjectAcl.

```
HTTP/1.1 200 OK
x-amz-id-2: eftixk72aD6Ap51u8yU9AS1ed4OpIszj7UDNEHGran
x-amz-request-id: 318BC8BC148832E5
x-amz-version-id: 3/L4kqtJlcpXro3vjVBH40Nr8X8gdRQBpUMLUo
Date: Wed, 28 Oct 2009 22:32:00 GMT
Last-Modified: Sun, 1 Jan 2006 12:00:00 GMT
Content-Length: 0
Connection: close
Server: AmazonS3
```

Sample Request: Access permissions specified using headers

The following request sets the ACL on the specified version of the object.

```
PUT ExampleObject.txt?acl HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
x-amz-acl: public-read
Accept: */*
Authorization: authorization string
Host: s3.amazonaws.com
Connection: Keep-Alive
```

Sample Response

This example illustrates one usage of PutObjectAcl.

```
HTTP/1.1 200 OK
x-amz-id-2: w5YegkbG6ZDsje4WK56RWPxNQHIQ0CjrjyRVFZhEJI9E3kbabXnBO9w5G7Dmxsgk
x-amz-request-id: C13B2827BD8455B1
Date: Sun, 29 Apr 2012 23:24:12 GMT
Content-Length: 0
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutObjectLegalHold

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Applies a legal hold configuration to the specified object. For more information, see Locking Objects.

This functionality is not supported for Amazon S3 on Outposts.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /{Key+}?legal-hold&versionId=VersionId HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-request-payer: RequestPayer
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<LegalHold xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Status>string</Status>
</LegalHold>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name containing the object that you want to place a legal hold on.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

Required: Yes

Content-MD5

The MD5 hash for the request body.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

Key

The key name for the object that you want to place a legal hold on.

Length Constraints: Minimum length of 1.

Required: Yes

versionId

The version ID of the object that you want to place a legal hold on.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the object when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Request Body

The request accepts the following data in XML format.

LegalHold

Root level tag for the LegalHold parameters.

Required: Yes

Status

Indicates whether the specified object has a legal hold in place.

Type: String

Valid Values: `ON | OFF`

Required: No

Response Syntax

```
HTTP/1.1 200
```

```
x-amz-request-charged: RequestCharged
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutObjectLockConfiguration

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Places an Object Lock configuration on the specified bucket. The rule specified in the Object Lock configuration will be applied by default to every new object placed in the specified bucket. For more information, see Locking Objects.

> **Note**
>
> - The `DefaultRetention` settings require both a mode and a period.
> - The `DefaultRetention` period can be either `Days` or `Years` but you must select one. You cannot specify `Days` and `Years` at the same time.
> - You can enable Object Lock for new or existing buckets. For more information, see Configuring Object Lock.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?object-lock HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-request-payer: RequestPayer
x-amz-bucket-object-lock-token: Token
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
```

```
<?xml version="1.0" encoding="UTF-8"?>
<ObjectLockConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <ObjectLockEnabled>string</ObjectLockEnabled>
   <Rule>
      <DefaultRetention>
         <Days>integer</Days>
         <Mode>string</Mode>
         <Years>integer</Years>
      </DefaultRetention>
   </Rule>
</ObjectLockConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket whose Object Lock configuration you want to create or replace.

Required: Yes

Content-MD5

The MD5 hash for the request body.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

x-amz-bucket-object-lock-token

A token to allow Object Lock to be enabled for an existing bucket.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy

the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the object when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Request Body

The request accepts the following data in XML format.

ObjectLockConfiguration

Root level tag for the ObjectLockConfiguration parameters.

Required: Yes

ObjectLockEnabled

Indicates whether this bucket has an Object Lock configuration enabled. Enable `ObjectLockEnabled` when you apply `ObjectLockConfiguration` to a bucket.

Type: String

Valid Values: `Enabled`

Required: No

Rule

Specifies the Object Lock rule for the specified object. Enable the this rule when you apply `ObjectLockConfiguration` to a bucket. Bucket settings require both a mode and a period. The period can be either `Days` or `Years` but you must select one. You cannot specify `Days` and `Years` at the same time.

Type: ObjectLockRule data type

Required: No

Response Syntax

```
HTTP/1.1 200
x-amz-request-charged: RequestCharged
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutObjectRetention

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Places an Object Retention configuration on an object. For more information, see Locking Objects. Users or accounts require the `s3:PutObjectRetention` permission in order to place an Object Retention configuration on objects. Bypassing a Governance Retention configuration requires the `s3:BypassGovernanceRetention` permission.

This functionality is not supported for Amazon S3 on Outposts.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /{Key+}?retention&versionId=VersionId HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-request-payer: RequestPayer
x-amz-bypass-governance-retention: BypassGovernanceRetention
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<Retention xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Mode>string</Mode>
   <RetainUntilDate>timestamp</RetainUntilDate>
</Retention>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name that contains the object you want to apply this Object Retention configuration to.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

Required: Yes

Content-MD5

The MD5 hash for the request body.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

Key

The key name for the object that you want to apply this Object Retention configuration to.

Length Constraints: Minimum length of 1.

Required: Yes

versionId

The version ID for the object that you want to apply this Object Retention configuration to.

x-amz-bypass-governance-retention

Indicates whether this action should bypass Governance-mode restrictions.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the object when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Request Body

The request accepts the following data in XML format.

Retention

Root level tag for the Retention parameters.

Required: Yes

Mode

Indicates the Retention mode for the specified object.

Type: String

Valid Values: `GOVERNANCE | COMPLIANCE`

Required: No

RetainUntilDate

The date on which this Object Lock Retention will expire.

Type: Timestamp

Required: No

Response Syntax

```
HTTP/1.1 200
x-amz-request-charged: RequestCharged
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutObjectTagging

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Sets the supplied tag-set to an object that already exists in a bucket. A tag is a key-value pair. For more information, see Object Tagging.

You can associate tags with an object by sending a PUT request against the tagging subresource that is associated with the object. You can retrieve tags by sending a GET request. For more information, see GetObjectTagging.

For tagging-related restrictions related to characters and encodings, see Tag Restrictions. Note that Amazon S3 limits the maximum number of tags to 10 tags per object.

To use this operation, you must have permission to perform the `s3:PutObjectTagging` action. By default, the bucket owner has this permission and can grant this permission to others.

To put tags of any other version, use the `versionId` query parameter. You also need permission for the `s3:PutObjectVersionTagging` action.

`PutObjectTagging` has the following special errors. For more Amazon S3 errors see, Error Responses.

- `InvalidTag` - The tag provided was not a valid tag. This error can occur if the tag did not pass input validation. For more information, see Object Tagging.
- `MalformedXML` - The XML provided does not match the schema.
- `OperationAborted` - A conflicting conditional action is currently in progress against this resource. Please try again.
- `InternalError` - The service was unable to apply the provided tag to the object.

The following operations are related to `PutObjectTagging`:

- GetObjectTagging
- DeleteObjectTagging

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /{Key+}?tagging&versionId=VersionId HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-request-payer: RequestPayer
<?xml version="1.0" encoding="UTF-8"?>
<Tagging xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <TagSet>
      <Tag>
         <Key>string</Key>
         <Value>string</Value>
      </Tag>
   </TagSet>
</Tagging>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name containing the object.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of

the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

Content-MD5

The MD5 hash for the request body.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

Key

Name of the object key.

Length Constraints: Minimum length of 1.

Required: Yes

versionId

The versionId of the object that the tag-set will be added to.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that she or he will be charged for the tagging object request. Bucket owners need not specify this parameter in their requests.

Valid Values: `requester`

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the object when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Request Body

The request accepts the following data in XML format.

Tagging

Root level tag for the Tagging parameters.

Required: Yes

TagSet

A collection for a set of tags

Type: Array of Tag data types

Required: Yes

Response Syntax

```
HTTP/1.1 200
x-amz-version-id: VersionId
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-version-id

The versionId of the object the tag-set was added to.

Examples

Sample Request: Add tag set to an object

The following request adds a tag set to the existing object object-key in the `examplebucket` bucket.

```
PUT object-key?tagging HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
Content-Length: length
Content-MD5: pUNXr/BjKK5G2UKExample==
x-amz-date: 20160923T001956Z
Authorization: authorization string
<Tagging>
   <TagSet>
      <Tag>
         <Key>tag1</Key>
         <Value>val1</Value>
      </Tag>
      <Tag>
         <Key>tag2</Key>
         <Value>val2</Value>
      </Tag>
   </TagSet>
</Tagging>
```

Sample Response

This example illustrates one usage of PutObjectTagging.

```
HTTP/1.1 200 OK
x-amz-id-2: YgIPIfBiKa2bj0KMgUAdQkf3ShJTOOpXUueF6QKo
x-amz-request-id: 236A8905248E5A01
Date: Fri, 23 Sep 2016 00:20:19 GMT
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutPublicAccessBlock

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Creates or modifies the `PublicAccessBlock` configuration for an Amazon S3 bucket. To use this operation, you must have the `s3:PutBucketPublicAccessBlock` permission. For more information about Amazon S3 permissions, see Specifying Permissions in a Policy.

> **Important**
>
> When Amazon S3 evaluates the `PublicAccessBlock` configuration for a bucket or an object, it checks the `PublicAccessBlock` configuration for both the bucket (or the bucket that contains the object) and the bucket owner's account. If the `PublicAccessBlock` configurations are different between the bucket and the account, Amazon S3 uses the most restrictive combination of the bucket-level and account-level settings.

For more information about when Amazon S3 considers a bucket or an object public, see The Meaning of "Public".

The following operations are related to `PutPublicAccessBlock`:

- GetPublicAccessBlock
- DeletePublicAccessBlock
- GetBucketPolicyStatus
- Using Amazon S3 Block Public Access

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?publicAccessBlock HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<PublicAccessBlockConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <BlockPublicAcls>boolean</BlockPublicAcls>
   <IgnorePublicAcls>boolean</IgnorePublicAcls>
   <BlockPublicPolicy>boolean</BlockPublicPolicy>
   <RestrictPublicBuckets>boolean</RestrictPublicBuckets>
</PublicAccessBlockConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the Amazon S3 bucket whose `PublicAccessBlock` configuration you want to set.

Required: Yes

Content-MD5

The MD5 hash of the `PutPublicAccessBlock` request body.

For requests made using the AWS Command Line Interface (CLI) or AWS SDKs, this field is calculated automatically.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the object when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent.

Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Request Body

The request accepts the following data in XML format.

PublicAccessBlockConfiguration

Root level tag for the PublicAccessBlockConfiguration parameters.

Required: Yes

BlockPublicAcls

Specifies whether Amazon S3 should block public access control lists (ACLs) for this bucket and objects in this bucket. Setting this element to `TRUE` causes the following behavior:

- PUT Bucket ACL and PUT Object ACL calls fail if the specified ACL is public.
- PUT Object calls fail if the request includes a public ACL.
- PUT Bucket calls fail if the request includes a public ACL.

Enabling this setting doesn't affect existing policies or ACLs.

Type: Boolean

Required: No

BlockPublicPolicy

Specifies whether Amazon S3 should block public bucket policies for this bucket. Setting this element to `TRUE` causes Amazon S3 to reject calls to PUT Bucket policy if the specified bucket policy allows public access.

Enabling this setting doesn't affect existing bucket policies.

Type: Boolean

Required: No

IgnorePublicAcls

Specifies whether Amazon S3 should ignore public ACLs for this bucket and objects in this bucket. Setting this element to TRUE causes Amazon S3 to ignore all public ACLs on this bucket and objects in this bucket.

Enabling this setting doesn't affect the persistence of any existing ACLs and doesn't prevent new public ACLs from being set.

Type: Boolean

Required: No

RestrictPublicBuckets

Specifies whether Amazon S3 should restrict public bucket policies for this bucket. Setting this element to TRUE restricts access to this bucket to only AWS service principals and authorized users within this account if the bucket has a public policy.

Enabling this setting doesn't affect previously stored bucket policies, except that public and cross-account access within any public bucket policy, including non-public delegation to specific accounts, is blocked.

Type: Boolean

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

First Sample Request

The following request puts a bucket `PublicAccessBlock` configuration that rejects public ACLs.

```
PUT /?publicAccessBlock HTTP/1.1
Host: <bucket-name>.s3.<Region>.amazonaws.com
x-amz-date: <Thu, 15 Nov 2016 00:17:21 GMT>
Authorization: <signatureValue>

<?xml version="1.0" encoding="UTF-8"?>
<PublicAccessBlockConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
      <BlockPublicAcls>TRUE</BlockPublicAcls>
      <IgnorePublicAcls>FALSE</IgnorePublicAcls>
      <BlockPublicPolicy>FALSE</BlockPublicPolicy>
      <RestrictPublicBuckets>FALSE</RestrictPublicBuckets>
</PublicAccessBlockConfiguration>
```

First Sample Response

This example illustrates one usage of PutPublicAccessBlock.

```
HTTP/1.1 200 OK
x-amz-id-2: ITnGT1y4REXAMPLEPi4hklTXouTf0hccUjo0iCPEXAMPLEutBj3M7fPGlWO2SEWp
x-amz-request-id: 51991EXAMPLE5321
Date: Thu, 15 Nov 2016 00:17:22 GMT
Server: AmazonS3
Content-Length: 0
```

Second Sample Request

The following request puts a bucket PublicAccessBlock configuration that ignores public ACLs and restricts access to public buckets.

```
PUT /?publicAccessBlock HTTP/1.1
Host: <bucket-name>.s3.<Region>.amazonaws.com
x-amz-date: <Thu, 15 Nov 2016 00:17:21 GMT>
Authorization: <signatureValue>

<?xml version="1.0" encoding="UTF-8"?>
<PublicAccessBlockConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
      <BlockPublicAcls>FALSE</BlockPublicAcls>
```

```
      <IgnorePublicAcls>TRUE</IgnorePublicAcls>
      <BlockPublicPolicy>FALSE</BlockPublicPolicy>
      <RestrictPublicBuckets>TRUE</RestrictPublicBuckets>
</PublicAccessBlockConfiguration>
```

Second Sample Response

This example illustrates one usage of PutPublicAccessBlock.

```
HTTP/1.1 200 OK
x-amz-id-2: ITnGT1y4REXAMPLEPi4hklTXouTf0hccUjo0iCPEXAMPLEutBj3M7fPGlWO2SEWp
x-amz-request-id: 51991EXAMPLE5321
Date: Thu, 15 Nov 2016 00:17:22 GMT
Server: AmazonS3
Content-Length: 0
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

RenameObject

Service: Amazon S3

Renames an existing object in a directory bucket that uses the S3 Express One Zone storage class. You can use `RenameObject` by specifying an existing object's name as the source and the new name of the object as the destination within the same directory bucket.

> **Note**
>
> `RenameObject` is only supported for objects stored in the S3 Express One Zone storage class.

To prevent overwriting an object, you can use the `If-None-Match` conditional header.

- **If-None-Match** - Renames the object only if an object with the specified name does not already exist in the directory bucket. If you don't want to overwrite an existing object, you can add the `If-None-Match` conditional header with the value `'*'` in the `RenameObject` request. Amazon S3 then returns a `412 Precondition Failed` error if the object with the specified name already exists. For more information, see RFC 7232.

Permissions

To grant access to the `RenameObject` operation on a directory bucket, we recommend that you use the `CreateSession` operation for session-based authorization. Specifically, you grant the `s3express:CreateSession` permission to the directory bucket in a bucket policy or an IAM identity-based policy. Then, you make the `CreateSession` API call on the directory bucket to obtain a session token. With the session token in your request header, you can make API requests to this operation. After the session token expires, you make another `CreateSession` API call to generate a new session token for use. The AWS CLI and SDKs will create and manage your session including refreshing the session token automatically to avoid service interruptions when a session expires. In your bucket policy, you can specify the `s3express:SessionMode` condition key to control who can create a `ReadWrite` or `ReadOnly` session. A `ReadWrite` session is required for executing all the Zonal endpoint API operations, including `RenameObject`. For more information about authorization, see `CreateSession`. To learn more about Zonal endpoint API operations, see Authorizing Zonal endpoint API operations with CreateSession in the *Amazon S3 User Guide*.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is *Bucket-name*.s3express-*zone-id*.*region-code*.amazonaws.com.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /{Key+}?renameObject HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-rename-source: RenameSource
If-Match: DestinationIfMatch
If-None-Match: DestinationIfNoneMatch
If-Modified-Since: DestinationIfModifiedSince
If-Unmodified-Since: DestinationIfUnmodifiedSince
x-amz-rename-source-if-match: SourceIfMatch
x-amz-rename-source-if-none-match: SourceIfNoneMatch
x-amz-rename-source-if-modified-since: SourceIfModifiedSince
x-amz-rename-source-if-unmodified-since: SourceIfUnmodifiedSince
x-amz-client-token: ClientToken
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name of the directory bucket containing the object.

You must use virtual-hosted-style requests in the format `Bucket-name.s3express-zone-id.region-code.amazonaws.com`. Path-style requests are not supported. Directory bucket names must be unique in the chosen Availability Zone. Bucket names must follow the format `bucket-base-name--zone-id--x-s3` (for example, `amzn-s3-demo-bucket--usw2-`

`az1--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

Required: Yes

If-Match

Renames the object only if the ETag (entity tag) value provided during the operation matches the ETag of the object in S3. The `If-Match` header field makes the request method conditional on ETags. If the ETag values do not match, the operation returns a `412 Precondition Failed` error.

Expects the ETag value as a string.

If-Modified-Since

Renames the object if the destination exists and if it has been modified since the specified time.

If-None-Match

Renames the object only if the destination does not already exist in the specified directory bucket. If the object does exist when you send a request with `If-None-Match:*`, the S3 API will return a `412 Precondition Failed` error, preventing an overwrite. The `If-None-Match` header prevents overwrites of existing data by validating that there's not an object with the same key name already in your directory bucket.

Expects the `*` character (asterisk).

If-Unmodified-Since

Renames the object if it hasn't been modified since the specified time.

Key

Key name of the object to rename.

Length Constraints: Minimum length of 1.

Required: Yes

x-amz-client-token

A unique string with a max of 64 ASCII characters in the ASCII range of 33 - 126.

> **Note**
>
> `RenameObject` supports idempotency using a client token. To make an idempotent API request using `RenameObject`, specify a client token in the request. You should not reuse the same client token for other API requests. If you retry a request that completed successfully using the same client token and the same parameters, the retry succeeds without performing any further actions. If you retry a successful request using the same client token, but one or more of the parameters are different, the retry fails and an `IdempotentParameterMismatch` error is returned.

x-amz-rename-source

Specifies the source for the rename operation. The value must be URL encoded.

Pattern: `\/?.+\/.+`

Required: Yes

x-amz-rename-source-if-match

Renames the object if the source exists and if its entity tag (ETag) matches the specified ETag.

x-amz-rename-source-if-modified-since

Renames the object if the source exists and if it has been modified since the specified time.

x-amz-rename-source-if-none-match

Renames the object if the source exists and if its entity tag (ETag) is different than the specified ETag. If an asterisk (`*`) character is provided, the operation will fail and return a `412 Precondition Failed` error.

x-amz-rename-source-if-unmodified-since

Renames the object if the source exists and hasn't been modified since the specified time.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

IdempotencyParameterMismatch

Parameters on this idempotent request are inconsistent with parameters used in previous request(s).

For a list of error codes and more information on Amazon S3 errors, see Error codes.

> **Note**
>
> Idempotency ensures that an API request completes no more than one time. With an idempotent request, if the original request completes successfully, any subsequent retries complete successfully without performing any further actions.

HTTP Status Code: 400

Examples

Sample request: Renaming an object in a directory bucket

The following example request illustrates renaming the *srcfilename.txt* object in a directory bucket.

```
PUT /dstfilename.txt HTTP/1.1
Host: amzn-s3-demo-bucket--zone-id--x-s3.s3express.amazonaws.com
If-Match: 9b2cf535f27731c974343645a3985328
x-amz-rename-source: /srcfilename.txt
```

Sample request: Renaming an object in a directory bucket if the destination doesn't exist

The following example request illustrates renaming the *srcfilename.txt* object to *dstfilename.txt* if an object named *dstfilename.txt* doesn't already exist in the directory bucket.

```
PUT /dstfilename.txt HTTP/1.1
Host: amzn-s3-demo-bucket--zone-id--x-s3.s3express.amazonaws.com
If-None-Match: *
x-amz-rename-source: /srcfilename.txt
```

Sample request: Renaming an object in a directory bucket if the destination exists with a specific ETag

The following example request illustrates renaming the *srcfilename.txt* object only if the destination exists and has the ETag: *9b2cf535f27731c974343645a3985328*.

```
PUT /dstfilename.txt HTTP/1.1
Host: amzn-s3-demo-bucket--zone-id--x-s3.s3express.amazonaws.com
If-Match: 9b2cf535f27731c974343645a3985328
x-amz-rename-source: /srcfilename.txt
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

RestoreObject

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Restores an archived copy of an object back into Amazon S3

This functionality is not supported for Amazon S3 on Outposts.

This action performs the following types of requests:

- `restore an archive` - Restore an archived object

For more information about the S3 structure in the request body, see the following:

- PutObject
- Managing Access with ACLs in the *Amazon S3 User Guide*
- Protecting Data Using Server-Side Encryption in the *Amazon S3 User Guide*

Permissions

To use this operation, you must have permissions to perform the `s3:RestoreObject` action. The bucket owner has this permission by default and can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources in the *Amazon S3 User Guide*.

Restoring objects

Objects that you archive to the S3 Glacier Flexible Retrieval or S3 Glacier Deep Archive storage class, and S3 Intelligent-Tiering Archive or S3 Intelligent-Tiering Deep Archive tiers, are not accessible in real time. For objects in the S3 Glacier Flexible Retrieval or S3 Glacier Deep Archive storage classes, you must first initiate a restore request, and then wait until a temporary copy of the object is available. If you want a permanent copy of the object, create a copy of it in the Amazon S3 Standard storage class in your S3 bucket. To access an archived object, you must restore the object for the duration (number of days) that you specify. For objects in the Archive

Access or Deep Archive Access tiers of S3 Intelligent-Tiering, you must first initiate a restore request, and then wait until the object is moved into the Frequent Access tier.

To restore a specific object version, you can provide a version ID. If you don't provide a version ID, Amazon S3 restores the current version.

When restoring an archived object, you can specify one of the following data access tier options in the `Tier` element of the request body:

- `Expedited` - Expedited retrievals allow you to quickly access your data stored in the S3 Glacier Flexible Retrieval storage class or S3 Intelligent-Tiering Archive tier when occasional urgent requests for restoring archives are required. For all but the largest archived objects (250 MB+), data accessed using Expedited retrievals is typically made available within 1–5 minutes. Provisioned capacity ensures that retrieval capacity for Expedited retrievals is available when you need it. Expedited retrievals and provisioned capacity are not available for objects stored in the S3 Glacier Deep Archive storage class or S3 Intelligent-Tiering Deep Archive tier.
- `Standard` - Standard retrievals allow you to access any of your archived objects within several hours. This is the default option for retrieval requests that do not specify the retrieval option. Standard retrievals typically finish within 3–5 hours for objects stored in the S3 Glacier Flexible Retrieval storage class or S3 Intelligent-Tiering Archive tier. They typically finish within 12 hours for objects stored in the S3 Glacier Deep Archive storage class or S3 Intelligent-Tiering Deep Archive tier. Standard retrievals are free for objects stored in S3 Intelligent-Tiering.
- `Bulk` - Bulk retrievals free for objects stored in the S3 Glacier Flexible Retrieval and S3 Intelligent-Tiering storage classes, enabling you to retrieve large amounts, even petabytes, of data at no cost. Bulk retrievals typically finish within 5–12 hours for objects stored in the S3 Glacier Flexible Retrieval storage class or S3 Intelligent-Tiering Archive tier. Bulk retrievals are also the lowest-cost retrieval option when restoring objects from S3 Glacier Deep Archive. They typically finish within 48 hours for objects stored in the S3 Glacier Deep Archive storage class or S3 Intelligent-Tiering Deep Archive tier.

For more information about archive retrieval options and provisioned capacity for `Expedited` data access, see Restoring Archived Objects in the *Amazon S3 User Guide*.

You can use Amazon S3 restore speed upgrade to change the restore speed to a faster speed while it is in progress. For more information, see Upgrading the speed of an in-progress restore in the *Amazon S3 User Guide*.

To get the status of object restoration, you can send a HEAD request. Operations return the `x-amz-restore` header, which provides information about the restoration status, in the response. You can use Amazon S3 event notifications to notify you when a restore is initiated or completed. For more information, see Configuring Amazon S3 Event Notifications in the *Amazon S3 User Guide*.

After restoring an archived object, you can update the restoration period by reissuing the request with a new period. Amazon S3 updates the restoration period relative to the current time and charges only for the request-there are no data transfer charges. You cannot update the restoration period when Amazon S3 is actively processing your current restore request for the object.

If your bucket has a lifecycle configuration with a rule that includes an expiration action, the object expiration overrides the life span that you specify in a restore request. For example, if you restore an object copy for 10 days, but the object is scheduled to expire in 3 days, Amazon S3 deletes the object in 3 days. For more information about lifecycle configuration, see PutBucketLifecycleConfiguration and Object Lifecycle Management in *Amazon S3 User Guide*.

Responses

A successful action returns either the `200 OK` or `202 Accepted` status code.

- If the object is not previously restored, then Amazon S3 returns `202 Accepted` in the response.
- If the object is previously restored, Amazon S3 returns `200 OK` in the response.
- Special errors:
  - *Code: RestoreAlreadyInProgress*
  - *Cause: Object restore is already in progress.*
  - *HTTP Status Code: 409 Conflict*
  - *SOAP Fault Code Prefix: Client*
- - *Code: GlacierExpeditedRetrievalNotAvailable*
  - *Cause: expedited retrievals are currently not available. Try again later. (Returned if there is insufficient capacity to process the Expedited request. This error applies only to Expedited retrievals and not to S3 Standard or Bulk retrievals.)*
  - *HTTP Status Code: 503*
  - *SOAP Fault Code Prefix: N/A*

The following operations are related to `RestoreObject`:

- PutBucketLifecycleConfiguration
- GetBucketNotificationConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /{Key+}?restore&versionId=VersionId HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-request-payer: RequestPayer
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<RestoreRequest xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Days>integer</Days>
   <GlacierJobParameters>
      <Tier>string</Tier>
   </GlacierJobParameters>
   <Type>string</Type>
   <Tier>string</Tier>
   <Description>string</Description>
   <SelectParameters>
      <Expression>string</Expression>
      <ExpressionType>string</ExpressionType>
      <InputSerialization>
         <CompressionType>string</CompressionType>
         <CSV>
            <AllowQuotedRecordDelimiter>boolean</AllowQuotedRecordDelimiter>
            <Comments>string</Comments>
            <FieldDelimiter>string</FieldDelimiter>
            <FileHeaderInfo>string</FileHeaderInfo>
            <QuoteCharacter>string</QuoteCharacter>
            <QuoteEscapeCharacter>string</QuoteEscapeCharacter>
            <RecordDelimiter>string</RecordDelimiter>
```

```
            </CSV>
            <JSON>
               <Type>string</Type>
            </JSON>
            <Parquet>
            </Parquet>
         </InputSerialization>
         <OutputSerialization>
            <CSV>
               <FieldDelimiter>string</FieldDelimiter>
               <QuoteCharacter>string</QuoteCharacter>
               <QuoteEscapeCharacter>string</QuoteEscapeCharacter>
               <QuoteFields>string</QuoteFields>
               <RecordDelimiter>string</RecordDelimiter>
            </CSV>
            <JSON>
               <RecordDelimiter>string</RecordDelimiter>
            </JSON>
         </OutputSerialization>
      </SelectParameters>
      <OutputLocation>
         <S3>
            <AccessControlList>
               <Grant>
                  <Grantee>
                     <DisplayName>string</DisplayName>
                     <EmailAddress>string</EmailAddress>
                     <ID>string</ID>
                     <xsi:type>string</xsi:type>
                     <URI>string</URI>
                  </Grantee>
                  <Permission>string</Permission>
               </Grant>
            </AccessControlList>
            <BucketName>string</BucketName>
            <CannedACL>string</CannedACL>
            <Encryption>
               <EncryptionType>string</EncryptionType>
               <KMSContext>string</KMSContext>
               <KMSKeyId>string</KMSKeyId>
            </Encryption>
            <Prefix>string</Prefix>
            <StorageClass>string</StorageClass>
            <Tagging>
```

```
            <TagSet>
               <Tag>
                  <Key>string</Key>
                  <Value>string</Value>
               </Tag>
            </TagSet>
         </Tagging>
         <UserMetadata>
            <MetadataEntry>
               <Name>string</Name>
               <Value>string</Value>
            </MetadataEntry>
         </UserMetadata>
      </S3>
   </OutputLocation>
</RestoreRequest>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name containing the object to restore.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

Key

Object key for which the action was initiated.

Length Constraints: Minimum length of 1.

Required: Yes

versionId

VersionId used to reference a specific version of the object.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the object when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

Request Body

The request accepts the following data in XML format.

RestoreRequest

Root level tag for the RestoreRequest parameters.

Required: Yes

Days

Lifetime of the active copy in days. Do not use with restores that specify `OutputLocation`.

The Days element is required for regular restores, and must not be provided for select requests.

Type: Integer

Required: No

Description

The optional description for the job.

Type: String

Required: No

GlacierJobParameters

S3 Glacier related parameters pertaining to this job. Do not use with restores that specify `OutputLocation`.

Type: GlacierJobParameters data type

Required: No

OutputLocation

Describes the location where the restore job's output is stored.

Type: OutputLocation data type

Required: No

SelectParameters

> **Important**
>
> Amazon S3 Select is no longer available to new customers. Existing customers of Amazon S3 Select can continue to use the feature as usual. Learn more

Describes the parameters for Select job types.

Type: SelectParameters data type

Required: No

Tier

Retrieval tier at which the restore will be processed.

Type: String

Valid Values: `Standard | Bulk | Expedited`

Required: No

Type

> **Important**
>
> Amazon S3 Select is no longer available to new customers. Existing customers of Amazon S3 Select can continue to use the feature as usual. Learn more

Type of restore request.

Type: String

Valid Values: `SELECT`

Required: No

Response Syntax

```
HTTP/1.1 200
```

```
x-amz-request-charged: RequestCharged
x-amz-restore-output-path: RestoreOutputPath
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-restore-output-path

Indicates the path in the provided S3 output location where Select results will be restored to.

Errors

ObjectAlreadyInActiveTierError

This action is not allowed against this storage tier.

HTTP Status Code: 403

Examples

Example: Restore an object for 2 days using the expedited retrieval option

The following restore request restores a copy of the `photo1.jpg` object from S3 Glacier for a period of two days using the expedited retrieval option.

```
POST /photo1.jpg?restore HTTP/1.1
Host: examplebucket.dummy value
Date: Mon, 22 Oct 2012 01:49:52 GMT
Authorization: authorization string
Content-Length: content length
<RestoreRequest>
  <Days>2</Days>
  <GlacierJobParameters>
    <Tier>Standard</Tier>
  </GlacierJobParameters>
</RestoreRequest>
```

Sample response

If the `examplebucket` does not have a restored copy of the object, Amazon S3 returns the following `202 Accepted` response.

> **Note**
>
> If a copy of the object is already restored, Amazon S3 returns a `200 OK` response, and updates only the restored copy's expiry time.

```
HTTP/1.1 202 Accepted
x-amz-id-2: GFihv3y6+kE7KG11GEkQhU7/2/cHR3Yb2fCb2S04nxI423Dqwg2XiQ0B/
UZlzYQvPiBlZNRcovw=
x-amz-request-id: 9F341CD3C4BA79E0
Date: Sat, 20 Oct 2012 23:54:05 GMT
Content-Length: 0
Server: AmazonS3
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

SelectObjectContent

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

This action filters the contents of an Amazon S3 object based on a simple structured query language (SQL) statement. In the request, along with the SQL expression, you must also specify a data serialization format (JSON, CSV, or Apache Parquet) of the object. Amazon S3 uses this format to parse object data into records, and returns only records that match the specified SQL expression. You must also specify the data serialization format for the response.

This functionality is not supported for Amazon S3 on Outposts.

For more information about Amazon S3 Select, see Selecting Content from Objects and SELECT Command in the *Amazon S3 User Guide*.

Permissions

You must have the `s3:GetObject` permission for this operation. Amazon S3 Select does not support anonymous access. For more information about permissions, see Specifying Permissions in a Policy in the *Amazon S3 User Guide*.

Object Data Formats

You can use Amazon S3 Select to query objects that have the following format properties:

- *CSV, JSON, and Parquet* - Objects must be in CSV, JSON, or Parquet format.
- *UTF-8* - UTF-8 is the only encoding type Amazon S3 Select supports.
- *GZIP or BZIP2* - CSV and JSON files can be compressed using GZIP or BZIP2. GZIP and BZIP2 are the only compression formats that Amazon S3 Select supports for CSV and JSON files. Amazon S3 Select supports columnar compression for Parquet using GZIP or Snappy. Amazon S3 Select does not support whole-object compression for Parquet objects.
- *Server-side encryption* - Amazon S3 Select supports querying objects that are protected with server-side encryption.

  For objects that are encrypted with customer-provided encryption keys (SSE-C), you must use HTTPS, and you must use the headers that are documented in the GetObject. For more

information about SSE-C, see Server-Side Encryption (Using Customer-Provided Encryption Keys) in the *Amazon S3 User Guide*.

For objects that are encrypted with Amazon S3 managed keys (SSE-S3) and AWS KMS keys (SSE-KMS), server-side encryption is handled transparently, so you don't need to specify anything. For more information about server-side encryption, including SSE-S3 and SSE-KMS, see Protecting Data Using Server-Side Encryption in the *Amazon S3 User Guide*.

Working with the Response Body

Given the response size is unknown, Amazon S3 Select streams the response as a series of messages and includes a `Transfer-Encoding` header with `chunked` as its value in the response. For more information, see Appendix: SelectObjectContent Response.

GetObject Support

The `SelectObjectContent` action does not support the following `GetObject` functionality. For more information, see GetObject.

- `Range`: Although you can specify a scan range for an Amazon S3 Select request (see SelectObjectContentRequest - ScanRange in the request parameters), you cannot specify the range of bytes of an object to return.
- The `GLACIER`, `DEEP_ARCHIVE`, and `REDUCED_REDUNDANCY` storage classes, or the `ARCHIVE_ACCESS` and `DEEP_ARCHIVE_ACCESS` access tiers of the `INTELLIGENT_TIERING` storage class: You cannot query objects in the `GLACIER`, `DEEP_ARCHIVE`, or `REDUCED_REDUNDANCY` storage classes, nor objects in the `ARCHIVE_ACCESS` or `DEEP_ARCHIVE_ACCESS` access tiers of the `INTELLIGENT_TIERING` storage class. For more information about storage classes, see Using Amazon S3 storage classes in the *Amazon S3 User Guide*.

Special Errors

For a list of special errors for this operation, see List of SELECT Object Content Error Codes

The following operations are related to `SelectObjectContent`:

- GetObject
- GetBucketLifecycleConfiguration
- PutBucketLifecycleConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /{Key+}?select&select-type=2 HTTP/1.1
Host: Bucket.s3.amazonaws.com
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key: SSECustomerKey
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<SelectObjectContentRequest xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <Expression>string</Expression>
   <ExpressionType>string</ExpressionType>
   <RequestProgress>
      <Enabled>boolean</Enabled>
   </RequestProgress>
   <InputSerialization>
      <CompressionType>string</CompressionType>
      <CSV>
         <AllowQuotedRecordDelimiter>boolean</AllowQuotedRecordDelimiter>
         <Comments>string</Comments>
         <FieldDelimiter>string</FieldDelimiter>
         <FileHeaderInfo>string</FileHeaderInfo>
         <QuoteCharacter>string</QuoteCharacter>
         <QuoteEscapeCharacter>string</QuoteEscapeCharacter>
         <RecordDelimiter>string</RecordDelimiter>
      </CSV>
      <JSON>
         <Type>string</Type>
      </JSON>
      <Parquet>
      </Parquet>
   </InputSerialization>
   <OutputSerialization>
      <CSV>
         <FieldDelimiter>string</FieldDelimiter>
```

```
            <QuoteCharacter>string</QuoteCharacter>
            <QuoteEscapeCharacter>string</QuoteEscapeCharacter>
            <QuoteFields>string</QuoteFields>
            <RecordDelimiter>string</RecordDelimiter>
         </CSV>
         <JSON>
            <RecordDelimiter>string</RecordDelimiter>
         </JSON>
      </OutputSerialization>
      <ScanRange>
         <End>long</End>
         <Start>long</Start>
      </ScanRange>
   </SelectObjectContentRequest>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The S3 bucket.

Required: Yes

Key

The object key.

Length Constraints: Minimum length of 1.

Required: Yes

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-server-side-encryption-customer-algorithm

The server-side encryption (SSE) algorithm used to encrypt the object. This parameter is needed only when the object was created using a checksum algorithm. For more information, see Protecting data using SSE-C keys in the *Amazon S3 User Guide*.

x-amz-server-side-encryption-customer-key

The server-side encryption (SSE) customer managed key. This parameter is needed only when the object was created using a checksum algorithm. For more information, see Protecting data using SSE-C keys in the *Amazon S3 User Guide*.

x-amz-server-side-encryption-customer-key-MD5

The MD5 server-side encryption (SSE) customer managed key. This parameter is needed only when the object was created using a checksum algorithm. For more information, see Protecting data using SSE-C keys in the *Amazon S3 User Guide*.

Request Body

The request accepts the following data in XML format.

SelectObjectContentRequest

Root level tag for the SelectObjectContentRequest parameters.

Required: Yes

Expression

The expression that is used to query the object.

Type: String

Required: Yes

ExpressionType

The type of the provided expression (for example, SQL).

Type: String

Valid Values: SQL

Required: Yes

InputSerialization

Describes the format of the data in the object that is being queried.

Type: InputSerialization data type

Required: Yes

OutputSerialization

Describes the format of the data that you want Amazon S3 to return in response.

Type: OutputSerialization data type

Required: Yes

RequestProgress

Specifies if periodic request progress information should be enabled.

Type: RequestProgress data type

Required: No

ScanRange

Specifies the byte range of the object to get the records from. A record is processed when its first byte is contained by the range. This parameter is optional, but when specified, it must not be empty. See RFC 2616, Section 14.35.1 about how to specify the start and end of the range.

`ScanRange`may be used in the following ways:

- `<scanrange><start>50</start><end>100</end></scanrange>` - process only the records starting between the bytes 50 and 100 (inclusive, counting from zero)
- `<scanrange><start>50</start></scanrange>` - process only the records starting after the byte 50
- `<scanrange><end>50</end></scanrange>` - process only the records within the last 50 bytes of the file.

Type: ScanRange data type

Required: No

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<Payload>
```

```
    <Records>
       <Payload>blob</Payload>
    </Records>
    <Stats>
       <Details>
          <BytesProcessed>long</BytesProcessed>
          <BytesReturned>long</BytesReturned>
          <BytesScanned>long</BytesScanned>
       </Details>
    </Stats>
    <Progress>
       <Details>
          <BytesProcessed>long</BytesProcessed>
          <BytesReturned>long</BytesReturned>
          <BytesScanned>long</BytesScanned>
       </Details>
    </Progress>
    <Cont>
    </Cont>
    <End>
    </End>
</Payload>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

Payload

Root level tag for the Payload parameters.

Required: Yes

Cont

The Continuation Event.

Type: ContinuationEvent data type

End

The End Event.

Type: EndEvent data type

Progress

The Progress Event.

Type: ProgressEvent data type

Records

The Records Event.

Type: RecordsEvent data type

Stats

The Stats Event.

Type: StatsEvent data type

Examples

Example 1: CSV object

The following select request retrieves all records from an object with data stored in CSV format. The OutputSerialization element directs Amazon S3 to return results in CSV.

You can try different queries in the `Expression` element:

- Assuming that you are not using column headers, you can identify columns using positional headers:

  ```
  SELECT s._1, s._2 FROM S3Object s WHERE s._3 > 100
  ```

- If you have column headers and you set the `FileHeaderInfo` to `Use`, you can identify columns by name in the expression:

  ```
  SELECT s.Id, s.FirstName, s.SSN FROM S3Object s
  ```

- You can specify functions in the SQL expression:

  ```
  SELECT count(*) FROM S3Object s WHERE s._1 < 1
  ```

```
POST /exampleobject.csv?select&select-type=2 HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
Date: Tue, 17 Oct 2017 01:49:52 GMT
Authorization: authorization string
Content-Length: content length

<?xml version="1.0" encoding="UTF-8"?>
<SelectRequest>
    <Expression>Select * from S3Object</Expression>
    <ExpressionType>SQL</ExpressionType>
    <InputSerialization>
        <CompressionType>GZIP</CompressionType>
        <CSV>
            <FileHeaderInfo>IGNORE</FileHeaderInfo>
            <RecordDelimiter>\n</RecordDelimiter>
            <FieldDelimiter>,</FieldDelimiter>
            <QuoteCharacter>"</QuoteCharacter>
            <QuoteEscapeCharacter>"</QuoteEscapeCharacter>
            <Comments>#</Comments>
        </CSV>
    </InputSerialization>
    <OutputSerialization>
        <CSV>
            <QuoteFields>ASNEEDED</QuoteFields>
            <RecordDelimiter>\n</RecordDelimiter>
            <FieldDelimiter>,</FieldDelimiter>
            <QuoteCharacter>"</QuoteCharacter>
            <QuoteEscapeCharacter>"</QuoteEscapeCharacter>
        </CSV>
    </OutputSerialization>
</SelectRequest>
```

Example

The following is a sample response.

```
HTTP/1.1 200 OK
x-amz-id-2: GFihv3y6+kE7KG11GEkQhU7/2/cHR3Yb2fCb2S04nxI423Dqwg2XiQ0B/
UZlzYQvPiBlZNRcovw=
x-amz-request-id: 9F341CD3C4BA79E0
```

```
Date: Tue, 17 Oct 2017 23:54:05 GMT

A series of messages
```

Example 2: JSON object

The following select request retrieves all records from an object with data stored in JSON format. The OutputSerialization directs Amazon S3 to return results in CSV.

You can try different queries in the `Expression` element:

- You can filter by string comparison using record keys:

  ```
  SELECT s.country, s.city from S3Object s where s.city = 'Seattle'
  ```

- You can specify functions in the SQL expression:

  ```
  SELECT count(*) FROM S3Object s
  ```

```
POST /exampleobject.json?select&select-type=2 HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
Date: Tue, 17 Oct 2017 01:49:52 GMT
Authorization: authorization string
Content-Length: content length

<?xml version="1.0" encoding="UTF-8"?>
<SelectRequest>
    <Expression>Select * from S3Object</Expression>
    <ExpressionType>SQL</ExpressionType>
    <InputSerialization>
        <CompressionType>GZIP</CompressionType>
        <JSON>
            <Type>DOCUMENT</Type>
        </JSON>
    </InputSerialization>
    <OutputSerialization>
        <CSV>
            <QuoteFields>ASNEEDED</QuoteFields>
            <RecordDelimiter>\n</RecordDelimiter>
            <FieldDelimiter>,</FieldDelimiter>
```

```
            <QuoteCharacter>"</QuoteCharacter>
            <QuoteEscapeCharacter>"</QuoteEscapeCharacter>
        </CSV>
    </OutputSerialization>
</SelectRequest>
```

Example

The following is a sample response.

```
HTTP/1.1 200 OK
x-amz-id-2: GFihv3y6+kE7KG11GEkQhU7/2/cHR3Yb2fCb2S04nxI423Dqwg2XiQ0B/
UZlzYQvPiBlZNRcovw=
x-amz-request-id: 9F341CD3C4BA79E0
Date: Tue, 17 Oct 2017 23:54:05 GMT

A series of messages
```

Example 3: Parquet object

- The `InputSerialization` element describes the format of the data in the object that is being queried. It must specify `CSV`, `JSON`, or `Parquet`.
- The `OutputSerialization` element describes the format of the data that you want Amazon S3 to return in response to the query. It must specify `CSV`, `JSON`. Amazon S3 doesn't support outputting data in the `Parquet` format.
- The format of the `InputSerialization` doesn't need to match the format of the `OutputSerialization`. So, for example, you can specify `JSON` in the `InputSerialization` and `CSV` in the `OutputSerialization`.

```
POST /exampleobject.parquet?select&select-type=2 HTTP/1.1
Host: examplebucket.s3.<Region>.amazonaws.com
Date: Tue, 17 Oct 2017 01:49:52 GMT
Authorization: authorization string
Content-Length: content length
```

```
<?xml version="1.0" encoding="UTF-8"?>
<SelectRequest>
    <Expression>Select * from S3Object</Expression>
    <ExpressionType>SQL</ExpressionType>
    <InputSerialization>
        <CompressionType>NONE</CompressionType>
        <Parquet>
        </Parquet>
    </InputSerialization>
    <OutputSerialization>
        <CSV>
            <QuoteFields>ASNEEDED</QuoteFields>
            <RecordDelimiter>\n</RecordDelimiter>
            <FieldDelimiter>,</FieldDelimiter>
            <QuoteCharacter>"</QuoteCharacter>
            <QuoteEscapeCharacter>"</QuoteEscapeCharacter>
        </CSV>
    </OutputSerialization>
</SelectRequest>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

UpdateBucketMetadataInventoryTableConfiguration

Service: Amazon S3

Enables or disables a live inventory table for an S3 Metadata configuration on a general purpose bucket. For more information, see Accelerating data discovery with S3 Metadata in the *Amazon S3 User Guide*.

Permissions

To use this operation, you must have the following permissions. For more information, see Setting up permissions for configuring metadata tables in the *Amazon S3 User Guide*.

If you want to encrypt your inventory table with server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS), you need additional permissions in your KMS key policy. For more information, see Setting up permissions for configuring metadata tables in the *Amazon S3 User Guide*.

- `s3:UpdateBucketMetadataInventoryTableConfiguration`
- `s3tables:CreateTableBucket`
- `s3tables:CreateNamespace`
- `s3tables:GetTable`
- `s3tables:CreateTable`
- `s3tables:PutTablePolicy`
- `s3tables:PutTableEncryption`
- `kms:DescribeKey`

The following operations are related to `UpdateBucketMetadataInventoryTableConfiguration`:

- CreateBucketMetadataConfiguration
- DeleteBucketMetadataConfiguration
- GetBucketMetadataConfiguration
- UpdateBucketMetadataJournalTableConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?metadataInventoryTable HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<InventoryTableConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
   <ConfigurationState>string</ConfigurationState>
   <EncryptionConfiguration>
      <KmsKeyArn>string</KmsKeyArn>
      <SseAlgorithm>string</SseAlgorithm>
   </EncryptionConfiguration>
</InventoryTableConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The general purpose bucket that corresponds to the metadata configuration that you want to enable or disable an inventory table for.

Required: Yes

Content-MD5

The `Content-MD5` header for the inventory table configuration.

x-amz-expected-bucket-owner

The expected owner of the general purpose bucket that corresponds to the metadata table configuration that you want to enable or disable an inventory table for.

x-amz-sdk-checksum-algorithm

The checksum algorithm to use with your inventory table configuration.

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

Request Body

The request accepts the following data in XML format.

InventoryTableConfiguration

Root level tag for the InventoryTableConfiguration parameters.

Required: Yes

ConfigurationState

The configuration state of the inventory table, indicating whether the inventory table is enabled or disabled.

Type: String

Valid Values: `ENABLED` | `DISABLED`

Required: Yes

EncryptionConfiguration

The encryption configuration for the inventory table.

Type: MetadataTableEncryptionConfiguration data type

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

UpdateBucketMetadataJournalTableConfiguration

Service: Amazon S3

Enables or disables journal table record expiration for an S3 Metadata configuration on a general purpose bucket. For more information, see Accelerating data discovery with S3 Metadata in the *Amazon S3 User Guide*.

Permissions

To use this operation, you must have the `s3:UpdateBucketMetadataJournalTableConfiguration` permission. For more information, see Setting up permissions for configuring metadata tables in the *Amazon S3 User Guide*.

The following operations are related to `UpdateBucketMetadataJournalTableConfiguration`:

- CreateBucketMetadataConfiguration
- DeleteBucketMetadataConfiguration
- GetBucketMetadataConfiguration
- UpdateBucketMetadataInventoryTableConfiguration

Important

You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /?metadataJournalTable HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-expected-bucket-owner: ExpectedBucketOwner
<?xml version="1.0" encoding="UTF-8"?>
<JournalTableConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
```

```
    <RecordExpiration>
       <Days>integer</Days>
       <Expiration>string</Expiration>
    </RecordExpiration>
</JournalTableConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The general purpose bucket that corresponds to the metadata configuration that you want to enable or disable journal table record expiration for.

Required: Yes

Content-MD5

The `Content-MD5` header for the journal table configuration.

x-amz-expected-bucket-owner

The expected owner of the general purpose bucket that corresponds to the metadata table configuration that you want to enable or disable journal table record expiration for.

x-amz-sdk-checksum-algorithm

The checksum algorithm to use with your journal table configuration.

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

Request Body

The request accepts the following data in XML format.

JournalTableConfiguration

Root level tag for the JournalTableConfiguration parameters.

Required: Yes

RecordExpiration

The journal table record expiration settings for the journal table.

Type: RecordExpiration data type

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

UploadPart

Service: Amazon S3

Uploads a part in a multipart upload.

> **Note**
>
> In this operation, you provide new data as a part of an object in your request. However, you have an option to specify your existing Amazon S3 object as a data source for the part you are uploading. To upload a part from an existing object, you use the UploadPartCopy operation.

You must initiate a multipart upload (see CreateMultipartUpload) before you can upload any part. In response to your initiate request, Amazon S3 returns an upload ID, a unique identifier that you must include in your upload part request.

Part numbers can be any number from 1 to 10,000, inclusive. A part number uniquely identifies a part and also defines its position within the object being created. If you upload a new part using the same part number that was used with a previous part, the previously uploaded part is overwritten.

For information about maximum and minimum part sizes and other multipart upload specifications, see Multipart upload limits in the *Amazon S3 User Guide*.

> **Note**
>
> After you initiate multipart upload and upload one or more parts, you must either complete or abort multipart upload in order to stop getting charged for storage of the uploaded parts. Only after you either complete or abort multipart upload, Amazon S3 frees up the parts storage and stops charging you for the parts storage.

For more information on multipart uploads, go to Multipart Upload Overview in the *Amazon S3 User Guide* .

> **Note**
>
> **Directory buckets** - For directory buckets, you must make requests for this API operation to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://amzn-s3-demo-bucket.s3express-zone-id.region-code.amazonaws.com/key-name` . Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Permissions

- **General purpose bucket permissions** - To perform a multipart upload with encryption using an AWS Key Management Service key, the requester must have permission to the `kms:Decrypt` and `kms:GenerateDataKey` actions on the key. The requester must also have permissions for the `kms:GenerateDataKey` action for the `CreateMultipartUpload` API. Then, the requester needs permissions for the `kms:Decrypt` action on the `UploadPart` and `UploadPartCopy` APIs.

  These permissions are required because Amazon S3 must decrypt and read data from the encrypted file parts before it completes the multipart upload. For more information about KMS permissions, see Protecting data using server-side encryption with AWS KMS in the *Amazon S3 User Guide*. For information about the permissions required to use the multipart upload API, see Multipart upload and permissions and Multipart upload API and permissions in the *Amazon S3 User Guide*.

- **Directory bucket permissions** - To grant access to this API operation on a directory bucket, we recommend that you use the `CreateSession` API operation for session-based authorization. Specifically, you grant the `s3express:CreateSession` permission to the directory bucket in a bucket policy or an IAM identity-based policy. Then, you make the `CreateSession` API call on the bucket to obtain a session token. With the session token in your request header, you can make API requests to this operation. After the session token expires, you make another `CreateSession` API call to generate a new session token for use. AWS CLI or SDKs create session and refresh the session token automatically to avoid service interruptions when a session expires. For more information about authorization, see `CreateSession`.

If the object is encrypted with SSE-KMS, you must also have the `kms:GenerateDataKey` and `kms:Decrypt` permissions in IAM identity-based policies and AWS KMS key policies for the AWS KMS key.

Data integrity

General purpose bucket - To ensure that data is not corrupted traversing the network, specify the `Content-MD5` header in the upload part request. Amazon S3 checks the part data against the provided MD5 value. If they do not match, Amazon S3 returns an error. If the upload request is signed with Signature Version 4, then AWS S3 uses the `x-amz-content-sha256` header as a checksum instead of `Content-MD5`. For more information see Authenticating Requests: Using the Authorization Header (AWS Signature Version 4).

> **Note**
>
> **Directory buckets** - MD5 is not supported by directory buckets. You can use checksum algorithms to check object integrity.

Encryption

- **General purpose bucket** - Server-side encryption is for data encryption at rest. Amazon S3 encrypts your data as it writes it to disks in its data centers and decrypts it when you access it. You have mutually exclusive options to protect data using server-side encryption in Amazon S3, depending on how you choose to manage the encryption keys. Specifically, the encryption key options are Amazon S3 managed keys (SSE-S3), AWS KMS keys (SSE-KMS), and Customer-Provided Keys (SSE-C). Amazon S3 encrypts data with server-side encryption using Amazon S3 managed keys (SSE-S3) by default. You can optionally tell Amazon S3 to encrypt data at rest using server-side encryption with other key options. The option you use depends on whether you want to use KMS keys (SSE-KMS) or provide your own encryption key (SSE-C).

  Server-side encryption is supported by the S3 Multipart Upload operations. Unless you are using a customer-provided encryption key (SSE-C), you don't need to specify the encryption parameters in each UploadPart request. Instead, you only need to specify the server-side encryption parameters in the initial Initiate Multipart request. For more information, see CreateMultipartUpload.

If you request server-side encryption using a customer-provided encryption key (SSE-C) in your initiate multipart upload request, you must provide identical encryption information in each part upload using the following request headers.

- x-amz-server-side-encryption-customer-algorithm
- x-amz-server-side-encryption-customer-key
- x-amz-server-side-encryption-customer-key-MD5

For more information, see Using Server-Side Encryption in the *Amazon S3 User Guide*.

- **Directory buckets** - For directory buckets, there are only two supported options for server-side encryption: server-side encryption with Amazon S3 managed keys (SSE-S3) (`AES256`) and server-side encryption with AWS KMS keys (SSE-KMS) (`aws:kms`).

Special errors

- Error Code: `NoSuchUpload`
  - Description: The specified multipart upload does not exist. The upload ID might be invalid, or the multipart upload might have been aborted or completed.
  - HTTP Status Code: 404 Not Found
  - SOAP Fault Code Prefix: Client

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `Bucket-name.s3express-zone-id.region-code.amazonaws.com`.

The following operations are related to `UploadPart`:

- CreateMultipartUpload
- CompleteMultipartUpload
- AbortMultipartUpload
- ListParts
- ListMultipartUploads

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /Key+?partNumber=PartNumber&uploadId=UploadId HTTP/1.1
Host: Bucket.s3.amazonaws.com
Content-Length: ContentLength
Content-MD5: ContentMD5
x-amz-sdk-checksum-algorithm: ChecksumAlgorithm
x-amz-checksum-crc32: ChecksumCRC32
x-amz-checksum-crc32c: ChecksumCRC32C
x-amz-checksum-crc64nvme: ChecksumCRC64NVME
x-amz-checksum-sha1: ChecksumSHA1
x-amz-checksum-sha256: ChecksumSHA256
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key: SSECustomerKey
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-request-payer: RequestPayer
x-amz-expected-bucket-owner: ExpectedBucketOwner

Body
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The name of the bucket to which the multipart upload was initiated.

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format *`Bucket-name`*`.s3express-`*`zone-id`*`.`*`region-code`*`.amazonaws.com`. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format *`bucket-base-name`*`--`*`zone-id`*`--x-s3` (for example, *`amzn-s3-demo-`*

bucket--usw2-az1--x-s3). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form *AccessPointName-AccountId.outpostID*.s3-outposts.*Region*.amazonaws.com. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

Content-Length

Size of the body in bytes. This parameter is useful when the size of the body cannot be determined automatically.

Content-MD5

The Base64 encoded 128-bit MD5 digest of the part data. This parameter is auto-populated when using the command from the CLI. This parameter is required if object lock parameters are specified.

> **Note**
>
> This functionality is not supported for directory buckets.

Key

Object key for which the multipart upload was initiated.

Length Constraints: Minimum length of 1.

Required: Yes

partNumber

Part number of part being uploaded. This is a positive integer between 1 and 10,000.

Required: Yes

uploadId

Upload ID identifying the multipart upload whose part is being uploaded.

Required: Yes

x-amz-checksum-crc32

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 32-bit `CRC32` checksum of the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-crc32c

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 32-bit `CRC32C` checksum of the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-crc64nvme

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 64-bit `CRC64NVME` checksum of the part. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-sha1

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 160-bit SHA1 digest of the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-sha256

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 256-bit SHA256 digest of the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-expected-bucket-owner

The account ID of the expected bucket owner. If the account ID that you provide does not match the actual owner of the bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-sdk-checksum-algorithm

Indicates the algorithm used to create the checksum for the object when you use the SDK. This header will not provide any additional functionality if you don't use the SDK. When you send this header, there must be a corresponding `x-amz-checksum` or `x-amz-trailer` header sent. Otherwise, Amazon S3 fails the request with the HTTP status code `400 Bad Request`. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

If you provide an individual checksum, Amazon S3 ignores any provided `ChecksumAlgorithm` parameter.

This checksum algorithm must be the same for all parts and it match the checksum value supplied in the `CreateMultipartUpload` request.

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

x-amz-server-side-encryption-customer-algorithm

Specifies the algorithm to use when encrypting the object (for example, AES256).

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key

Specifies the customer-provided encryption key for Amazon S3 to use in encrypting data. This value is used to store the object and then it is discarded; Amazon S3 does not store the encryption key. The key must be appropriate for use with the algorithm specified in the `x-amz-server-side-encryption-customer-algorithm header`. This must be the same encryption key specified in the initiate multipart upload request.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key-MD5

Specifies the 128-bit MD5 digest of the encryption key according to RFC 1321. Amazon S3 uses this header for a message integrity check to ensure that the encryption key was transmitted without error.

> **Note**
>
> This functionality is not supported for directory buckets.

Request Body

The request accepts the following binary data.

Body

Response Syntax

```
HTTP/1.1 200
x-amz-server-side-encryption: ServerSideEncryption
ETag: ETag
x-amz-checksum-crc32: ChecksumCRC32
x-amz-checksum-crc32c: ChecksumCRC32C
x-amz-checksum-crc64nvme: ChecksumCRC64NVME
x-amz-checksum-sha1: ChecksumSHA1
x-amz-checksum-sha256: ChecksumSHA256
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-server-side-encryption-aws-kms-key-id: SSEKMSKeyId
x-amz-server-side-encryption-bucket-key-enabled: BucketKeyEnabled
x-amz-request-charged: RequestCharged
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

ETag

Entity tag for the uploaded object.

x-amz-checksum-crc32

The Base64 encoded, 32-bit `CRC32 checksum` of the object. This checksum is only be present if the checksum was uploaded with the object. When you use an API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-crc32c

The Base64 encoded, 32-bit `CRC32C` checksum of the object. This checksum is only present if the checksum was uploaded with the object. When you use an API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full

object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-crc64nvme

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 64-bit `CRC64NVME` checksum of the part. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-sha1

The Base64 encoded, 160-bit `SHA1` digest of the object. This will only be present if the object was uploaded with the object. When you use the API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-checksum-sha256

The Base64 encoded, 256-bit `SHA256` digest of the object. This will only be present if the object was uploaded with the object. When you use an API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-server-side-encryption

The server-side encryption algorithm used when you store this object in Amazon S3 or Amazon FSx.

> **Note**
>
> When accessing data stored in Amazon FSx file systems using S3 access points, the only valid server side encryption option is `aws:fsx`.

Valid Values: `AES256` | `aws:fsx` | `aws:kms` | `aws:kms:dsse`

x-amz-server-side-encryption-aws-kms-key-id

If present, indicates the ID of the KMS key that was used for object encryption.

x-amz-server-side-encryption-bucket-key-enabled

Indicates whether the multipart upload uses an S3 Bucket Key for server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS).

x-amz-server-side-encryption-customer-algorithm

If server-side encryption with a customer-provided encryption key was requested, the response will include this header to confirm the encryption algorithm that's used.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key-MD5

If server-side encryption with a customer-provided encryption key was requested, the response will include this header to provide the round-trip message integrity verification of the customer-provided encryption key.

> **Note**
>
> This functionality is not supported for directory buckets.

Examples

Sample Request for general purpose buckets

The following PUT request uploads a part (part number 1) in a multipart upload. The request includes the upload ID that you get in response to your Initiate Multipart Upload request.

```
PUT /my-movie.m2ts?
partNumber=1&uploadId=VCVsb2FkIElEIGZvciBlbZZpbmcncyBteS1tb3ZpZS5tMnRzIHVwbG9hZR
 HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
Date:  Mon, 1 Nov 2010 20:34:56 GMT
Content-Length: 10485760
Content-MD5: pUNXr/BjKK5G2UKvaRRrOA==
Authorization: authorization string

***part data omitted***
```

Sample Response for general purpose buckets

The response includes the ETag header. You need to retain this value for use when you send the Complete Multipart Upload request.

```
HTTP/1.1 200 OK
x-amz-id-2: Vvag1LuByRx9e6j5Onimru9pO4ZVKnJ2Qz7/C1NPcfTWAtRPfTaOFg==
x-amz-request-id: 656c76696e6727732072657175657374
Date:  Mon, 1 Nov 2010 20:34:56 GMT
ETag: "b54357faf0632cce46e942fa68356b38"
Content-Length: 0
Connection: keep-alive
Server: AmazonS3
```

Example for general purpose buckets: Upload a part with an encryption key in the request for server-side encryption

If you initiated a multipart upload with a request to save an object using server-side encryption with a customer-provided encryption key, each part upload must also include the same set of encryption-specific headers as shown in the following example request.

```
PUT /example-object?
partNumber=1&uploadId=EXAMPLEJZ6e0YupT2h66iePQCc9IEbYbDUy4RTpMeoSMLPRp8Z5o1u8feSRonpvnWsKKG35tI
 HTTP/1.1
Host: example-bucket.s3.<Region>.amazonaws.com
Authorization: authorization string
Date: Wed, 28 May 2014 19:40:11 +0000
x-amz-server-side-encryption-customer-key: g0lCfA3Dv40jZz5SQJ1ZukLRFqtI5WorC/8SEEXAMPLE

x-amz-server-side-encryption-customer-key-MD5: ZjQrne1X/iTcskbY2example
x-amz-server-side-encryption-customer-algorithm: AES256
```

Example for general purpose buckets

In the response, Amazon S3 returns encryption-specific headers providing the encryption algorithm used and MD5 digest of the encryption key you provided in the request.

```
HTTP/1.1 100 Continue   HTTP/1.1 200 OK
x-amz-id-2: Zn8bf8aEFQ+kBnGPBc/JaAf9SoWM68QDPS9+SyFwkIZOHUG2BiRLZi5oXw4cOCEt
x-amz-request-id: 5A37448A37622243
Date: Wed, 28 May 2014 19:40:12 GMT
ETag: "7e10e7d25dc4581d89b9285be5f384fd"
x-amz-server-side-encryption-customer-algorithm: AES256
x-amz-server-side-encryption-customer-key-MD5: ZjQrne1X/iTcskbY2example
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3

- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

UploadPartCopy

Service: Amazon S3

Uploads a part by copying data from an existing object as data source. To specify the data source, you add the request header `x-amz-copy-source` in your request. To specify a byte range, you add the request header `x-amz-copy-source-range` in your request.

For information about maximum and minimum part sizes and other multipart upload specifications, see Multipart upload limits in the *Amazon S3 User Guide*.

> **Note**
>
> Instead of copying data from an existing object as part data, you might use the UploadPart action to upload new data as a part of an object in your request.

You must initiate a multipart upload before you can upload any part. In response to your initiate request, Amazon S3 returns the upload ID, a unique identifier that you must include in your upload part request.

For conceptual information about multipart uploads, see Uploading Objects Using Multipart Upload in the *Amazon S3 User Guide*. For information about copying objects using a single atomic action vs. a multipart upload, see Operations on Objects in the *Amazon S3 User Guide*.

> **Note**
>
> **Directory buckets** - For directory buckets, you must make requests for this API operation to the Zonal endpoint. These endpoints support virtual-hosted-style requests in the format `https://amzn-s3-demo-bucket.s3express-zone-id.region-code.amazonaws.com/key-name` . Path-style requests are not supported. For more information about endpoints in Availability Zones, see Regional and Zonal endpoints for directory buckets in Availability Zones in the *Amazon S3 User Guide*. For more information about endpoints in Local Zones, see Concepts for directory buckets in Local Zones in the *Amazon S3 User Guide*.

Authentication and authorization

All `UploadPartCopy` requests must be authenticated and signed by using IAM credentials (access key ID and secret access key for the IAM identities). All headers with the `x-amz-` prefix, including `x-amz-copy-source`, must be signed. For more information, see REST Authentication.

Directory buckets - You must use IAM credentials to authenticate and authorize your access to the `UploadPartCopy` API operation, instead of using the temporary security credentials through the `CreateSession` API operation.

AWS CLI or SDKs handles authentication and authorization on your behalf.

Permissions

You must have `READ` access to the source object and `WRITE` access to the destination bucket.

- **General purpose bucket permissions** - You must have the permissions in a policy based on the bucket types of your source bucket and destination bucket in an `UploadPartCopy` operation.
  - If the source object is in a general purpose bucket, you must have the **`s3:GetObject`** permission to read the source object that is being copied.
  - If the destination bucket is a general purpose bucket, you must have the **`s3:PutObject`** permission to write the object copy to the destination bucket.
  - To perform a multipart upload with encryption using an AWS Key Management Service key, the requester must have permission to the `kms:Decrypt` and `kms:GenerateDataKey` actions on the key. The requester must also have permissions for the `kms:GenerateDataKey` action for the `CreateMultipartUpload` API. Then, the requester needs permissions for the `kms:Decrypt` action on the `UploadPart` and `UploadPartCopy` APIs. These permissions are required because Amazon S3 must decrypt and read data from the encrypted file parts before it completes the multipart upload. For more information about KMS permissions, see Protecting data using server-side encryption with AWS KMS in the *Amazon S3 User Guide*. For information about the permissions required to use the multipart upload API, see Multipart upload and permissions and Multipart upload API and permissions in the *Amazon S3 User Guide*.
- **Directory bucket permissions** - You must have permissions in a bucket policy or an IAM identity-based policy based on the source and destination bucket types in an `UploadPartCopy` operation.

- If the source object that you want to copy is in a directory bucket, you must have the **`s3express:CreateSession`** permission in the `Action` element of a policy to read the object. By default, the session is in the `ReadWrite` mode. If you want to restrict the access, you can explicitly set the `s3express:SessionMode` condition key to `ReadOnly` on the copy source bucket.
- If the copy destination is a directory bucket, you must have the **`s3express:CreateSession`** permission in the `Action` element of a policy to write the object to the destination. The `s3express:SessionMode` condition key cannot be set to `ReadOnly` on the copy destination.

If the object is encrypted with SSE-KMS, you must also have the `kms:GenerateDataKey` and `kms:Decrypt` permissions in IAM identity-based policies and AWS KMS key policies for the AWS KMS key.

For example policies, see Example bucket policies for S3 Express One Zone and AWS Identity and Access Management (IAM) identity-based policies for S3 Express One Zone in the *Amazon S3 User Guide*.

Encryption

- **General purpose buckets** - For information about using server-side encryption with customer-provided encryption keys with the `UploadPartCopy` operation, see CopyObject and UploadPart.
- **Directory buckets** - For directory buckets, there are only two supported options for server-side encryption: server-side encryption with Amazon S3 managed keys (SSE-S3) (`AES256`) and server-side encryption with AWS KMS keys (SSE-KMS) (`aws:kms`). For more information, see Protecting data with server-side encryption in the *Amazon S3 User Guide*.

> **Note**
>
> For directory buckets, when you perform a `CreateMultipartUpload` operation and an `UploadPartCopy` operation, the request headers you provide in the `CreateMultipartUpload` request must match the default encryption configuration of the destination bucket.

S3 Bucket Keys aren't supported, when you copy SSE-KMS encrypted objects from general purpose buckets to directory buckets, from directory buckets to general purpose buckets, or

between directory buckets, through UploadPartCopy. In this case, Amazon S3 makes a call to AWS KMS every time a copy request is made for a KMS-encrypted object.

Special errors

- Error Code: `NoSuchUpload`
  - Description: The specified multipart upload does not exist. The upload ID might be invalid, or the multipart upload might have been aborted or completed.
  - HTTP Status Code: 404 Not Found
- Error Code: `InvalidRequest`
  - Description: The specified copy source is not supported as a byte-range copy source.
  - HTTP Status Code: 400 Bad Request

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is *`Bucket-name`*`.s3express-`*`zone-id`*`.`*`region-code`*`.amazonaws.com`.

The following operations are related to `UploadPartCopy`:

- CreateMultipartUpload
- UploadPart
- CompleteMultipartUpload
- AbortMultipartUpload
- ListParts
- ListMultipartUploads

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /Key+?partNumber=PartNumber&uploadId=UploadId HTTP/1.1
```

```
Host: Bucket.s3.amazonaws.com
x-amz-copy-source: CopySource
x-amz-copy-source-if-match: CopySourceIfMatch
x-amz-copy-source-if-modified-since: CopySourceIfModifiedSince
x-amz-copy-source-if-none-match: CopySourceIfNoneMatch
x-amz-copy-source-if-unmodified-since: CopySourceIfUnmodifiedSince
x-amz-copy-source-range: CopySourceRange
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key: SSECustomerKey
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-copy-source-server-side-encryption-customer-
algorithm: CopySourceSSECustomerAlgorithm
x-amz-copy-source-server-side-encryption-customer-key: CopySourceSSECustomerKey
x-amz-copy-source-server-side-encryption-customer-key-MD5: CopySourceSSECustomerKeyMD5
x-amz-request-payer: RequestPayer
x-amz-expected-bucket-owner: ExpectedBucketOwner
x-amz-source-expected-bucket-owner: ExpectedSourceBucketOwner
```

URI Request Parameters

The request uses the following URI parameters.

Bucket

The bucket name.

Directory buckets - When you use this operation with a directory bucket, you must use virtual-hosted-style requests in the format `Bucket-name.s3express-zone-id.region-code.amazonaws.com`. Path-style requests are not supported. Directory bucket names must be unique in the chosen Zone (Availability Zone or Local Zone). Bucket names must follow the format `bucket-base-name--zone-id--x-s3` (for example, `amzn-s3-demo-bucket--usw2-az1--x-s3`). For information about bucket naming restrictions, see Directory bucket naming rules in the *Amazon S3 User Guide*.

> **Note**
>
> Copying objects across different AWS Regions isn't supported when the source or destination bucket is in AWS Local Zones. The source and destination buckets must have the same parent AWS Region. Otherwise, you get an HTTP `400 Bad Request` error with the error code `InvalidRequest`.

Access points - When you use this action with an access point for general purpose buckets, you must provide the alias of the access point in place of the bucket name or specify the access point ARN. When you use this action with an access point for directory buckets, you must provide the access point name in place of the bucket name. When using the access point ARN, you must direct requests to the access point hostname. The access point hostname takes the form *AccessPointName-AccountId*.s3-accesspoint.*Region*.amazonaws.com. When using this action with an access point through the AWS SDKs, you provide the access point ARN in place of the bucket name. For more information about access point ARNs, see Using access points in the *Amazon S3 User Guide*.

> **Note**
>
> Object Lambda access points are not supported by directory buckets.

S3 on Outposts - When you use this action with S3 on Outposts, you must direct requests to the S3 on Outposts hostname. The S3 on Outposts hostname takes the form `AccessPointName-AccountId.outpostID.s3-outposts.Region.amazonaws.com`. When you use this action with S3 on Outposts, the destination bucket must be the Outposts access point ARN or the access point alias. For more information about S3 on Outposts, see What is S3 on Outposts? in the *Amazon S3 User Guide*.

Required: Yes

Key

Object key for which the multipart upload was initiated.

Length Constraints: Minimum length of 1.

Required: Yes

partNumber

Part number of part being copied. This is a positive integer between 1 and 10,000.

Required: Yes

uploadId

Upload ID identifying the multipart upload whose part is being copied.

Required: Yes

x-amz-copy-source

Specifies the source object for the copy operation. You specify the value in one of two formats, depending on whether you want to access the source object through an access point:

- For objects not accessed through an access point, specify the name of the source bucket and key of the source object, separated by a slash (/). For example, to copy the object `reports/january.pdf` from the bucket `awsexamplebucket`, use `awsexamplebucket/reports/january.pdf`. The value must be URL-encoded.
- For objects accessed through access points, specify the Amazon Resource Name (ARN) of the object as accessed through the access point, in the format `arn:aws:s3:<Region>:<account-id>:accesspoint/<access-point-name>/object/<key>`. For example, to copy the object `reports/january.pdf` through access point `my-access-point` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3:us-west-2:123456789012:accesspoint/my-access-point/object/reports/january.pdf`. The value must be URL encoded.

  > **Note**
  >
  > - Amazon S3 supports copy operations using Access points only when the source and destination buckets are in the same AWS Region.
  > - Access points are not supported by directory buckets.

  Alternatively, for objects accessed through Amazon S3 on Outposts, specify the ARN of the object as accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/object/<key>`. For example, to copy the object `reports/january.pdf` through outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/object/reports/january.pdf`. The value must be URL-encoded.

If your bucket has versioning enabled, you could have multiple versions of the same object. By default, `x-amz-copy-source` identifies the current version of the source object to copy. To copy a specific version of the source object to copy, append `?versionId=<version-id>` to the `x-amz-copy-source` request header (for example, `x-amz-copy-source: /awsexamplebucket/reports/january.pdf?versionId=QUpfdndhfd8438MNFDN93jdnJFkdmqnh893`).

If the current version is a delete marker and you don't specify a versionId in the `x-amz-copy-source` request header, Amazon S3 returns a `404 Not Found` error, because the object does not exist. If you specify versionId in the `x-amz-copy-source` and the versionId is a delete marker, Amazon S3 returns an HTTP `400 Bad Request` error, because you are not allowed to specify a delete marker as a version for the `x-amz-copy-source`.

> **Note**
>
> **Directory buckets** - S3 Versioning isn't enabled and supported for directory buckets.

Pattern: `\/?.+\/.+`

Required: Yes

x-amz-copy-source-if-match

Copies the object if its entity tag (ETag) matches the specified tag.

If both of the `x-amz-copy-source-if-match` and `x-amz-copy-source-if-unmodified-since` headers are present in the request as follows:

`x-amz-copy-source-if-match` condition evaluates to `true`, and;

`x-amz-copy-source-if-unmodified-since` condition evaluates to `false`;

Amazon S3 returns `200 OK` and copies the data.

x-amz-copy-source-if-modified-since

Copies the object if it has been modified since the specified time.

If both of the `x-amz-copy-source-if-none-match` and `x-amz-copy-source-if-modified-since` headers are present in the request as follows:

`x-amz-copy-source-if-none-match` condition evaluates to `false`, and;

`x-amz-copy-source-if-modified-since` condition evaluates to `true`;

Amazon S3 returns `412 Precondition Failed` response code.

x-amz-copy-source-if-none-match

Copies the object if its entity tag (ETag) is different than the specified ETag.

If both of the `x-amz-copy-source-if-none-match` and `x-amz-copy-source-if-modified-since` headers are present in the request as follows:

`x-amz-copy-source-if-none-match` condition evaluates to `false`, and;

`x-amz-copy-source-if-modified-since` condition evaluates to `true`;

Amazon S3 returns `412 Precondition Failed` response code.

x-amz-copy-source-if-unmodified-since

Copies the object if it hasn't been modified since the specified time.

If both of the `x-amz-copy-source-if-match` and `x-amz-copy-source-if-unmodified-since` headers are present in the request as follows:

`x-amz-copy-source-if-match` condition evaluates to `true`, and;

`x-amz-copy-source-if-unmodified-since` condition evaluates to `false`;

Amazon S3 returns `200 OK` and copies the data.

x-amz-copy-source-range

The range of bytes to copy from the source object. The range value must use the form bytes=first-last, where the first and last are the zero-based byte offsets to copy. For example, bytes=0-9 indicates that you want to copy the first 10 bytes of the source. You can copy a range only if the source object is greater than 5 MB.

x-amz-copy-source-server-side-encryption-customer-algorithm

Specifies the algorithm to use when decrypting the source object (for example, `AES256`).

> **Note**
>
> This functionality is not supported when the source object is in a directory bucket.

x-amz-copy-source-server-side-encryption-customer-key

Specifies the customer-provided encryption key for Amazon S3 to use to decrypt the source object. The encryption key provided in this header must be one that was used when the source object was created.

> **Note**
>
> This functionality is not supported when the source object is in a directory bucket.

x-amz-copy-source-server-side-encryption-customer-key-MD5

Specifies the 128-bit MD5 digest of the encryption key according to RFC 1321. Amazon S3 uses this header for a message integrity check to ensure that the encryption key was transmitted without error.

> **Note**
>
> This functionality is not supported when the source object is in a directory bucket.

x-amz-expected-bucket-owner

The account ID of the expected destination bucket owner. If the account ID that you provide does not match the actual owner of the destination bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

x-amz-request-payer

Confirms that the requester knows that they will be charged for the request. Bucket owners need not specify this parameter in their requests. If either the source or destination S3 bucket has Requester Pays enabled, the requester will pay for corresponding charges to copy the object. For information about downloading objects from Requester Pays buckets, see Downloading Objects in Requester Pays Buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-server-side-encryption-customer-algorithm

Specifies the algorithm to use when encrypting the object (for example, AES256).

> **Note**
>
> This functionality is not supported when the destination bucket is a directory bucket.

x-amz-server-side-encryption-customer-key

Specifies the customer-provided encryption key for Amazon S3 to use in encrypting data. This value is used to store the object and then it is discarded; Amazon S3 does not store the encryption key. The key must be appropriate for use with the algorithm specified in the `x-amz-server-side-encryption-customer-algorithm` header. This must be the same encryption key specified in the initiate multipart upload request.

> **Note**
>
> This functionality is not supported when the destination bucket is a directory bucket.

x-amz-server-side-encryption-customer-key-MD5

Specifies the 128-bit MD5 digest of the encryption key according to RFC 1321. Amazon S3 uses this header for a message integrity check to ensure that the encryption key was transmitted without error.

> **Note**
>
> This functionality is not supported when the destination bucket is a directory bucket.

x-amz-source-expected-bucket-owner

The account ID of the expected source bucket owner. If the account ID that you provide does not match the actual owner of the source bucket, the request fails with the HTTP status code `403 Forbidden` (access denied).

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
x-amz-copy-source-version-id: CopySourceVersionId
x-amz-server-side-encryption: ServerSideEncryption
x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-server-side-encryption-aws-kms-key-id: SSEKMSKeyId
x-amz-server-side-encryption-bucket-key-enabled: BucketKeyEnabled
x-amz-request-charged: RequestCharged
<?xml version="1.0" encoding="UTF-8"?>
<CopyPartResult>
   <ETag>string</ETag>
   <LastModified>timestamp</LastModified>
   <ChecksumCRC32>string</ChecksumCRC32>
   <ChecksumCRC32C>string</ChecksumCRC32C>
   <ChecksumCRC64NVME>string</ChecksumCRC64NVME>
   <ChecksumSHA1>string</ChecksumSHA1>
   <ChecksumSHA256>string</ChecksumSHA256>
</CopyPartResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

x-amz-copy-source-version-id

The version of the source object that was copied, if you have enabled versioning on the source bucket.

> **Note**
>
> This functionality is not supported when the source object is in a directory bucket.

x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-server-side-encryption

The server-side encryption algorithm used when you store this object in Amazon S3 or Amazon FSx.

> **Note**
>
> When accessing data stored in Amazon FSx file systems using S3 access points, the only valid server side encryption option is `aws:fsx`.

Valid Values: `AES256` | `aws:fsx` | `aws:kms` | `aws:kms:dsse`

x-amz-server-side-encryption-aws-kms-key-id

If present, indicates the ID of the KMS key that was used for object encryption.

x-amz-server-side-encryption-bucket-key-enabled

Indicates whether the multipart upload uses an S3 Bucket Key for server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS).

x-amz-server-side-encryption-customer-algorithm

If server-side encryption with a customer-provided encryption key was requested, the response will include this header to confirm the encryption algorithm that's used.

> **Note**
>
> This functionality is not supported for directory buckets.

x-amz-server-side-encryption-customer-key-MD5

If server-side encryption with a customer-provided encryption key was requested, the response will include this header to provide the round-trip message integrity verification of the customer-provided encryption key.

> **Note**
>
> This functionality is not supported for directory buckets.

The following data is returned in XML format by the service.

CopyPartResult

Root level tag for the CopyPartResult parameters.

Required: Yes

ChecksumCRC32

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 32-bit `CRC32` checksum of the part. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

ChecksumCRC32C

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 32-bit `CRC32C` checksum of the part. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

ChecksumCRC64NVME

The Base64 encoded, 64-bit `CRC64NVME` checksum of the part. This checksum is present if the multipart upload request was created with the `CRC64NVME` checksum algorithm to the uploaded object). For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

ChecksumSHA1

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 160-bit SHA1 checksum of the part. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

ChecksumSHA256

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 256-bit SHA256 checksum of the part. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

ETag

Entity tag of the object.

Type: String

LastModified

Date and time at which the object was uploaded.

Type: Timestamp

Examples

Sample Request for general purpose buckets

The following PUT request uploads a part (part number 2) in a multipart upload. The request specifies a byte range from an existing object as the source of this upload. The request includes the upload ID that you get in response to your Initiate Multipart Upload request.

```
PUT /newobject?
partNumber=2&uploadId=VCVsb2FkIElEIGZvciBlbZZpbmcncyBteS1tb3ZpZS5tMnRzIHVwbG9hZR
 HTTP/1.1
Host: target-bucket.s3.<Region>.amazonaws.com
```

```
Date:  Mon, 11 Apr 2011 20:34:56 GMT
x-amz-copy-source: /source-bucket/sourceobject
x-amz-copy-source-range:bytes=500-6291456
Authorization: authorization string
```

Sample Response for general purpose buckets

The response includes the ETag value. You need to retain this value to use when you send the Complete Multipart Upload request.

```
HTTP/1.1 200 OK
x-amz-id-2: Vvag1LuByRx9e6j5Onimru9pO4ZVKnJ2Qz7/C1NPcfTWAtRPfTaOFg==
x-amz-request-id: 656c76696e6727732072657175657374
Date:  Mon, 11 Apr 2011 20:34:56 GMT
Server: AmazonS3

<CopyPartResult>
   <LastModified>2011-04-11T20:34:56.000Z</LastModified>
   <ETag>"9b2cf535f27731c974343645a3985328"</ETag>
</CopyPartResult>
```

Sample Request for general purpose buckets

The following PUT request uploads a part (part number 2) in a multipart upload. The request does not specify the optional byte range header, but requests the entire source object copy as part 2. The request includes the upload ID that you got in response to your Initiate Multipart Upload request.

```
PUT /newobject?
partNumber=2&uploadId=VCVsb2FkIElEIGZvciBlbZZpbmcncyBteS1tb3ZpZS5tMnRzIHVwbG9hZR
 HTTP/1.1
Host: target-bucket.s3.<Region>.amazonaws.com
Date:  Mon, 11 Apr 2011 20:34:56 GMT
x-amz-copy-source: /source-bucket/sourceobject?versionId=3/L4kqtJlcpXroDTDmJ
+rmSpXd3dIbrHY+MTRCxf3vjVBH40Nr8X8gdRQBpUMLUo
Authorization: authorization string
```

Sample Response for general purpose buckets

The response includes the ETag value. You need to retain this value to use when you send the Complete Multipart Upload request.

```
HTTP/1.1 200 OK
x-amz-id-2: Vvag1LuByRx9e6j5Onimru9pO4ZVKnJ2Qz7/C1NPcfTWAtRPfTaOFg==
x-amz-request-id: 656c76696e6727732072657175657374
x-amz-copy-source-version-id: 3/L4kqtJlcpXroDTDmJ+rmSpXd3dIbrHY
+MTRCxf3vjVBH40Nr8X8gdRQBpUMLUo
Date:  Mon, 11 Apr 2011 20:34:56 GMT
Server: AmazonS3

<CopyPartResult>
   <LastModified>2011-04-11T20:34:56.000Z</LastModified>
   <ETag>"9b2cf535f27731c974343645a3985328"</ETag>
</CopyPartResult>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

WriteGetObjectResponse

Service: Amazon S3

> **Note**
>
> This operation is not supported for directory buckets.

Passes transformed objects to a `GetObject` operation when using Object Lambda access points. For information about Object Lambda access points, see Transforming objects with Object Lambda access points in the *Amazon S3 User Guide*.

This operation supports metadata that can be returned by GetObject, in addition to `RequestRoute`, `RequestToken`, `StatusCode`, `ErrorCode`, and `ErrorMessage`. The `GetObject` response metadata is supported so that the `WriteGetObjectResponse` caller, typically an AWS Lambda function, can provide the same metadata when it internally invokes `GetObject`. When `WriteGetObjectResponse` is called by a customer-owned Lambda function, the metadata returned to the end user `GetObject` call might differ from what Amazon S3 would normally return.

You can include any number of metadata headers. When including a metadata header, it should be prefaced with `x-amz-meta`. For example, `x-amz-meta-my-custom-header: MyCustomValue`. The primary use case for this is to forward `GetObject` metadata.

AWS provides some prebuilt Lambda functions that you can use with S3 Object Lambda to detect and redact personally identifiable information (PII) and decompress S3 objects. These Lambda functions are available in the AWS Serverless Application Repository, and can be selected through the AWS Management Console when you create your Object Lambda access point.

Example 1: PII Access Control - This Lambda function uses Amazon Comprehend, a natural language processing (NLP) service using machine learning to find insights and relationships in text. It automatically detects personally identifiable information (PII) such as names, addresses, dates, credit card numbers, and social security numbers from documents in your Amazon S3 bucket.

Example 2: PII Redaction - This Lambda function uses Amazon Comprehend, a natural language processing (NLP) service using machine learning to find insights and relationships in text. It automatically redacts personally identifiable information (PII) such as names, addresses, dates, credit card numbers, and social security numbers from documents in your Amazon S3 bucket.

Example 3: Decompression - The Lambda function S3ObjectLambdaDecompression, is equipped to decompress objects stored in S3 in one of six compressed file formats including bzip2, gzip, snappy, zlib, zstandard and ZIP.

For information on how to view and use these functions, see Using AWS built Lambda functions in the *Amazon S3 User Guide*.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /WriteGetObjectResponse HTTP/1.1
Host: s3.amazonaws.com
x-amz-request-route: RequestRoute
x-amz-request-token: RequestToken
x-amz-fwd-status: StatusCode
x-amz-fwd-error-code: ErrorCode
x-amz-fwd-error-message: ErrorMessage
x-amz-fwd-header-accept-ranges: AcceptRanges
x-amz-fwd-header-Cache-Control: CacheControl
x-amz-fwd-header-Content-Disposition: ContentDisposition
x-amz-fwd-header-Content-Encoding: ContentEncoding
x-amz-fwd-header-Content-Language: ContentLanguage
Content-Length: ContentLength
x-amz-fwd-header-Content-Range: ContentRange
x-amz-fwd-header-Content-Type: ContentType
x-amz-fwd-header-x-amz-checksum-crc32: ChecksumCRC32
x-amz-fwd-header-x-amz-checksum-crc32c: ChecksumCRC32C
x-amz-fwd-header-x-amz-checksum-crc64nvme: ChecksumCRC64NVME
x-amz-fwd-header-x-amz-checksum-sha1: ChecksumSHA1
x-amz-fwd-header-x-amz-checksum-sha256: ChecksumSHA256
x-amz-fwd-header-x-amz-delete-marker: DeleteMarker
x-amz-fwd-header-ETag: ETag
x-amz-fwd-header-Expires: Expires
x-amz-fwd-header-x-amz-expiration: Expiration
x-amz-fwd-header-Last-Modified: LastModified
x-amz-fwd-header-x-amz-missing-meta: MissingMeta
```

```
x-amz-fwd-header-x-amz-object-lock-mode: ObjectLockMode
x-amz-fwd-header-x-amz-object-lock-legal-hold: ObjectLockLegalHoldStatus
x-amz-fwd-header-x-amz-object-lock-retain-until-date: ObjectLockRetainUntilDate
x-amz-fwd-header-x-amz-mp-parts-count: PartsCount
x-amz-fwd-header-x-amz-replication-status: ReplicationStatus
x-amz-fwd-header-x-amz-request-charged: RequestCharged
x-amz-fwd-header-x-amz-restore: Restore
x-amz-fwd-header-x-amz-server-side-encryption: ServerSideEncryption
x-amz-fwd-header-x-amz-server-side-encryption-customer-algorithm: SSECustomerAlgorithm
x-amz-fwd-header-x-amz-server-side-encryption-aws-kms-key-id: SSEKMSKeyId
x-amz-fwd-header-x-amz-server-side-encryption-customer-key-MD5: SSECustomerKeyMD5
x-amz-fwd-header-x-amz-storage-class: StorageClass
x-amz-fwd-header-x-amz-tagging-count: TagCount
x-amz-fwd-header-x-amz-version-id: VersionId
x-amz-fwd-header-x-amz-server-side-encryption-bucket-key-enabled: BucketKeyEnabled

Body
```

URI Request Parameters

The request uses the following URI parameters.

Content-Length

The size of the content body in bytes.

x-amz-fwd-error-code

A string that uniquely identifies an error condition. Returned in the <Code> tag of the error XML response for a corresponding `GetObject` call. Cannot be used with a successful `StatusCode` header or when the transformed object is provided in the body. All error codes from S3 are sentence-cased. The regular expression (regex) value is `"^[A-Z][a-zA-Z]+$"`.

x-amz-fwd-error-message

Contains a generic description of the error condition. Returned in the <Message> tag of the error XML response for a corresponding `GetObject` call. Cannot be used with a successful `StatusCode` header or when the transformed object is provided in body.

x-amz-fwd-header-accept-ranges

Indicates that a range of bytes was specified.

x-amz-fwd-header-Cache-Control

Specifies caching behavior along the request/reply chain.

x-amz-fwd-header-Content-Disposition

Specifies presentational information for the object.

x-amz-fwd-header-Content-Encoding

Specifies what content encodings have been applied to the object and thus what decoding mechanisms must be applied to obtain the media-type referenced by the Content-Type header field.

x-amz-fwd-header-Content-Language

The language the content is in.

x-amz-fwd-header-Content-Range

The portion of the object returned in the response.

x-amz-fwd-header-Content-Type

A standard MIME type describing the format of the object data.

x-amz-fwd-header-ETag

An opaque identifier assigned by a web server to a specific version of a resource found at a URL.

x-amz-fwd-header-Expires

The date and time at which the object is no longer cacheable.

x-amz-fwd-header-Last-Modified

The date and time that the object was last modified.

x-amz-fwd-header-x-amz-checksum-crc32

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This specifies the Base64 encoded, 32-bit `CRC32` checksum of the object returned by the Object Lambda function. This may not match the checksum for the object stored in Amazon S3. Amazon S3 will perform validation of the checksum values only when the original `GetObject` request required checksum validation. For more information about checksums, see Checking object integrity in the *Amazon S3 User Guide*.

Only one checksum header can be specified at a time. If you supply multiple checksum headers, this request will fail.

x-amz-fwd-header-x-amz-checksum-crc32c

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This specifies the Base64 encoded, 32-bit `CRC32C` checksum of the object returned by the Object Lambda function. This may not match the checksum for the object stored in Amazon S3. Amazon S3 will perform validation of the checksum values only when the original `GetObject` request required checksum validation. For more information about checksums, see Checking object integrity in the *Amazon S3 User Guide*.

Only one checksum header can be specified at a time. If you supply multiple checksum headers, this request will fail.

x-amz-fwd-header-x-amz-checksum-crc64nvme

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 64-bit `CRC64NVME` checksum of the part. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

x-amz-fwd-header-x-amz-checksum-sha1

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This specifies the Base64 encoded, 160-bit `SHA1` digest of the object returned by the Object Lambda function. This may not match the checksum for the object stored in Amazon S3. Amazon S3 will perform validation of the checksum values only when the original `GetObject` request required checksum validation. For more information about checksums, see Checking object integrity in the *Amazon S3 User Guide*.

Only one checksum header can be specified at a time. If you supply multiple checksum headers, this request will fail.

x-amz-fwd-header-x-amz-checksum-sha256

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This specifies the Base64 encoded, 256-bit `SHA256` digest of the object returned by the Object Lambda function. This may not match the checksum for the object stored in Amazon S3. Amazon S3 will perform validation of the checksum values only when the original `GetObject` request required checksum validation. For more information about checksums, see Checking object integrity in the *Amazon S3 User Guide*.

Only one checksum header can be specified at a time. If you supply multiple checksum headers, this request will fail.

x-amz-fwd-header-x-amz-delete-marker

Specifies whether an object stored in Amazon S3 is (`true`) or is not (`false`) a delete marker. To learn more about delete markers, see Working with delete markers.

x-amz-fwd-header-x-amz-expiration

If the object expiration is configured (see PUT Bucket lifecycle), the response includes this header. It includes the `expiry-date` and `rule-id` key-value pairs that provide the object expiration information. The value of the `rule-id` is URL-encoded.

x-amz-fwd-header-x-amz-missing-meta

Set to the number of metadata entries not returned in `x-amz-meta` headers. This can happen if you create metadata using an API like SOAP that supports more flexible metadata than the REST API. For example, using SOAP, you can create metadata whose values are not legal HTTP headers.

x-amz-fwd-header-x-amz-mp-parts-count

The count of parts this object has.

x-amz-fwd-header-x-amz-object-lock-legal-hold

Indicates whether an object stored in Amazon S3 has an active legal hold.

Valid Values: `ON | OFF`

x-amz-fwd-header-x-amz-object-lock-mode

Indicates whether an object stored in Amazon S3 has Object Lock enabled. For more information about S3 Object Lock, see Object Lock.

Valid Values: `GOVERNANCE | COMPLIANCE`

x-amz-fwd-header-x-amz-object-lock-retain-until-date

The date and time when Object Lock is configured to expire.

x-amz-fwd-header-x-amz-replication-status

Indicates if request involves bucket that is either a source or destination in a Replication rule. For more information about S3 Replication, see Replication.

Valid Values: `COMPLETE | PENDING | FAILED | REPLICA | COMPLETED`

x-amz-fwd-header-x-amz-request-charged

If present, indicates that the requester was successfully charged for the request. For more information, see Using Requester Pays buckets for storage transfers and usage in the *Amazon Simple Storage Service user guide*.

> **Note**
>
> This functionality is not supported for directory buckets.

Valid Values: `requester`

x-amz-fwd-header-x-amz-restore

Provides information about object restoration operation and expiration time of the restored object copy.

x-amz-fwd-header-x-amz-server-side-encryption

The server-side encryption algorithm used when storing requested object in Amazon S3 or Amazon FSx.

> **Note**
>
> When accessing data stored in Amazon FSx file systems using S3 access points, the only valid server side encryption option is `aws:fsx`.

Valid Values: `AES256` | `aws:fsx` | `aws:kms` | `aws:kms:dsse`

x-amz-fwd-header-x-amz-server-side-encryption-aws-kms-key-id

If present, specifies the ID (Key ID, Key ARN, or Key Alias) of the AWS Key Management Service (AWS KMS) symmetric encryption customer managed key that was used for stored in Amazon S3 object.

x-amz-fwd-header-x-amz-server-side-encryption-bucket-key-enabled

Indicates whether the object stored in Amazon S3 uses an S3 bucket key for server-side encryption with AWS KMS (SSE-KMS).

x-amz-fwd-header-x-amz-server-side-encryption-customer-algorithm

Encryption algorithm used if server-side encryption with a customer-provided encryption key was specified for object stored in Amazon S3.

x-amz-fwd-header-x-amz-server-side-encryption-customer-key-MD5

128-bit MD5 digest of customer-provided encryption key used in Amazon S3 to encrypt data stored in S3. For more information, see Protecting data using server-side encryption with customer-provided encryption keys (SSE-C).

x-amz-fwd-header-x-amz-storage-class

Provides storage class information of the object. Amazon S3 returns this header for all objects except for S3 Standard storage class objects.

For more information, see Storage Classes.

Valid Values: `STANDARD | REDUCED_REDUNDANCY | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | GLACIER | DEEP_ARCHIVE | OUTPOSTS | GLACIER_IR | SNOW | EXPRESS_ONEZONE | FSX_OPENZFS`

x-amz-fwd-header-x-amz-tagging-count

The number of tags, if any, on the object.

x-amz-fwd-header-x-amz-version-id

An ID used to reference a specific version of the object.

x-amz-fwd-status

The integer status code for an HTTP response of a corresponding `GetObject` request. The following is a list of status codes.

- `200 - OK`
- `206 - Partial Content`
- `304 - Not Modified`
- `400 - Bad Request`
- `401 - Unauthorized`
- `403 - Forbidden`
- `404 - Not Found`

- `405 - Method Not Allowed`
- `409 - Conflict`
- `411 - Length Required`
- `412 - Precondition Failed`
- `416 - Range Not Satisfiable`
- `500 - Internal Server Error`
- `503 - Service Unavailable`

x-amz-request-route

Route prefix to the HTTP URL generated.

Required: Yes

x-amz-request-token

A single use encrypted token that maps `WriteGetObjectResponse` to the end user `GetObject` request.

Required: Yes

Request Body

The request accepts the following binary data.

Body

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample Response

The following illustrates a sample response.

```
HTTP/1.1 200 OK
x-amz-request-id: 19684529-d1aa-413e-9382-9ff490962d12
Date: Wed, 24 Feb 2021 10:57:53 GMT
Content-Length: 0
```

Sample Request

The following illustrates a sample request from a POST.

```
POST /WriteGetObjectResponse HTTP/1.1
Host: <RequestRoute>.s3-object-lambda.<Region>.amazonaws.com
x-amz-request-token: <RequestToken>
Authorization: authorization string
Content-Type: text/plain
Content-Length: 16
[16 bytes of object data]
```

Sample Error Response

The following response returns a `ValidationError` error because the RequestToken could not be decrypted.

```
<?xml version="1.0" encoding="UTF-8"?>
<Error>
<Code>ValidationError</Code>
<Message>Invalid token</Message>
<RequestId>fcd2cd5e-def0-4001-8030-1fd1d61d2c9d</RequestId>
</Error>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++

- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

Amazon S3 Control

The following actions are supported by Amazon S3 Control:

- AssociateAccessGrantsIdentityCenter
- CreateAccessGrant
- CreateAccessGrantsInstance
- CreateAccessGrantsLocation
- CreateAccessPoint
- CreateAccessPointForObjectLambda
- CreateBucket
- CreateJob
- CreateMultiRegionAccessPoint
- CreateStorageLensGroup
- DeleteAccessGrant
- DeleteAccessGrantsInstance
- DeleteAccessGrantsInstanceResourcePolicy
- DeleteAccessGrantsLocation
- DeleteAccessPoint
- DeleteAccessPointForObjectLambda
- DeleteAccessPointPolicy
- DeleteAccessPointPolicyForObjectLambda
- DeleteAccessPointScope
- DeleteBucket

- DeleteBucketLifecycleConfiguration
- DeleteBucketPolicy
- DeleteBucketReplication
- DeleteBucketTagging
- DeleteJobTagging
- DeleteMultiRegionAccessPoint
- DeletePublicAccessBlock
- DeleteStorageLensConfiguration
- DeleteStorageLensConfigurationTagging
- DeleteStorageLensGroup
- DescribeJob
- DescribeMultiRegionAccessPointOperation
- DissociateAccessGrantsIdentityCenter
- GetAccessGrant
- GetAccessGrantsInstance
- GetAccessGrantsInstanceForPrefix
- GetAccessGrantsInstanceResourcePolicy
- GetAccessGrantsLocation
- GetAccessPoint
- GetAccessPointConfigurationForObjectLambda
- GetAccessPointForObjectLambda
- GetAccessPointPolicy
- GetAccessPointPolicyForObjectLambda
- GetAccessPointPolicyStatus
- GetAccessPointPolicyStatusForObjectLambda
- GetAccessPointScope
- GetBucket
- GetBucketLifecycleConfiguration
- GetBucketPolicy
- GetBucketReplication

- GetBucketTagging
- GetBucketVersioning
- GetDataAccess
- GetJobTagging
- GetMultiRegionAccessPoint
- GetMultiRegionAccessPointPolicy
- GetMultiRegionAccessPointPolicyStatus
- GetMultiRegionAccessPointRoutes
- GetPublicAccessBlock
- GetStorageLensConfiguration
- GetStorageLensConfigurationTagging
- GetStorageLensGroup
- ListAccessGrants
- ListAccessGrantsInstances
- ListAccessGrantsLocations
- ListAccessPoints
- ListAccessPointsForDirectoryBuckets
- ListAccessPointsForObjectLambda
- ListCallerAccessGrants
- ListJobs
- ListMultiRegionAccessPoints
- ListRegionalBuckets
- ListStorageLensConfigurations
- ListStorageLensGroups
- ListTagsForResource
- PutAccessGrantsInstanceResourcePolicy
- PutAccessPointConfigurationForObjectLambda
- PutAccessPointPolicy
- PutAccessPointPolicyForObjectLambda
- PutAccessPointScope

- PutBucketLifecycleConfiguration
- PutBucketPolicy
- PutBucketReplication
- PutBucketTagging
- PutBucketVersioning
- PutJobTagging
- PutMultiRegionAccessPointPolicy
- PutPublicAccessBlock
- PutStorageLensConfiguration
- PutStorageLensConfigurationTagging
- SubmitMultiRegionAccessPointRoutes
- TagResource
- UntagResource
- UpdateAccessGrantsLocation
- UpdateJobPriority
- UpdateJobStatus
- UpdateStorageLensGroup

AssociateAccessGrantsIdentityCenter

Service: Amazon S3 Control

Associate your S3 Access Grants instance with an AWS IAM Identity Center instance. Use this action if you want to create access grants for users or groups from your corporate identity directory. First, you must add your corporate identity directory to AWS IAM Identity Center. Then, you can associate this IAM Identity Center instance with your S3 Access Grants instance.

Permissions

You must have the `s3:AssociateAccessGrantsIdentityCenter` permission to use this operation.

Additional Permissions

You must also have the following permissions: `sso:CreateApplication`, `sso:PutApplicationGrant`, and `sso:PutApplicationAuthenticationMethod`.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /v20180820/accessgrantsinstance/identitycenter HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<AssociateAccessGrantsIdentityCenterRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
   <IdentityCenterArn>string</IdentityCenterArn>
</AssociateAccessGrantsIdentityCenterRequest>
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

AssociateAccessGrantsIdentityCenterRequest

Root level tag for the AssociateAccessGrantsIdentityCenterRequest parameters.

Required: Yes

IdentityCenterArn

The Amazon Resource Name (ARN) of the AWS IAM Identity Center instance that you are associating with your S3 Access Grants instance. An IAM Identity Center instance is your corporate identity directory that you added to the IAM Identity Center. You can use the ListInstances API operation to retrieve a list of your Identity Center instances and their ARNs.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::(\d{12}){0,1}:instance/.*$`

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateAccessGrant

Service: Amazon S3 Control

Creates an access grant that gives a grantee access to your S3 data. The grantee can be an IAM user or role or a directory user, or group. Before you can create a grant, you must have an S3 Access Grants instance in the same Region as the S3 data. You can create an S3 Access Grants instance using the CreateAccessGrantsInstance. You must also have registered at least one S3 data location in your S3 Access Grants instance using CreateAccessGrantsLocation.

Permissions

You must have the `s3:CreateAccessGrant` permission to use this operation.

Additional Permissions

For any directory identity - `sso:DescribeInstance` and `sso:DescribeApplication`

For directory users - `identitystore:DescribeUser`

For directory groups - `identitystore:DescribeGroup`

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /v20180820/accessgrantsinstance/grant HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<CreateAccessGrantRequest xmlns="http://awss3control.amazonaws.com/doc/2018-08-20/">
   <AccessGrantsLocationId>string</AccessGrantsLocationId>
   <AccessGrantsLocationConfiguration>
      <S3SubPrefix>string</S3SubPrefix>
   </AccessGrantsLocationConfiguration>
   <Grantee>
      <GranteeIdentifier>string</GranteeIdentifier>
```

```
        <GranteeType>string</GranteeType>
    </Grantee>
    <Permission>string</Permission>
    <ApplicationArn>string</ApplicationArn>
    <S3PrefixType>string</S3PrefixType>
    <Tags>
        <Tag>
            <Key>string</Key>
            <Value>string</Value>
        </Tag>
    </Tags>
</CreateAccessGrantRequest>
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

CreateAccessGrantRequest

Root level tag for the CreateAccessGrantRequest parameters.

Required: Yes

AccessGrantsLocationConfiguration

The configuration options of the grant location. The grant location is the S3 path to the data to which you are granting access. It contains the `S3SubPrefix` field. The grant scope is the result of appending the subprefix to the location scope of the registered location.

Type: AccessGrantsLocationConfiguration data type

Required: No

AccessGrantsLocationId

The ID of the registered location to which you are granting access. S3 Access Grants assigns this ID when you register the location. S3 Access Grants assigns the ID `default` to the default location `s3://` and assigns an auto-generated ID to other locations that you register.

If you are passing the `default` location, you cannot create an access grant for the entire default location. You must also specify a bucket or a bucket and prefix in the `Subprefix` field.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

Required: Yes

ApplicationArn

The Amazon Resource Name (ARN) of an AWS IAM Identity Center application associated with your Identity Center instance. If an application ARN is included in the request to create an access grant, the grantee can only access the S3 data through this application.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::\d{12}:application/.*$`

Required: No

Grantee

The user, group, or role to which you are granting access. You can grant access to an IAM user or role. If you have added your corporate directory to AWS IAM Identity Center and associated your Identity Center instance with your S3 Access Grants instance, the grantee can also be a corporate directory user or group.

Type: Grantee data type

Required: Yes

Permission

The type of access that you are granting to your S3 data, which can be set to one of the following values:

- `READ` – Grant read-only access to the S3 data.
- `WRITE` – Grant write-only access to the S3 data.
- `READWRITE` – Grant both read and write access to the S3 data.

Type: String

Valid Values: `READ | WRITE | READWRITE`

Required: Yes

S3PrefixType

The type of `S3SubPrefix`. The only possible value is `Object`. Pass this value if the access grant scope is an object. Do not pass this value if the access grant scope is a bucket or a bucket and a prefix.

Type: String

Valid Values: `Object`

Required: No

Tags

The AWS resource tags that you are adding to the access grant. Each tag is a label consisting of a user-defined key and value. Tags can help you manage, identify, organize, search for, and filter resources.

Type: Array of Tag data types

Array Members: Minimum number of 0 items. Maximum number of 50 items.

Required: No

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
```

```
<CreateAccessGrantResult>
   <CreatedAt>timestamp</CreatedAt>
   <AccessGrantId>string</AccessGrantId>
   <AccessGrantArn>string</AccessGrantArn>
   <Grantee>
      <GranteeIdentifier>string</GranteeIdentifier>
      <GranteeType>string</GranteeType>
   </Grantee>
   <AccessGrantsLocationId>string</AccessGrantsLocationId>
   <AccessGrantsLocationConfiguration>
      <S3SubPrefix>string</S3SubPrefix>
   </AccessGrantsLocationConfiguration>
   <Permission>string</Permission>
   <ApplicationArn>string</ApplicationArn>
   <GrantScope>string</GrantScope>
</CreateAccessGrantResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

CreateAccessGrantResult

Root level tag for the CreateAccessGrantResult parameters.

Required: Yes

AccessGrantArn

The Amazon Resource Name (ARN) of the access grant.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:access\-grants\/grant/[a-zA-Z0-9\-]+`

AccessGrantId

The ID of the access grant. S3 Access Grants auto-generates this ID when you create the access grant.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

AccessGrantsLocationConfiguration

The configuration options of the grant location. The grant location is the S3 path to the data to which you are granting access.

Type: AccessGrantsLocationConfiguration data type

AccessGrantsLocationId

The ID of the registered location to which you are granting access. S3 Access Grants assigns this ID when you register the location. S3 Access Grants assigns the ID `default` to the default location `s3://` and assigns an auto-generated ID to other locations that you register.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

ApplicationArn

The Amazon Resource Name (ARN) of an AWS IAM Identity Center application associated with your Identity Center instance. If the grant includes an application ARN, the grantee can only access the S3 data through this application.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::\d{12}:application/.*$`

CreatedAt

The date and time when you created the access grant.

Type: Timestamp

Grantee

The user, group, or role to which you are granting access. You can grant access to an IAM user or role. If you have added your corporate directory to AWS IAM Identity Center and associated

your Identity Center instance with your S3 Access Grants instance, the grantee can also be a corporate directory user or group.

Type: Grantee data type

GrantScope

The S3 path of the data to which you are granting access. It is the result of appending the `Subprefix` to the location scope.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `^.+$`

Permission

The type of access that you are granting to your S3 data, which can be set to one of the following values:

- `READ` – Grant read-only access to the S3 data.
- `WRITE` – Grant write-only access to the S3 data.
- `READWRITE` – Grant both read and write access to the S3 data.

Type: String

Valid Values: `READ | WRITE | READWRITE`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin

- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateAccessGrantsInstance

Service: Amazon S3 Control

Creates an S3 Access Grants instance, which serves as a logical grouping for access grants. You can create one S3 Access Grants instance per Region per account.

Permissions

You must have the `s3:CreateAccessGrantsInstance` permission to use this operation.

Additional Permissions

To associate an IAM Identity Center instance with your S3 Access Grants instance, you must also have the `sso:DescribeInstance`, `sso:CreateApplication`, `sso:PutApplicationGrant`, and `sso:PutApplicationAuthenticationMethod` permissions.

Important

You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /v20180820/accessgrantsinstance HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<CreateAccessGrantsInstanceRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
   <IdentityCenterArn>string</IdentityCenterArn>
   <Tags>
      <Tag>
         <Key>string</Key>
         <Value>string</Value>
      </Tag>
   </Tags>
</CreateAccessGrantsInstanceRequest>
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

CreateAccessGrantsInstanceRequest

Root level tag for the CreateAccessGrantsInstanceRequest parameters.

Required: Yes

IdentityCenterArn

If you would like to associate your S3 Access Grants instance with an AWS IAM Identity Center instance, use this field to pass the Amazon Resource Name (ARN) of the AWS IAM Identity Center instance that you are associating with your S3 Access Grants instance. An IAM Identity Center instance is your corporate identity directory that you added to the IAM Identity Center. You can use the ListInstances API operation to retrieve a list of your Identity Center instances and their ARNs.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::(\d{12}){0,1}:instance/.*$`

Required: No

Tags

The AWS resource tags that you are adding to the S3 Access Grants instance. Each tag is a label consisting of a user-defined key and value. Tags can help you manage, identify, organize, search for, and filter resources.

Type: Array of Tag data types

Array Members: Minimum number of 0 items. Maximum number of 50 items.

Required: No

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<CreateAccessGrantsInstanceResult>
   <CreatedAt>timestamp</CreatedAt>
   <AccessGrantsInstanceId>string</AccessGrantsInstanceId>
   <AccessGrantsInstanceArn>string</AccessGrantsInstanceArn>
   <IdentityCenterArn>string</IdentityCenterArn>
   <IdentityCenterInstanceArn>string</IdentityCenterInstanceArn>
   <IdentityCenterApplicationArn>string</IdentityCenterApplicationArn>
</CreateAccessGrantsInstanceResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

CreateAccessGrantsInstanceResult

Root level tag for the CreateAccessGrantsInstanceResult parameters.

Required: Yes

AccessGrantsInstanceArn

The Amazon Resource Name (ARN) of the AWS IAM Identity Center instance that you are associating with your S3 Access Grants instance. An IAM Identity Center instance is your corporate identity directory that you added to the IAM Identity Center. You can use the ListInstances API operation to retrieve a list of your Identity Center instances and their ARNs.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:access\-grants\/[a-zA-Z0-9\-]+`

AccessGrantsInstanceId

The ID of the S3 Access Grants instance. The ID is `default`. You can have one S3 Access Grants instance per Region per account.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

CreatedAt

The date and time when you created the S3 Access Grants instance.

Type: Timestamp

IdentityCenterApplicationArn

If you associated your S3 Access Grants instance with an AWS IAM Identity Center instance, this field returns the Amazon Resource Name (ARN) of the IAM Identity Center instance application; a subresource of the original Identity Center instance. S3 Access Grants creates this Identity Center application for the specific S3 Access Grants instance.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::\d{12}:application/.*$`

IdentityCenterArn

This parameter has been deprecated.

If you associated your S3 Access Grants instance with an AWS IAM Identity Center instance, this field returns the Amazon Resource Name (ARN) of the IAM Identity Center instance application; a subresource of the original Identity Center instance. S3 Access Grants creates this Identity Center application for the specific S3 Access Grants instance.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::(\d{12}){0,1}:instance/.*$`

IdentityCenterInstanceArn

The Amazon Resource Name (ARN) of the AWS IAM Identity Center instance that you are associating with your S3 Access Grants instance. An IAM Identity Center instance is your corporate identity directory that you added to the IAM Identity Center. You can use the ListInstances API operation to retrieve a list of your Identity Center instances and their ARNs.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::(\d{12}){0,1}:instance/.*$`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateAccessGrantsLocation

Service: Amazon S3 Control

The S3 data location that you would like to register in your S3 Access Grants instance. Your S3 data must be in the same Region as your S3 Access Grants instance. The location can be one of the following:

- The default S3 location `s3://`
- A bucket - `S3://<bucket-name>`
- A bucket and prefix - `S3://<bucket-name>/<prefix>`

When you register a location, you must include the IAM role that has permission to manage the S3 location that you are registering. Give S3 Access Grants permission to assume this role using a policy. S3 Access Grants assumes this role to manage access to the location and to vend temporary credentials to grantees or client applications.

Permissions

You must have the `s3:CreateAccessGrantsLocation` permission to use this operation.

Additional Permissions

You must also have the following permission for the specified IAM role: `iam:PassRole`

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /v20180820/accessgrantsinstance/location HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<CreateAccessGrantsLocationRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
```

```
    <LocationScope>string</LocationScope>
    <IAMRoleArn>string</IAMRoleArn>
    <Tags>
       <Tag>
          <Key>string</Key>
          <Value>string</Value>
       </Tag>
    </Tags>
</CreateAccessGrantsLocationRequest>
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

CreateAccessGrantsLocationRequest

Root level tag for the CreateAccessGrantsLocationRequest parameters.

Required: Yes

IAMRoleArn

The Amazon Resource Name (ARN) of the IAM role for the registered location. S3 Access Grants assumes this role to manage access to the registered location.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[^:]+:iam::\d{12}:role/.*`

Required: Yes

LocationScope

The S3 path to the location that you are registering. The location scope can be the default S3 location `s3://`, the S3 path to a bucket `s3://<bucket>`, or the S3 path to a bucket and prefix `s3://<bucket>/<prefix>`. A prefix in S3 is a string of characters at the beginning of an object key name used to organize the objects that you store in your S3 buckets. For example, object key names that start with the `engineering/` prefix or object key names that start with the `marketing/campaigns/` prefix.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `^.+$`

Required: Yes

Tags

The AWS resource tags that you are adding to the S3 Access Grants location. Each tag is a label consisting of a user-defined key and value. Tags can help you manage, identify, organize, search for, and filter resources.

Type: Array of Tag data types

Array Members: Minimum number of 0 items. Maximum number of 50 items.

Required: No

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<CreateAccessGrantsLocationResult>
   <CreatedAt>timestamp</CreatedAt>
   <AccessGrantsLocationId>string</AccessGrantsLocationId>
   <AccessGrantsLocationArn>string</AccessGrantsLocationArn>
   <LocationScope>string</LocationScope>
   <IAMRoleArn>string</IAMRoleArn>
</CreateAccessGrantsLocationResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

CreateAccessGrantsLocationResult

Root level tag for the CreateAccessGrantsLocationResult parameters.

Required: Yes

AccessGrantsLocationArn

The Amazon Resource Name (ARN) of the location you are registering.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:access\-grants\/location/[a-zA-Z0-9\-]+`

AccessGrantsLocationId

The ID of the registered location to which you are granting access. S3 Access Grants assigns this ID when you register the location. S3 Access Grants assigns the ID `default` to the default location `s3://` and assigns an auto-generated ID to other locations that you register.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

CreatedAt

The date and time when you registered the location.

Type: Timestamp

IAMRoleArn

The Amazon Resource Name (ARN) of the IAM role for the registered location. S3 Access Grants assumes this role to manage access to the registered location.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[^:]+:iam::\d{12}:role/.*`

LocationScope

The S3 URI path to the location that you are registering. The location scope can be the default S3 location `s3://`, the S3 path to a bucket, or the S3 path to a bucket and prefix. A prefix in S3 is a string of characters at the beginning of an object key name used to organize the objects that you store in your S3 buckets. For example, object key names that start with the `engineering/` prefix or object key names that start with the `marketing/campaigns/` prefix.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `^.+$`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateAccessPoint

Service: Amazon S3 Control

Creates an access point and associates it to a specified bucket. For more information, see Managing access to shared datasets with access points or Managing access to shared datasets in directory buckets with access points in the *Amazon S3 User Guide*.

To create an access point and attach it to a volume on an Amazon FSx file system, see CreateAndAttachS3AccessPoint in the *Amazon FSx API Reference*.

> **Note**
>
> S3 on Outposts only supports VPC-style access points.
> For more information, see Accessing Amazon S3 on Outposts using virtual private cloud (VPC) only access points in the *Amazon S3 User Guide*.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

The following actions are related to `CreateAccessPoint`:

- GetAccessPoint
- DeleteAccessPoint
- ListAccessPoints
- ListAccessPointsForDirectoryBuckets

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /v20180820/accesspoint/name HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<CreateAccessPointRequest xmlns="http://awss3control.amazonaws.com/doc/2018-08-20/">
   <Bucket>string</Bucket>
   <VpcConfiguration>
      <VpcId>string</VpcId>
   </VpcConfiguration>
   <PublicAccessBlockConfiguration>
      <BlockPublicAcls>boolean</BlockPublicAcls>
      <BlockPublicPolicy>boolean</BlockPublicPolicy>
      <IgnorePublicAcls>boolean</IgnorePublicAcls>
      <RestrictPublicBuckets>boolean</RestrictPublicBuckets>
   </PublicAccessBlockConfiguration>
   <BucketAccountId>string</BucketAccountId>
   <Scope>
      <Permissions>
         <Permission>string</Permission>
      </Permissions>
      <Prefixes>
         <Prefix>string</Prefix>
      </Prefixes>
   </Scope>
   <Tags>
      <Tag>
         <Key>string</Key>
         <Value>string</Value>
      </Tag>
   </Tags>
</CreateAccessPointRequest>
```

URI Request Parameters

The request uses the following URI parameters.

name

The name you want to assign to this access point.

For directory buckets, the access point name must consist of a base name that you provide and suffix that includes the `ZoneID` (AWS Availability Zone or Local Zone) of your bucket location, followed by `--xa-s3`. For more information, see Managing access to shared datasets in directory buckets with access points in the *Amazon S3 User Guide*.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID for the account that owns the specified access point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

CreateAccessPointRequest

Root level tag for the CreateAccessPointRequest parameters.

Required: Yes

Bucket

The name of the bucket that you want to associate this access point with.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the bucket accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/bucket/<my-bucket-name>`. For example, to access the bucket `reports` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/bucket/reports`. The value must be URL encoded.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

BucketAccountId

The AWS account ID associated with the S3 bucket associated with this access point.

For same account access point when your bucket and access point belong to the same account owner, the `BucketAccountId` is not required. For cross-account access point when your bucket and access point are not in the same account, the `BucketAccountId` is required.

Type: String

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: No

PublicAccessBlockConfiguration

The `PublicAccessBlock` configuration that you want to apply to the access point.

Type: PublicAccessBlockConfiguration data type

Required: No

Scope

For directory buckets, you can filter access control to specific prefixes, API operations, or a combination of both. For more information, see Managing access to shared datasets in directory buckets with access points in the *Amazon S3 User Guide*.

> **Note**
>
> Scope is only supported for access points attached to directory buckets.

Type: Scope data type

Required: No

Tags

An array of tags that you can apply to an access point. Tags are key-value pairs of metadata used to control access to your access points. For more information about tags, see Using tags with Amazon S3. For information about tagging access points, see Using tags for attribute-based access control (ABAC).

> **Note**
>
> - You must have the `s3:TagResource` permission to create an access point with tags for a general purpose bucket.
> - You must have the `s3express:TagResource` permission to create an access point with tags for a directory bucket.

Type: Array of Tag data types

Array Members: Minimum number of 0 items. Maximum number of 50 items.

Required: No

VpcConfiguration

If you include this field, Amazon S3 restricts access to this access point to requests from the specified virtual private cloud (VPC).

> **Note**
>
> This is required for creating an access point for Amazon S3 on Outposts buckets.

Type: VpcConfiguration data type

Required: No

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<CreateAccessPointResult>
```

```
    <AccessPointArn>string</AccessPointArn>
    <Alias>string</Alias>
</CreateAccessPointResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

CreateAccessPointResult

Root level tag for the CreateAccessPointResult parameters.

Required: Yes

AccessPointArn

The ARN of the access point.

> **Note**
> This is only supported by Amazon S3 on Outposts.

Type: String

Length Constraints: Minimum length of 4. Maximum length of 128.

Alias

The name or alias of the access point.

Type: String

Length Constraints: Maximum length of 63.

Pattern: `^[0-9a-z\\-]{63}`

Examples

Sample request for creating an access point for an Amazon S3 on Outposts bucket

This request creates an access point for S3 on Outposts bucket.

```
            PUT /v20180820/accesspoint/example-access-point HTTP/1.1
            Host:s3-outposts.<Region>.amazonaws.com
            x-amz-account-id: example-account-id
            x-amz-outpost-id: op-01ac5d28a6a232904
            <?xml version="1.0" encoding="UTF-8"?>
               <CreateAccessPointRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
                  <Bucket>example-outpost-bucket </Bucket>
               </CreateAccessPointRequest>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateAccessPointForObjectLambda

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Creates an Object Lambda Access Point. For more information, see Transforming objects with Object Lambda Access Points in the *Amazon S3 User Guide*.

The following actions are related to `CreateAccessPointForObjectLambda`:

- DeleteAccessPointForObjectLambda
- GetAccessPointForObjectLambda
- ListAccessPointsForObjectLambda

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /v20180820/accesspointforobjectlambda/name HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<CreateAccessPointForObjectLambdaRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
   <Configuration>
      <AllowedFeatures>
         <AllowedFeature>string</AllowedFeature>
      </AllowedFeatures>
      <CloudWatchMetricsEnabled>boolean</CloudWatchMetricsEnabled>
      <SupportingAccessPoint>string</SupportingAccessPoint>
      <TransformationConfigurations>
```

```
        <TransformationConfiguration>
           <Actions>
              <Action>string</Action>
           </Actions>
           <ContentTransformation>
              <AwsLambda>
                 <FunctionArn>string</FunctionArn>
                 <FunctionPayload>string</FunctionPayload>
              </AwsLambda>
           </ContentTransformation>
        </TransformationConfiguration>
     </TransformationConfigurations>
   </Configuration>
</CreateAccessPointForObjectLambdaRequest>
```

URI Request Parameters

The request uses the following URI parameters.

name

The name you want to assign to this Object Lambda Access Point.

Length Constraints: Minimum length of 3. Maximum length of 45.

Pattern: `^[a-z0-9]([a-z0-9\-]*[a-z0-9])?$`

Required: Yes

x-amz-account-id

The AWS account ID for owner of the specified Object Lambda Access Point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

CreateAccessPointForObjectLambdaRequest

Root level tag for the CreateAccessPointForObjectLambdaRequest parameters.

Required: Yes

Configuration

Object Lambda Access Point configuration as a JSON document.

Type: ObjectLambdaConfiguration data type

Required: Yes

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<CreateAccessPointForObjectLambdaResult>
   <ObjectLambdaAccessPointArn>string</ObjectLambdaAccessPointArn>
   <Alias>
      <Status>string</Status>
      <Value>string</Value>
   </Alias>
</CreateAccessPointForObjectLambdaResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

CreateAccessPointForObjectLambdaResult

Root level tag for the CreateAccessPointForObjectLambdaResult parameters.

Required: Yes

Alias

The alias of the Object Lambda Access Point.

Type: ObjectLambdaAccessPointAlias data type

ObjectLambdaAccessPointArn

Specifies the ARN for the Object Lambda Access Point.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[^:]+:s3-object-lambda:[^:]*:\d{12}:accesspoint/.*`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateBucket

Service: Amazon S3 Control

> **Note**
>
> This action creates an Amazon S3 on Outposts bucket. To create an S3 bucket, see Create Bucket in the *Amazon S3 API Reference*.

Creates a new Outposts bucket. By creating the bucket, you become the bucket owner. To create an Outposts bucket, you must have S3 on Outposts. For more information, see Using Amazon S3 on Outposts in *Amazon S3 User Guide*.

Not every string is an acceptable bucket name. For information on bucket naming restrictions, see Working with Amazon S3 Buckets.

S3 on Outposts buckets support:

- Tags
- LifecycleConfigurations for deleting expired objects

For a complete list of restrictions and Amazon S3 feature limitations on S3 on Outposts, see Amazon S3 on Outposts Restrictions and Limitations.

For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and `x-amz-outpost-id` in your API request, see the Examples section.

The following actions are related to `CreateBucket` for Amazon S3 on Outposts:

- PutObject
- GetBucket
- DeleteBucket
- CreateAccessPoint
- PutAccessPointPolicy

Request Syntax

```
PUT /v20180820/bucket/name HTTP/1.1
```

```
Host: Bucket.s3-control.amazonaws.com
x-amz-acl: ACL
x-amz-grant-full-control: GrantFullControl
x-amz-grant-read: GrantRead
x-amz-grant-read-acp: GrantReadACP
x-amz-grant-write: GrantWrite
x-amz-grant-write-acp: GrantWriteACP
x-amz-bucket-object-lock-enabled: ObjectLockEnabledForBucket
x-amz-outpost-id: OutpostId
<?xml version="1.0" encoding="UTF-8"?>
<CreateBucketConfiguration xmlns="http://awss3control.amazonaws.com/doc/2018-08-20/">
   <LocationConstraint>string</LocationConstraint>
</CreateBucketConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the bucket.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-acl

The canned ACL to apply to the bucket.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Valid Values: `private | public-read | public-read-write | authenticated-read`

x-amz-bucket-object-lock-enabled

Specifies whether you want S3 Object Lock to be enabled for the new bucket.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

x-amz-grant-full-control

Allows grantee the read, write, read ACP, and write ACP permissions on the bucket.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

x-amz-grant-read

Allows grantee to list the objects in the bucket.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

x-amz-grant-read-acp

Allows grantee to read the bucket ACL.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

x-amz-grant-write

Allows grantee to create, overwrite, and delete any object in the bucket.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

x-amz-grant-write-acp

Allows grantee to write the ACL for the applicable bucket.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

x-amz-outpost-id

The ID of the Outposts where the bucket is being created.

> **Note**
>
> This ID is required by Amazon S3 on Outposts buckets.

Length Constraints: Minimum length of 1. Maximum length of 64.

Request Body

The request accepts the following data in XML format.

CreateBucketConfiguration

Root level tag for the CreateBucketConfiguration parameters.

Required: Yes

LocationConstraint

Specifies the Region where the bucket will be created. If you are creating a bucket on the US East (N. Virginia) Region (us-east-1), you do not need to specify the location.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Type: String

Valid Values: EU | `eu-west-1` | `us-west-1` | `us-west-2` | `ap-south-1` | `ap-southeast-1` | `ap-southeast-2` | `ap-northeast-1` | `sa-east-1` | `cn-north-1` | `eu-central-1`

Required: No

Response Syntax

```
HTTP/1.1 200
Location: Location
<?xml version="1.0" encoding="UTF-8"?>
<CreateBucketResult>
   <BucketArn>string</BucketArn>
</CreateBucketResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The response returns the following HTTP headers.

Location

The location of the bucket.

The following data is returned in XML format by the service.

CreateBucketResult

Root level tag for the CreateBucketResult parameters.

Required: Yes

BucketArn

The Amazon Resource Name (ARN) of the bucket.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the bucket accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/bucket/<my-bucket-name>`. For example, to access the bucket `reports` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-`

`west-2:123456789012:outpost/my-outpost/bucket/reports`. The value must be URL encoded.

Type: String

Length Constraints: Minimum length of 4. Maximum length of 128.

Errors

BucketAlreadyExists

The requested Outposts bucket name is not available. The bucket namespace is shared by all users of the AWS Outposts in this Region. Select a different name and try again.

HTTP Status Code: 400

BucketAlreadyOwnedByYou

The Outposts bucket you tried to create already exists, and you own it.

HTTP Status Code: 400

Examples

Sample request to create an Amazon S3 on Outposts bucket

This request creates an Outposts bucket named `example-outpost-bucket`.

```
PUT /v20180820/bucket/example-outpost-bucket/  HTTP/1.1
Host:s3-outposts.<Region>.amazonaws.com
x-amz-outpost-id: op-01ac5d28a6a232904
Content-Length:
Date: Wed, 01 Mar  2006 12:00:00 GMT
Authorization: authorization string
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateJob

Service: Amazon S3 Control

This operation creates an S3 Batch Operations job.

You can use S3 Batch Operations to perform large-scale batch actions on Amazon S3 objects. Batch Operations can run a single action on lists of Amazon S3 objects that you specify. For more information, see S3 Batch Operations in the *Amazon S3 User Guide*.

Permissions

For information about permissions required to use the Batch Operations, see Granting permissions for S3 Batch Operations in the *Amazon S3 User Guide*.

Related actions include:

- DescribeJob
- ListJobs
- UpdateJobPriority
- UpdateJobStatus
- JobOperation

Important

You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /v20180820/jobs HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<CreateJobRequest xmlns="http://awss3control.amazonaws.com/doc/2018-08-20/">
   <ConfirmationRequired>boolean</ConfirmationRequired>
   <Operation>
```

```
<LambdaInvoke>
   <FunctionArn>string</FunctionArn>
   <InvocationSchemaVersion>string</InvocationSchemaVersion>
   <UserArguments>
      <entry>
         <key>string</key>
         <value>string</value>
      </entry>
   </UserArguments>
</LambdaInvoke>
<S3ComputeObjectChecksum>
   <ChecksumAlgorithm>string</ChecksumAlgorithm>
   <ChecksumType>string</ChecksumType>
</S3ComputeObjectChecksum>
<S3DeleteObjectTagging>
</S3DeleteObjectTagging>
<S3InitiateRestoreObject>
   <ExpirationInDays>integer</ExpirationInDays>
   <GlacierJobTier>string</GlacierJobTier>
</S3InitiateRestoreObject>
<S3PutObjectAcl>
   <AccessControlPolicy>
      <AccessControlList>
         <Grants>
            <S3Grant>
               <Grantee>
                  <DisplayName>string</DisplayName>
                  <Identifier>string</Identifier>
                  <TypeIdentifier>string</TypeIdentifier>
               </Grantee>
               <Permission>string</Permission>
            </S3Grant>
         </Grants>
         <Owner>
            <DisplayName>string</DisplayName>
            <ID>string</ID>
         </Owner>
      </AccessControlList>
      <CannedAccessControlList>string</CannedAccessControlList>
   </AccessControlPolicy>
</S3PutObjectAcl>
<S3PutObjectCopy>
   <AccessControlGrants>
      <S3Grant>
```

```
            <Grantee>
               <DisplayName>string</DisplayName>
               <Identifier>string</Identifier>
               <TypeIdentifier>string</TypeIdentifier>
            </Grantee>
            <Permission>string</Permission>
         </S3Grant>
      </AccessControlGrants>
      <BucketKeyEnabled>boolean</BucketKeyEnabled>
      <CannedAccessControlList>string</CannedAccessControlList>
      <ChecksumAlgorithm>string</ChecksumAlgorithm>
      <MetadataDirective>string</MetadataDirective>
      <ModifiedSinceConstraint>timestamp</ModifiedSinceConstraint>
      <NewObjectMetadata>
         <CacheControl>string</CacheControl>
         <ContentDisposition>string</ContentDisposition>
         <ContentEncoding>string</ContentEncoding>
         <ContentLanguage>string</ContentLanguage>
         <ContentLength>long</ContentLength>
         <ContentMD5>string</ContentMD5>
         <ContentType>string</ContentType>
         <HttpExpiresDate>timestamp</HttpExpiresDate>
         <RequesterCharged>boolean</RequesterCharged>
         <SSEAlgorithm>string</SSEAlgorithm>
         <UserMetadata>
            <entry>
               <key>string</key>
               <value>string</value>
            </entry>
         </UserMetadata>
      </NewObjectMetadata>
      <NewObjectTagging>
         <S3Tag>
            <Key>string</Key>
            <Value>string</Value>
         </S3Tag>
      </NewObjectTagging>
      <ObjectLockLegalHoldStatus>string</ObjectLockLegalHoldStatus>
      <ObjectLockMode>string</ObjectLockMode>
      <ObjectLockRetainUntilDate>timestamp</ObjectLockRetainUntilDate>
      <RedirectLocation>string</RedirectLocation>
      <RequesterPays>boolean</RequesterPays>
      <SSEAwsKmsKeyId>string</SSEAwsKmsKeyId>
      <StorageClass>string</StorageClass>
```

```
            <TargetKeyPrefix>string</TargetKeyPrefix>
            <TargetResource>string</TargetResource>
            <UnModifiedSinceConstraint>timestamp</UnModifiedSinceConstraint>
        </S3PutObjectCopy>
        <S3PutObjectLegalHold>
            <LegalHold>
                <Status>string</Status>
            </LegalHold>
        </S3PutObjectLegalHold>
        <S3PutObjectRetention>
            <BypassGovernanceRetention>boolean</BypassGovernanceRetention>
            <Retention>
                <Mode>string</Mode>
                <RetainUntilDate>timestamp</RetainUntilDate>
            </Retention>
        </S3PutObjectRetention>
        <S3PutObjectTagging>
            <TagSet>
                <S3Tag>
                    <Key>string</Key>
                    <Value>string</Value>
                </S3Tag>
            </TagSet>
        </S3PutObjectTagging>
        <S3ReplicateObject>
        </S3ReplicateObject>
    </Operation>
    <Report>
        <Bucket>string</Bucket>
        <Enabled>boolean</Enabled>
        <ExpectedBucketOwner>string</ExpectedBucketOwner>
        <Format>string</Format>
        <Prefix>string</Prefix>
        <ReportScope>string</ReportScope>
    </Report>
    <ClientRequestToken>string</ClientRequestToken>
    <Manifest>
        <Location>
            <ETag>string</ETag>
            <ObjectArn>string</ObjectArn>
            <ObjectVersionId>string</ObjectVersionId>
        </Location>
        <Spec>
            <Fields>
```

```
            <member>string</member>
         </Fields>
         <Format>string</Format>
      </Spec>
   </Manifest>
   <Description>string</Description>
   <Priority>integer</Priority>
   <RoleArn>string</RoleArn>
   <Tags>
      <S3Tag>
         <Key>string</Key>
         <Value>string</Value>
      </S3Tag>
   </Tags>
   <ManifestGenerator>
      <S3JobManifestGenerator>
         <EnableManifestOutput>boolean</EnableManifestOutput>
         <ExpectedBucketOwner>string</ExpectedBucketOwner>
         <Filter>
            <CreatedAfter>timestamp</CreatedAfter>
            <CreatedBefore>timestamp</CreatedBefore>
            <EligibleForReplication>boolean</EligibleForReplication>
            <KeyNameConstraint>
               <MatchAnyPrefix>
                  <member>string</member>
               </MatchAnyPrefix>
               <MatchAnySubstring>
                  <member>string</member>
               </MatchAnySubstring>
               <MatchAnySuffix>
                  <member>string</member>
               </MatchAnySuffix>
            </KeyNameConstraint>
            <MatchAnyStorageClass>
               <member>string</member>
            </MatchAnyStorageClass>
            <ObjectReplicationStatuses>
               <member>string</member>
            </ObjectReplicationStatuses>
            <ObjectSizeGreaterThanBytes>long</ObjectSizeGreaterThanBytes>
            <ObjectSizeLessThanBytes>long</ObjectSizeLessThanBytes>
         </Filter>
         <ManifestOutputLocation>
            <Bucket>string</Bucket>
```

```
            <ExpectedManifestBucketOwner>string</ExpectedManifestBucketOwner>
            <ManifestEncryption>
               <SSE-KMS>
                  <KeyId>string</KeyId>
               </SSE-KMS>
               <SSE-S3>
               </SSE-S3>
            </ManifestEncryption>
            <ManifestFormat>string</ManifestFormat>
            <ManifestPrefix>string</ManifestPrefix>
         </ManifestOutputLocation>
         <SourceBucket>string</SourceBucket>
      </S3JobManifestGenerator>
   </ManifestGenerator>
</CreateJobRequest>
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The AWS account ID that creates the job.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request accepts the following data in XML format.

CreateJobRequest

Root level tag for the CreateJobRequest parameters.

Required: Yes

ClientRequestToken

An idempotency token to ensure that you don't accidentally submit the same request twice. You can use any string up to the maximum length.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Required: Yes

ConfirmationRequired

Indicates whether confirmation is required before Amazon S3 runs the job. Confirmation is only required for jobs created through the Amazon S3 console.

Type: Boolean

Required: No

Description

A description for this job. You can use any string within the permitted length. Descriptions don't need to be unique and can be used for multiple jobs.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Required: No

Manifest

Configuration parameters for the manifest.

Type: JobManifest data type

Required: No

ManifestGenerator

The attribute container for the ManifestGenerator details. Jobs must be created with either a manifest file or a ManifestGenerator, but not both.

Type: JobManifestGenerator data type

Note: This object is a Union. Only one member of this object can be specified or returned.

Required: No

Operation

The action that you want this job to perform on every object listed in the manifest. For more information about the available actions, see Operations in the *Amazon S3 User Guide*.

Type: JobOperation data type

Required: Yes

Priority

The numerical priority for this job. Higher numbers indicate higher priority.

Type: Integer

Valid Range: Minimum value of 0. Maximum value of 2147483647.

Required: Yes

Report

Configuration parameters for the optional job-completion report.

Type: JobReport data type

Required: Yes

RoleArn

The Amazon Resource Name (ARN) for the AWS Identity and Access Management (IAM) role that Batch Operations will use to run this job's action on every object in the manifest.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[^:]+:iam::\d{12}:role/.*`

Required: Yes

Tags

A set of tags to associate with the S3 Batch Operations job. This is an optional parameter.

Type: Array of S3Tag data types

Required: No

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<CreateJobResult>
   <JobId>string</JobId>
</CreateJobResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

CreateJobResult

Root level tag for the CreateJobResult parameters.

Required: Yes

JobId

The ID for this job. Amazon S3 generates this ID automatically and returns it after a successful `Create Job` request.

Type: String

Length Constraints: Minimum length of 5. Maximum length of 36.

Pattern: `[a-zA-Z0-9\-\_]+`

Errors

BadRequestException

HTTP Status Code: 400

IdempotencyException

HTTP Status Code: 400

InternalServiceException

HTTP Status Code: 500

TooManyRequestsException

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateMultiRegionAccessPoint

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Creates a Multi-Region Access Point and associates it with the specified buckets. For more information about creating Multi-Region Access Points, see Creating Multi-Region Access Points in the *Amazon S3 User Guide*.

This action will always be routed to the US West (Oregon) Region. For more information about the restrictions around working with Multi-Region Access Points, see Multi-Region Access Point restrictions and limitations in the *Amazon S3 User Guide*.

This request is asynchronous, meaning that you might receive a response before the command has completed. When this request provides a response, it provides a token that you can use to monitor the status of the request with `DescribeMultiRegionAccessPointOperation`.

The following actions are related to `CreateMultiRegionAccessPoint`:

- DeleteMultiRegionAccessPoint
- DescribeMultiRegionAccessPointOperation
- GetMultiRegionAccessPoint
- ListMultiRegionAccessPoints

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /v20180820/async-requests/mrap/create HTTP/1.1
Host: s3-control.amazonaws.com
```

```
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<CreateMultiRegionAccessPointRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
   <ClientToken>string</ClientToken>
   <Details>
      <Name>string</Name>
      <PublicAccessBlock>
         <BlockPublicAcls>boolean</BlockPublicAcls>
         <BlockPublicPolicy>boolean</BlockPublicPolicy>
         <IgnorePublicAcls>boolean</IgnorePublicAcls>
         <RestrictPublicBuckets>boolean</RestrictPublicBuckets>
      </PublicAccessBlock>
      <Regions>
         <Region>
            <Bucket>string</Bucket>
            <BucketAccountId>string</BucketAccountId>
         </Region>
      </Regions>
   </Details>
</CreateMultiRegionAccessPointRequest>
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The AWS account ID for the owner of the Multi-Region Access Point. The owner of the Multi-Region Access Point also must own the underlying buckets.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request accepts the following data in XML format.

CreateMultiRegionAccessPointRequest

Root level tag for the CreateMultiRegionAccessPointRequest parameters.

Required: Yes

ClientToken

An idempotency token used to identify the request and guarantee that requests are unique.

Type: String

Length Constraints: Maximum length of 64.

Pattern: \S+

Required: Yes

Details

A container element containing details about the Multi-Region Access Point.

Type: CreateMultiRegionAccessPointInput data type

Required: Yes

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<CreateMultiRegionAccessPointResult>
   <RequestTokenARN>string</RequestTokenARN>
</CreateMultiRegionAccessPointResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

CreateMultiRegionAccessPointResult

Root level tag for the CreateMultiRegionAccessPointResult parameters.

Required: Yes

RequestTokenARN

The request token associated with the request. You can use this token with DescribeMultiRegionAccessPointOperation to determine the status of asynchronous requests.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `arn:.+`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateStorageLensGroup

Service: Amazon S3 Control

Creates a new S3 Storage Lens group and associates it with the specified AWS account ID. An S3 Storage Lens group is a custom grouping of objects based on prefix, suffix, object tags, object size, object age, or a combination of these filters. For each Storage Lens group that you've created, you can also optionally add AWS resource tags. For more information about S3 Storage Lens groups, see Working with S3 Storage Lens groups.

To use this operation, you must have the permission to perform the `s3:CreateStorageLensGroup` action. If you're trying to create a Storage Lens group with AWS resource tags, you must also have permission to perform the `s3:TagResource` action. For more information about the required Storage Lens Groups permissions, see Setting account permissions to use S3 Storage Lens groups.

For information about Storage Lens groups errors, see List of Amazon S3 Storage Lens error codes.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /v20180820/storagelensgroup HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<CreateStorageLensGroupRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
   <StorageLensGroup>
      <Filter>
         <And>
            <MatchAnyPrefix>
               <Prefix>string</Prefix>
            </MatchAnyPrefix>
            <MatchAnySuffix>
               <Suffix>string</Suffix>
            </MatchAnySuffix>
```

```
            <MatchAnyTag>
               <Tag>
                  <Key>string</Key>
                  <Value>string</Value>
               </Tag>
            </MatchAnyTag>
            <MatchObjectAge>
               <DaysGreaterThan>integer</DaysGreaterThan>
               <DaysLessThan>integer</DaysLessThan>
            </MatchObjectAge>
            <MatchObjectSize>
               <BytesGreaterThan>long</BytesGreaterThan>
               <BytesLessThan>long</BytesLessThan>
            </MatchObjectSize>
         </And>
         <MatchAnyPrefix>
            <Prefix>string</Prefix>
         </MatchAnyPrefix>
         <MatchAnySuffix>
            <Suffix>string</Suffix>
         </MatchAnySuffix>
         <MatchAnyTag>
            <Tag>
               <Key>string</Key>
               <Value>string</Value>
            </Tag>
         </MatchAnyTag>
         <MatchObjectAge>
            <DaysGreaterThan>integer</DaysGreaterThan>
            <DaysLessThan>integer</DaysLessThan>
         </MatchObjectAge>
         <MatchObjectSize>
            <BytesGreaterThan>long</BytesGreaterThan>
            <BytesLessThan>long</BytesLessThan>
         </MatchObjectSize>
         <Or>
            <MatchAnyPrefix>
               <Prefix>string</Prefix>
            </MatchAnyPrefix>
            <MatchAnySuffix>
               <Suffix>string</Suffix>
            </MatchAnySuffix>
            <MatchAnyTag>
               <Tag>
```

```
                    <Key>string</Key>
                    <Value>string</Value>
                 </Tag>
              </MatchAnyTag>
              <MatchObjectAge>
                 <DaysGreaterThan>integer</DaysGreaterThan>
                 <DaysLessThan>integer</DaysLessThan>
              </MatchObjectAge>
              <MatchObjectSize>
                 <BytesGreaterThan>long</BytesGreaterThan>
                 <BytesLessThan>long</BytesLessThan>
              </MatchObjectSize>
           </Or>
        </Filter>
        <Name>string</Name>
        <StorageLensGroupArn>string</StorageLensGroupArn>
     </StorageLensGroup>
     <Tags>
        <Tag>
           <Key>string</Key>
           <Value>string</Value>
        </Tag>
     </Tags>
</CreateStorageLensGroupRequest>
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The AWS account ID that the Storage Lens group is created from and associated with.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request accepts the following data in XML format.

CreateStorageLensGroupRequest

Root level tag for the CreateStorageLensGroupRequest parameters.

Required: Yes

StorageLensGroup

The Storage Lens group configuration.

Type: StorageLensGroup data type

Required: Yes

Tags

The AWS resource tags that you're adding to your Storage Lens group. This parameter is optional.

Type: Array of Tag data types

Array Members: Minimum number of 0 items. Maximum number of 50 items.

Required: No

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2

- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteAccessGrant

Service: Amazon S3 Control

Deletes the access grant from the S3 Access Grants instance. You cannot undo an access grant deletion and the grantee will no longer have access to the S3 data.

Permissions

You must have the `s3:DeleteAccessGrant` permission to use this operation.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/accessgrantsinstance/grant/id HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

id

The ID of the access grant. S3 Access Grants auto-generates this ID when you create the access grant.

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

Required: Yes

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteAccessGrantsInstance

Service: Amazon S3 Control

Deletes your S3 Access Grants instance. You must first delete the access grants and locations before S3 Access Grants can delete the instance. See DeleteAccessGrant and DeleteAccessGrantsLocation. If you have associated an IAM Identity Center instance with your S3 Access Grants instance, you must first dissassociate the Identity Center instance from the S3 Access Grants instance before you can delete the S3 Access Grants instance. See AssociateAccessGrantsIdentityCenter and DissociateAccessGrantsIdentityCenter.

Permissions

You must have the `s3:DeleteAccessGrantsInstance` permission to use this operation.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/accessgrantsinstance HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteAccessGrantsInstanceResourcePolicy

Service: Amazon S3 Control

Deletes the resource policy of the S3 Access Grants instance. The resource policy is used to manage cross-account access to your S3 Access Grants instance. By deleting the resource policy, you delete any cross-account permissions to your S3 Access Grants instance.

Permissions

You must have the `s3:DeleteAccessGrantsInstanceResourcePolicy` permission to use this operation.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/accessgrantsinstance/resourcepolicy HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteAccessGrantsLocation

Service: Amazon S3 Control

Deregisters a location from your S3 Access Grants instance. You can only delete a location registration from an S3 Access Grants instance if there are no grants associated with this location. See Delete a grant for information on how to delete grants. You need to have at least one registered location in your S3 Access Grants instance in order to create access grants.

Permissions

You must have the `s3:DeleteAccessGrantsLocation` permission to use this operation.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/accessgrantsinstance/location/id HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

id

The ID of the registered location that you are deregistering from your S3 Access Grants instance. S3 Access Grants assigned this ID when you registered the location. S3 Access Grants assigns the ID `default` to the default location `s3://` and assigns an auto-generated ID to other locations that you register.

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

Required: Yes

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteAccessPoint

Service: Amazon S3 Control

Deletes the specified access point.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

The following actions are related to `DeleteAccessPoint`:

- CreateAccessPoint
- GetAccessPoint
- ListAccessPoints

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/accesspoint/name HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the access point you want to delete.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the access point accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/accesspoint/<my-accesspoint-name>`. For example, to access the access point `reports-ap` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/accesspoint/reports-ap`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID for the account that owns the specified access point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

DeleteAccessPoint syntax for Amazon S3 on Outposts

The following request deletes the access point of the specified Outpost.

```
DELETE  /v20180820/accesspoint/example-access-point  HTTP/1.1
```

```
            Host: s3-outposts.<Region>.amazonaws.com
            Date: Wed, 28 Oct 2020 22:32:00 GMT
            x-amz-account-id: example-account-id
            x-amz-outpost-id: op-01ac5d28a6a232904
            Authorization: authorization string
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteAccessPointForObjectLambda

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Deletes the specified Object Lambda Access Point.

The following actions are related to `DeleteAccessPointForObjectLambda`:

- CreateAccessPointForObjectLambda
- GetAccessPointForObjectLambda
- ListAccessPointsForObjectLambda

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/accesspointforobjectlambda/name HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the access point you want to delete.

Length Constraints: Minimum length of 3. Maximum length of 45.

Pattern: `^[a-z0-9]([a-z0-9\-]*[a-z0-9])?$`

Required: Yes

x-amz-account-id

The account ID for the account that owns the specified Object Lambda Access Point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3

- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteAccessPointPolicy

Service: Amazon S3 Control

Deletes the access point policy for the specified access point.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

The following actions are related to `DeleteAccessPointPolicy`:

- PutAccessPointPolicy
- GetAccessPointPolicy

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/accesspoint/name/policy HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the access point whose policy you want to delete.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the access point accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/accesspoint/<my-accesspoint-name>`. For example, to access the access point `reports-ap` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/accesspoint/reports-ap`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The account ID for the account that owns the specified access point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample request syntax for using the DeleteAccessPointPolicy action with Amazon S3 on Outposts access point

This example illustrates one usage of DeleteAccessPointPolicy.

```
DELETE  /v20180820/accesspoint/example-access-point/policy  HTTP/1.1
Host: s3-outposts.<Region>.amazonaws.com
Date: Wed, 28 Oct 2020 22:32:00 GMT
Authorization: authorization string
x-amz-account-id: example-account-id
x-amz-outpost-id: op-01ac5d28a6a232904
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteAccessPointPolicyForObjectLambda

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Removes the resource policy for an Object Lambda Access Point.

The following actions are related to `DeleteAccessPointPolicyForObjectLambda`:

- GetAccessPointPolicyForObjectLambda
- PutAccessPointPolicyForObjectLambda

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/accesspointforobjectlambda/name/policy HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the Object Lambda Access Point you want to delete the policy for.

Length Constraints: Minimum length of 3. Maximum length of 45.

Pattern: `^[a-z0-9]([a-z0-9\-]*[a-z0-9])?$`

Required: Yes

x-amz-account-id

The account ID for the account that owns the specified Object Lambda Access Point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteAccessPointScope

Service: Amazon S3 Control

Deletes an existing access point scope for a directory bucket.

> **Note**
>
> When you delete the scope of an access point, all prefixes and permissions are deleted.

To use this operation, you must have the permission to perform the `s3express:DeleteAccessPointScope` action.

For information about REST API errors, see REST error responses.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/accesspoint/name/scope HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the access point with the scope that you want to delete.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID that owns the access point with the scope that you want to delete.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucket

Service: Amazon S3 Control

> **Note**
>
> This action deletes an Amazon S3 on Outposts bucket. To delete an S3 bucket, see DeleteBucket in the *Amazon S3 API Reference*.

Deletes the Amazon S3 on Outposts bucket. All objects (including all object versions and delete markers) in the bucket must be deleted before the bucket itself can be deleted. For more information, see Using Amazon S3 on Outposts in *Amazon S3 User Guide*.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

Related Resources

- CreateBucket
- GetBucket
- DeleteObject

Request Syntax

```
DELETE /v20180820/bucket/name HTTP/1.1
Host: Bucket.s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

Specifies the bucket being deleted.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the bucket accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/bucket/<my-bucket-name>`. For example, to access the bucket `reports` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/bucket/reports`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The account ID that owns the Outposts bucket.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample request to delete an Amazon S3 on Outposts bucket

This request deletes the Outposts bucket named `example-outpost-bucket`.

```
DELETE /v20180820/bucket/example-outpost-bucket/ HTTP/1.1
Host: s3-outposts.<Region>.amazonaws.com
x-amz-outpost-id: op-01ac5d28a6a232904
x-amz-account-id:example-account-id
Date: Wed, 01 Mar  2006 12:00:00 GMT
Authorization: authorization string
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketLifecycleConfiguration

Service: Amazon S3 Control

> **Note**
>
> This action deletes an Amazon S3 on Outposts bucket's lifecycle configuration. To delete an S3 bucket's lifecycle configuration, see DeleteBucketLifecycle in the *Amazon S3 API Reference*.

Deletes the lifecycle configuration from the specified Outposts bucket. Amazon S3 on Outposts removes all the lifecycle configuration rules in the lifecycle subresource associated with the bucket. Your objects never expire, and Amazon S3 on Outposts no longer automatically deletes any objects on the basis of rules contained in the deleted lifecycle configuration. For more information, see Using Amazon S3 on Outposts in *Amazon S3 User Guide*.

To use this operation, you must have permission to perform the `s3-outposts:PutLifecycleConfiguration` action. By default, the bucket owner has this permission and the Outposts bucket owner can grant this permission to others.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

For more information about object expiration, see Elements to Describe Lifecycle Actions.

Related actions include:

- PutBucketLifecycleConfiguration
- GetBucketLifecycleConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/bucket/name/lifecycleconfiguration HTTP/1.1
Host: Bucket.s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

Specifies the bucket.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the bucket accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/bucket/<my-bucket-name>`. For example, to access the bucket `reports` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/bucket/reports`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The account ID of the lifecycle configuration to delete.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample request to delete the lifecycle configuration of an Amazon S3 on Outposts bucket

This example illustrates one usage of DeleteBucketLifecycleConfiguration.

```
                  DELETE /v20180820/bucket/example-outpost-bucket/
lifecycleconfiguration HTTP/1.1
                  Host: s3-outposts.<Region>.amazonaws.com
                  x-amz-outpost-id: op-01ac5d28a6a232904
                  x-amz-account-id:example-account-id
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketPolicy

Service: Amazon S3 Control

> **Note**
>
> This action deletes an Amazon S3 on Outposts bucket policy. To delete an S3 bucket policy, see DeleteBucketPolicy in the *Amazon S3 API Reference*.

This implementation of the DELETE action uses the policy subresource to delete the policy of a specified Amazon S3 on Outposts bucket. If you are using an identity other than the root user of the AWS account that owns the bucket, the calling identity must have the `s3-outposts:DeleteBucketPolicy` permissions on the specified Outposts bucket and belong to the bucket owner's account to use this action. For more information, see Using Amazon S3 on Outposts in *Amazon S3 User Guide*.

If you don't have `DeleteBucketPolicy` permissions, Amazon S3 returns a `403 Access Denied` error. If you have the correct permissions, but you're not using an identity that belongs to the bucket owner's account, Amazon S3 returns a `405 Method Not Allowed` error.

> **Important**
>
> As a security precaution, the root user of the AWS account that owns a bucket can always use this action, even if the policy explicitly denies the root user the ability to perform this action.

For more information about bucket policies, see Using Bucket Policies and User Policies.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

The following actions are related to `DeleteBucketPolicy`:

- GetBucketPolicy
- PutBucketPolicy

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/bucket/name/policy HTTP/1.1
Host: Bucket.s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

Specifies the bucket.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the bucket accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/bucket/<my-bucket-name>`. For example, to access the bucket `reports` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/bucket/reports`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The account ID of the Outposts bucket.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample request for deleting a bucket policy for an Amazon S3 on Outposts bucket

This example illustrates one usage of DeleteBucketPolicy.

```
DELETE v20180820/bucket/example-outpost-bucket/policy  HTTP/1.1
Host: s3-outposts.<Region>.amazonaws.com
x-amz-account-id: example-account-id
x-amz-outpost-id: op-01ac5d28a6a232904
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3

- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketReplication

Service: Amazon S3 Control

> **Note**
>
> This operation deletes an Amazon S3 on Outposts bucket's replication configuration. To delete an S3 bucket's replication configuration, see DeleteBucketReplication in the *Amazon S3 API Reference*.

Deletes the replication configuration from the specified S3 on Outposts bucket.

To use this operation, you must have permissions to perform the `s3-outposts:PutReplicationConfiguration` action. The Outposts bucket owner has this permission by default and can grant it to others. For more information about permissions, see Setting up IAM with S3 on Outposts and Managing access to S3 on Outposts buckets in the *Amazon S3 User Guide*.

> **Note**
>
> It can take a while to propagate `PUT` or `DELETE` requests for a replication configuration to all S3 on Outposts systems. Therefore, the replication configuration that's returned by a `GET` request soon after a `PUT` or `DELETE` request might return a more recent result than what's on the Outpost. If an Outpost is offline, the delay in updating the replication configuration on that Outpost can be significant.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

For information about S3 replication on Outposts configuration, see Replicating objects for S3 on Outposts in the *Amazon S3 User Guide*.

The following operations are related to `DeleteBucketReplication`:

- PutBucketReplication

- GetBucketReplication

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/bucket/name/replication HTTP/1.1
Host: Bucket.s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

Specifies the S3 on Outposts bucket to delete the replication configuration for.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the bucket accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/bucket/<my-bucket-name>`. For example, to access the bucket `reports` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/bucket/reports`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID of the Outposts bucket to delete the replication configuration for.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample Request

The following `DELETE` request deletes the `replication` subresource from the specified S3 on Outposts bucket. This request removes the replication configuration that is set for the bucket.

```
DELETE /v20180820/bucket/example-outpost-bucket/replication HTTP/1.1
Host: s3-outposts.<Region>.amazonaws.com
x-amz-outpost-id: op-01ac5d28a6a232904
x-amz-account-id:example-account-id
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++

- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteBucketTagging

Service: Amazon S3 Control

> **Note**
>
> This action deletes an Amazon S3 on Outposts bucket's tags. To delete an S3 bucket tags, see DeleteBucketTagging in the *Amazon S3 API Reference*.

Deletes the tags from the Outposts bucket. For more information, see Using Amazon S3 on Outposts in *Amazon S3 User Guide*.

To use this action, you must have permission to perform the `PutBucketTagging` action. By default, the bucket owner has this permission and can grant this permission to others.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

The following actions are related to `DeleteBucketTagging`:

- GetBucketTagging
- PutBucketTagging

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/bucket/name/tagging HTTP/1.1
Host: Bucket.s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The bucket ARN that has the tag set to be removed.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the bucket accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/bucket/<my-bucket-name>`. For example, to access the bucket `reports` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/bucket/reports`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID of the Outposts bucket tag set to be removed.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Examples

Sample request to delete tags for Amazon S3 on Outposts bucket

The following DELETE request deletes the tag set from the Outposts bucket `example-outpost-bucket`.

```
DELETE v20180820/bucket/example-outpost-bucket/tagging HTTP/1.1
Host: s3-outposts.<Region>.amazonaws.com
x-amz-account-id: example-account-id
x-amz-outpost-id: op-01ac5d28a6a232904
Date: Wed, 14 Dec 2020 05:37:16 GMT
Authorization: signatureValue
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteJobTagging

Service: Amazon S3 Control

Removes the entire tag set from the specified S3 Batch Operations job.

Permissions

To use the `DeleteJobTagging` operation, you must have permission to perform the `s3:DeleteJobTagging` action. For more information, see Controlling access and labeling jobs using tags in the *Amazon S3 User Guide*.

Related actions include:

- CreateJob
- GetJobTagging
- PutJobTagging

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/jobs/id/tagging HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

id

The ID for the S3 Batch Operations job whose tags you want to delete.

Length Constraints: Minimum length of 5. Maximum length of 36.

Pattern: `[a-zA-Z0-9\-\_]+`

Required: Yes

x-amz-account-id

The AWS account ID associated with the S3 Batch Operations job.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

InternalServiceException

HTTP Status Code: 500

NotFoundException

HTTP Status Code: 400

TooManyRequestsException

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteMultiRegionAccessPoint

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Deletes a Multi-Region Access Point. This action does not delete the buckets associated with the Multi-Region Access Point, only the Multi-Region Access Point itself.

This action will always be routed to the US West (Oregon) Region. For more information about the restrictions around working with Multi-Region Access Points, see Multi-Region Access Point restrictions and limitations in the *Amazon S3 User Guide*.

This request is asynchronous, meaning that you might receive a response before the command has completed. When this request provides a response, it provides a token that you can use to monitor the status of the request with `DescribeMultiRegionAccessPointOperation`.

The following actions are related to `DeleteMultiRegionAccessPoint`:

- CreateMultiRegionAccessPoint
- DescribeMultiRegionAccessPointOperation
- GetMultiRegionAccessPoint
- ListMultiRegionAccessPoints

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /v20180820/async-requests/mrap/delete HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

```
<?xml version="1.0" encoding="UTF-8"?>
<DeleteMultiRegionAccessPointRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
   <ClientToken>string</ClientToken>
   <Details>
      <Name>string</Name>
   </Details>
</DeleteMultiRegionAccessPointRequest>
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The AWS account ID for the owner of the Multi-Region Access Point.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request accepts the following data in XML format.

DeleteMultiRegionAccessPointRequest

Root level tag for the DeleteMultiRegionAccessPointRequest parameters.

Required: Yes

ClientToken

An idempotency token used to identify the request and guarantee that requests are unique.

Type: String

Length Constraints: Maximum length of 64.

Pattern: \S+

Required: Yes

Details

A container element containing details about the Multi-Region Access Point.

Type: DeleteMultiRegionAccessPointInput data type

Required: Yes

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<DeleteMultiRegionAccessPointResult>
   <RequestTokenARN>string</RequestTokenARN>
</DeleteMultiRegionAccessPointResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

DeleteMultiRegionAccessPointResult

Root level tag for the DeleteMultiRegionAccessPointResult parameters.

Required: Yes

RequestTokenARN

The request token associated with the request. You can use this token with DescribeMultiRegionAccessPointOperation to determine the status of asynchronous requests.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `arn:.+`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeletePublicAccessBlock

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Removes the `PublicAccessBlock` configuration for an AWS account. For more information, see Using Amazon S3 block public access.

Related actions include:

- GetPublicAccessBlock
- PutPublicAccessBlock

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/configuration/publicAccessBlock HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The account ID for the AWS account whose `PublicAccessBlock` configuration you want to remove.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteStorageLensConfiguration

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Deletes the Amazon S3 Storage Lens configuration. For more information about S3 Storage Lens, see Assessing your storage activity and usage with Amazon S3 Storage Lens in the *Amazon S3 User Guide*.

> **Note**
>
> To use this action, you must have permission to perform the `s3:DeleteStorageLensConfiguration` action. For more information, see Setting permissions to use Amazon S3 Storage Lens in the *Amazon S3 User Guide*.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/storagelens/storagelensid HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

storagelensid

The ID of the S3 Storage Lens configuration.

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-\_\.]+`

Required: Yes

x-amz-account-id

The account ID of the requester.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin

- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteStorageLensConfigurationTagging

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Deletes the Amazon S3 Storage Lens configuration tags. For more information about S3 Storage Lens, see Assessing your storage activity and usage with Amazon S3 Storage Lens in the *Amazon S3 User Guide*.

> **Note**
>
> To use this action, you must have permission to perform the `s3:DeleteStorageLensConfigurationTagging` action. For more information, see Setting permissions to use Amazon S3 Storage Lens in the *Amazon S3 User Guide*.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/storagelens/storagelensid/tagging HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

storagelensid

The ID of the S3 Storage Lens configuration.

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-\_\.]+`

Required: Yes

x-amz-account-id

The account ID of the requester.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin

- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteStorageLensGroup

Service: Amazon S3 Control

Deletes an existing S3 Storage Lens group.

To use this operation, you must have the permission to perform the `s3:DeleteStorageLensGroup` action. For more information about the required Storage Lens Groups permissions, see Setting account permissions to use S3 Storage Lens groups.

For information about Storage Lens groups errors, see List of Amazon S3 Storage Lens error codes.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/storagelensgroup/name HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the Storage Lens group that you're trying to delete.

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-\_]+`

Required: Yes

x-amz-account-id

The AWS account ID used to create the Storage Lens group that you're trying to delete.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DescribeJob

Service: Amazon S3 Control

Retrieves the configuration parameters and status for a Batch Operations job. For more information, see S3 Batch Operations in the *Amazon S3 User Guide*.

Permissions

To use the `DescribeJob` operation, you must have permission to perform the `s3:DescribeJob` action.

Related actions include:

- CreateJob
- ListJobs
- UpdateJobPriority
- UpdateJobStatus

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/jobs/id HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

id

The ID for the job whose information you want to retrieve.

Length Constraints: Minimum length of 5. Maximum length of 36.

Pattern: `[a-zA-Z0-9\-\_]+`

Required: Yes

x-amz-account-id

The AWS account ID associated with the S3 Batch Operations job.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<DescribeJobResult>
   <Job>
      <ConfirmationRequired>boolean</ConfirmationRequired>
      <CreationTime>timestamp</CreationTime>
      <Description>string</Description>
      <FailureReasons>
         <JobFailure>
            <FailureCode>string</FailureCode>
            <FailureReason>string</FailureReason>
         </JobFailure>
      </FailureReasons>
      <GeneratedManifestDescriptor>
         <Format>string</Format>
         <Location>
            <ETag>string</ETag>
            <ObjectArn>string</ObjectArn>
            <ObjectVersionId>string</ObjectVersionId>
         </Location>
      </GeneratedManifestDescriptor>
      <JobArn>string</JobArn>
      <JobId>string</JobId>
```

```
<Manifest>
   <Location>
      <ETag>string</ETag>
      <ObjectArn>string</ObjectArn>
      <ObjectVersionId>string</ObjectVersionId>
   </Location>
   <Spec>
      <Fields>
         <member>string</member>
      </Fields>
      <Format>string</Format>
   </Spec>
</Manifest>
<ManifestGenerator>
   <S3JobManifestGenerator>
      <EnableManifestOutput>boolean</EnableManifestOutput>
      <ExpectedBucketOwner>string</ExpectedBucketOwner>
      <Filter>
         <CreatedAfter>timestamp</CreatedAfter>
         <CreatedBefore>timestamp</CreatedBefore>
         <EligibleForReplication>boolean</EligibleForReplication>
         <KeyNameConstraint>
            <MatchAnyPrefix>
               <member>string</member>
            </MatchAnyPrefix>
            <MatchAnySubstring>
               <member>string</member>
            </MatchAnySubstring>
            <MatchAnySuffix>
               <member>string</member>
            </MatchAnySuffix>
         </KeyNameConstraint>
         <MatchAnyStorageClass>
            <member>string</member>
         </MatchAnyStorageClass>
         <ObjectReplicationStatuses>
            <member>string</member>
         </ObjectReplicationStatuses>
         <ObjectSizeGreaterThanBytes>long</ObjectSizeGreaterThanBytes>
         <ObjectSizeLessThanBytes>long</ObjectSizeLessThanBytes>
      </Filter>
      <ManifestOutputLocation>
         <Bucket>string</Bucket>
         <ExpectedManifestBucketOwner>string</ExpectedManifestBucketOwner>
```

```
            <ManifestEncryption>
               <SSE-KMS>
                  <KeyId>string</KeyId>
               </SSE-KMS>
               <SSE-S3>
               </SSE-S3>
            </ManifestEncryption>
            <ManifestFormat>string</ManifestFormat>
            <ManifestPrefix>string</ManifestPrefix>
         </ManifestOutputLocation>
         <SourceBucket>string</SourceBucket>
      </S3JobManifestGenerator>
   </ManifestGenerator>
   <Operation>
      <LambdaInvoke>
         <FunctionArn>string</FunctionArn>
         <InvocationSchemaVersion>string</InvocationSchemaVersion>
         <UserArguments>
            <entry>
               <key>string</key>
               <value>string</value>
            </entry>
         </UserArguments>
      </LambdaInvoke>
      <S3ComputeObjectChecksum>
         <ChecksumAlgorithm>string</ChecksumAlgorithm>
         <ChecksumType>string</ChecksumType>
      </S3ComputeObjectChecksum>
      <S3DeleteObjectTagging>
      </S3DeleteObjectTagging>
      <S3InitiateRestoreObject>
         <ExpirationInDays>integer</ExpirationInDays>
         <GlacierJobTier>string</GlacierJobTier>
      </S3InitiateRestoreObject>
      <S3PutObjectAcl>
         <AccessControlPolicy>
            <AccessControlList>
               <Grants>
                  <S3Grant>
                     <Grantee>
                        <DisplayName>string</DisplayName>
                        <Identifier>string</Identifier>
                        <TypeIdentifier>string</TypeIdentifier>
                     </Grantee>
```

```
                <Permission>string</Permission>
            </S3Grant>
        </Grants>
        <Owner>
            <DisplayName>string</DisplayName>
            <ID>string</ID>
        </Owner>
    </AccessControlList>
    <CannedAccessControlList>string</CannedAccessControlList>
  </AccessControlPolicy>
</S3PutObjectAcl>
<S3PutObjectCopy>
  <AccessControlGrants>
    <S3Grant>
        <Grantee>
            <DisplayName>string</DisplayName>
            <Identifier>string</Identifier>
            <TypeIdentifier>string</TypeIdentifier>
        </Grantee>
        <Permission>string</Permission>
    </S3Grant>
  </AccessControlGrants>
  <BucketKeyEnabled>boolean</BucketKeyEnabled>
  <CannedAccessControlList>string</CannedAccessControlList>
  <ChecksumAlgorithm>string</ChecksumAlgorithm>
  <MetadataDirective>string</MetadataDirective>
  <ModifiedSinceConstraint>timestamp</ModifiedSinceConstraint>
  <NewObjectMetadata>
    <CacheControl>string</CacheControl>
    <ContentDisposition>string</ContentDisposition>
    <ContentEncoding>string</ContentEncoding>
    <ContentLanguage>string</ContentLanguage>
    <ContentLength>long</ContentLength>
    <ContentMD5>string</ContentMD5>
    <ContentType>string</ContentType>
    <HttpExpiresDate>timestamp</HttpExpiresDate>
    <RequesterCharged>boolean</RequesterCharged>
    <SSEAlgorithm>string</SSEAlgorithm>
    <UserMetadata>
        <entry>
            <key>string</key>
            <value>string</value>
        </entry>
    </UserMetadata>
```

```
            </NewObjectMetadata>
            <NewObjectTagging>
               <S3Tag>
                  <Key>string</Key>
                  <Value>string</Value>
               </S3Tag>
            </NewObjectTagging>
            <ObjectLockLegalHoldStatus>string</ObjectLockLegalHoldStatus>
            <ObjectLockMode>string</ObjectLockMode>
            <ObjectLockRetainUntilDate>timestamp</ObjectLockRetainUntilDate>
            <RedirectLocation>string</RedirectLocation>
            <RequesterPays>boolean</RequesterPays>
            <SSEAwsKmsKeyId>string</SSEAwsKmsKeyId>
            <StorageClass>string</StorageClass>
            <TargetKeyPrefix>string</TargetKeyPrefix>
            <TargetResource>string</TargetResource>
            <UnModifiedSinceConstraint>timestamp</UnModifiedSinceConstraint>
         </S3PutObjectCopy>
         <S3PutObjectLegalHold>
            <LegalHold>
               <Status>string</Status>
            </LegalHold>
         </S3PutObjectLegalHold>
         <S3PutObjectRetention>
            <BypassGovernanceRetention>boolean</BypassGovernanceRetention>
            <Retention>
               <Mode>string</Mode>
               <RetainUntilDate>timestamp</RetainUntilDate>
            </Retention>
         </S3PutObjectRetention>
         <S3PutObjectTagging>
            <TagSet>
               <S3Tag>
                  <Key>string</Key>
                  <Value>string</Value>
               </S3Tag>
            </TagSet>
         </S3PutObjectTagging>
         <S3ReplicateObject>
         </S3ReplicateObject>
      </Operation>
      <Priority>integer</Priority>
      <ProgressSummary>
         <NumberOfTasksFailed>long</NumberOfTasksFailed>
```

```
            <NumberOfTasksSucceeded>long</NumberOfTasksSucceeded>
            <Timers>
               <ElapsedTimeInActiveSeconds>long</ElapsedTimeInActiveSeconds>
            </Timers>
            <TotalNumberOfTasks>long</TotalNumberOfTasks>
         </ProgressSummary>
         <Report>
            <Bucket>string</Bucket>
            <Enabled>boolean</Enabled>
            <ExpectedBucketOwner>string</ExpectedBucketOwner>
            <Format>string</Format>
            <Prefix>string</Prefix>
            <ReportScope>string</ReportScope>
         </Report>
         <RoleArn>string</RoleArn>
         <Status>string</Status>
         <StatusUpdateReason>string</StatusUpdateReason>
         <SuspendedCause>string</SuspendedCause>
         <SuspendedDate>timestamp</SuspendedDate>
         <TerminationDate>timestamp</TerminationDate>
      </Job>
</DescribeJobResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

DescribeJobResult

Root level tag for the DescribeJobResult parameters.

Required: Yes

Job

Contains the configuration parameters and status for the job specified in the `Describe Job` request.

Type: JobDescriptor data type

Errors

BadRequestException

HTTP Status Code: 400

InternalServiceException

HTTP Status Code: 500

NotFoundException

HTTP Status Code: 400

TooManyRequestsException

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DescribeMultiRegionAccessPointOperation

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Retrieves the status of an asynchronous request to manage a Multi-Region Access Point. For more information about managing Multi-Region Access Points and how asynchronous requests work, see Using Multi-Region Access Points in the *Amazon S3 User Guide*.

The following actions are related to `GetMultiRegionAccessPoint`:

- CreateMultiRegionAccessPoint
- DeleteMultiRegionAccessPoint
- GetMultiRegionAccessPoint
- ListMultiRegionAccessPoints

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/async-requests/mrap/request_token+ HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

request_token

The request token associated with the request you want to know about. This request token is returned as part of the response when you make an asynchronous request. You provide this token to query about the status of the asynchronous action.

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `arn:.+`

Required: Yes

x-amz-account-id

The AWS account ID for the owner of the Multi-Region Access Point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<DescribeMultiRegionAccessPointOperationResult>
   <AsyncOperation>
      <CreationTime>timestamp</CreationTime>
      <Operation>string</Operation>
      <RequestParameters>
         <CreateMultiRegionAccessPointRequest>
            <Name>string</Name>
            <PublicAccessBlock>
               <BlockPublicAcls>boolean</BlockPublicAcls>
               <BlockPublicPolicy>boolean</BlockPublicPolicy>
               <IgnorePublicAcls>boolean</IgnorePublicAcls>
               <RestrictPublicBuckets>boolean</RestrictPublicBuckets>
            </PublicAccessBlock>
            <Regions>
```

```
                <Region>
                   <Bucket>string</Bucket>
                   <BucketAccountId>string</BucketAccountId>
                </Region>
             </Regions>
          </CreateMultiRegionAccessPointRequest>
          <DeleteMultiRegionAccessPointRequest>
             <Name>string</Name>
          </DeleteMultiRegionAccessPointRequest>
          <PutMultiRegionAccessPointPolicyRequest>
             <Name>string</Name>
             <Policy>string</Policy>
          </PutMultiRegionAccessPointPolicyRequest>
       </RequestParameters>
       <RequestStatus>string</RequestStatus>
       <RequestTokenARN>string</RequestTokenARN>
       <ResponseDetails>
          <ErrorDetails>
             <Code>string</Code>
             <Message>string</Message>
             <RequestId>string</RequestId>
             <Resource>string</Resource>
          </ErrorDetails>
          <MultiRegionAccessPointDetails>
             <Regions>
                <Region>
                   <Name>string</Name>
                   <RequestStatus>string</RequestStatus>
                </Region>
             </Regions>
          </MultiRegionAccessPointDetails>
       </ResponseDetails>
    </AsyncOperation>
</DescribeMultiRegionAccessPointOperationResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

DescribeMultiRegionAccessPointOperationResult

Root level tag for the DescribeMultiRegionAccessPointOperationResult parameters.

Required: Yes

AsyncOperation

A container element containing the details of the asynchronous operation.

Type: AsyncOperation data type

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DissociateAccessGrantsIdentityCenter

Service: Amazon S3 Control

Dissociates the AWS IAM Identity Center instance from the S3 Access Grants instance.

Permissions

You must have the `s3:DissociateAccessGrantsIdentityCenter` permission to use this operation.

Additional Permissions

You must have the `sso:DeleteApplication` permission to use this operation.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/accessgrantsinstance/identitycenter HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetAccessGrant

Service: Amazon S3 Control

Get the details of an access grant from your S3 Access Grants instance.

Permissions

You must have the `s3:GetAccessGrant` permission to use this operation.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accessgrantsinstance/grant/id HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

id

The ID of the access grant. S3 Access Grants auto-generates this ID when you create the access grant.

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

Required: Yes

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetAccessGrantResult>
   <CreatedAt>timestamp</CreatedAt>
   <AccessGrantId>string</AccessGrantId>
   <AccessGrantArn>string</AccessGrantArn>
   <Grantee>
      <GranteeIdentifier>string</GranteeIdentifier>
      <GranteeType>string</GranteeType>
   </Grantee>
   <Permission>string</Permission>
   <AccessGrantsLocationId>string</AccessGrantsLocationId>
   <AccessGrantsLocationConfiguration>
      <S3SubPrefix>string</S3SubPrefix>
   </AccessGrantsLocationConfiguration>
   <GrantScope>string</GrantScope>
   <ApplicationArn>string</ApplicationArn>
</GetAccessGrantResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetAccessGrantResult

Root level tag for the GetAccessGrantResult parameters.

Required: Yes

AccessGrantArn

The Amazon Resource Name (ARN) of the access grant.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:access\-grants\/grant/[a-zA-Z0-9\-]+`

AccessGrantId

The ID of the access grant. S3 Access Grants auto-generates this ID when you create the access grant.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

AccessGrantsLocationConfiguration

The configuration options of the grant location. The grant location is the S3 path to the data to which you are granting access.

Type: AccessGrantsLocationConfiguration data type

AccessGrantsLocationId

The ID of the registered location to which you are granting access. S3 Access Grants assigns this ID when you register the location. S3 Access Grants assigns the ID `default` to the default location `s3://` and assigns an auto-generated ID to other locations that you register.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

ApplicationArn

The Amazon Resource Name (ARN) of an AWS IAM Identity Center application associated with your Identity Center instance. If the grant includes an application ARN, the grantee can only access the S3 data through this application.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::\d{12}:application/.*$`

CreatedAt

The date and time when you created the access grant.

Type: Timestamp

Grantee

The user, group, or role to which you are granting access. You can grant access to an IAM user or role. If you have added a corporate directory to AWS IAM Identity Center and associated this Identity Center instance with the S3 Access Grants instance, the grantee can also be a corporate directory user or group.

Type: Grantee data type

GrantScope

The S3 path of the data to which you are granting access. It is the result of appending the `Subprefix` to the location scope.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `^.+$`

Permission

The type of permission that was granted in the access grant. Can be one of the following values:

- `READ` – Grant read-only access to the S3 data.
- `WRITE` – Grant write-only access to the S3 data.
- `READWRITE` – Grant both read and write access to the S3 data.

Type: String

Valid Values: `READ | WRITE | READWRITE`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetAccessGrantsInstance

Service: Amazon S3 Control

Retrieves the S3 Access Grants instance for a Region in your account.

Permissions

You must have the `s3:GetAccessGrantsInstance` permission to use this operation.

> **Note**
>
> `GetAccessGrantsInstance` is not supported for cross-account access. You can only call the API from the account that owns the S3 Access Grants instance.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accessgrantsinstance HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetAccessGrantsInstanceResult>
   <AccessGrantsInstanceArn>string</AccessGrantsInstanceArn>
   <AccessGrantsInstanceId>string</AccessGrantsInstanceId>
   <IdentityCenterArn>string</IdentityCenterArn>
   <IdentityCenterInstanceArn>string</IdentityCenterInstanceArn>
   <IdentityCenterApplicationArn>string</IdentityCenterApplicationArn>
   <CreatedAt>timestamp</CreatedAt>
</GetAccessGrantsInstanceResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetAccessGrantsInstanceResult

Root level tag for the GetAccessGrantsInstanceResult parameters.

Required: Yes

AccessGrantsInstanceArn

The Amazon Resource Name (ARN) of the S3 Access Grants instance.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:access\-grants\/[a-zA-Z0-9\-]+`

AccessGrantsInstanceId

The ID of the S3 Access Grants instance. The ID is `default`. You can have one S3 Access Grants instance per Region per account.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

CreatedAt

The date and time when you created the S3 Access Grants instance.

Type: Timestamp

IdentityCenterApplicationArn

If you associated your S3 Access Grants instance with an AWS IAM Identity Center instance, this field returns the Amazon Resource Name (ARN) of the IAM Identity Center instance application; a subresource of the original Identity Center instance. S3 Access Grants creates this Identity Center application for the specific S3 Access Grants instance.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::\d{12}:application/.*$`

IdentityCenterArn

This parameter has been deprecated.

If you associated your S3 Access Grants instance with an AWS IAM Identity Center instance, this field returns the Amazon Resource Name (ARN) of the IAM Identity Center instance application; a subresource of the original Identity Center instance. S3 Access Grants creates this Identity Center application for the specific S3 Access Grants instance.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::(\d{12}){0,1}:instance/.*$`

IdentityCenterInstanceArn

The Amazon Resource Name (ARN) of the AWS IAM Identity Center instance that you are associating with your S3 Access Grants instance. An IAM Identity Center instance is your

corporate identity directory that you added to the IAM Identity Center. You can use the ListInstances API operation to retrieve a list of your Identity Center instances and their ARNs.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::(\d{12}){0,1}:instance/.*$`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetAccessGrantsInstanceForPrefix

Service: Amazon S3 Control

Retrieve the S3 Access Grants instance that contains a particular prefix.

Permissions

You must have the `s3:GetAccessGrantsInstanceForPrefix` permission for the caller account to use this operation.

Additional Permissions

The prefix owner account must grant you the following permissions to their S3 Access Grants instance: `s3:GetAccessGrantsInstanceForPrefix`.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accessgrantsinstance/prefix?s3prefix=S3Prefix HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

s3prefix

The S3 prefix of the access grants that you would like to retrieve.

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `^.+$`

Required: Yes

x-amz-account-id

The ID of the AWS account that is making this request.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetAccessGrantsInstanceForPrefixResult>
   <AccessGrantsInstanceArn>string</AccessGrantsInstanceArn>
   <AccessGrantsInstanceId>string</AccessGrantsInstanceId>
</GetAccessGrantsInstanceForPrefixResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetAccessGrantsInstanceForPrefixResult

Root level tag for the GetAccessGrantsInstanceForPrefixResult parameters.

Required: Yes

AccessGrantsInstanceArn

The Amazon Resource Name (ARN) of the S3 Access Grants instance.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:access\-grants\/[a-zA-Z0-9\-]+`

AccessGrantsInstanceId

The ID of the S3 Access Grants instance. The ID is `default`. You can have one S3 Access Grants instance per Region per account.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetAccessGrantsInstanceResourcePolicy

Service: Amazon S3 Control

Returns the resource policy of the S3 Access Grants instance.

Permissions

You must have the `s3:GetAccessGrantsInstanceResourcePolicy` permission to use this operation.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accessgrantsinstance/resourcepolicy HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetAccessGrantsInstanceResourcePolicyResult>
   <Policy>string</Policy>
   <Organization>string</Organization>
   <CreatedAt>timestamp</CreatedAt>
</GetAccessGrantsInstanceResourcePolicyResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetAccessGrantsInstanceResourcePolicyResult

Root level tag for the GetAccessGrantsInstanceResourcePolicyResult parameters.

Required: Yes

CreatedAt

The date and time when you created the S3 Access Grants instance resource policy.

Type: Timestamp

Organization

The Organization of the resource policy of the S3 Access Grants instance.

Type: String

Length Constraints: Minimum length of 12. Maximum length of 34.

Pattern: `^o-[a-z0-9]{10,32}$`

Policy

The resource policy of the S3 Access Grants instance.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 350000.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetAccessGrantsLocation

Service: Amazon S3 Control

Retrieves the details of a particular location registered in your S3 Access Grants instance.

Permissions

You must have the `s3:GetAccessGrantsLocation` permission to use this operation.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accessgrantsinstance/location/id HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

id

The ID of the registered location that you are retrieving. S3 Access Grants assigns this ID when you register the location. S3 Access Grants assigns the ID `default` to the default location `s3://` and assigns an auto-generated ID to other locations that you register.

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

Required: Yes

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetAccessGrantsLocationResult>
   <CreatedAt>timestamp</CreatedAt>
   <AccessGrantsLocationId>string</AccessGrantsLocationId>
   <AccessGrantsLocationArn>string</AccessGrantsLocationArn>
   <LocationScope>string</LocationScope>
   <IAMRoleArn>string</IAMRoleArn>
</GetAccessGrantsLocationResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetAccessGrantsLocationResult

Root level tag for the GetAccessGrantsLocationResult parameters.

Required: Yes

AccessGrantsLocationArn

The Amazon Resource Name (ARN) of the registered location.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:access\-grants\/location/[a-zA-Z0-9\-]+`

AccessGrantsLocationId

The ID of the registered location to which you are granting access. S3 Access Grants assigns this ID when you register the location. S3 Access Grants assigns the ID `default` to the default location `s3://` and assigns an auto-generated ID to other locations that you register.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

CreatedAt

The date and time when you registered the location.

Type: Timestamp

IAMRoleArn

The Amazon Resource Name (ARN) of the IAM role for the registered location. S3 Access Grants assumes this role to manage access to the registered location.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[^:]+:iam::\d{12}:role/.*`

LocationScope

The S3 URI path to the registered location. The location scope can be the default S3 location `s3://`, the S3 path to a bucket, or the S3 path to a bucket and prefix. A prefix in S3 is a string of characters at the beginning of an object key name used to organize the objects that you store in your S3 buckets. For example, object key names that start with the `engineering/` prefix or object key names that start with the `marketing/campaigns/` prefix.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `^.+$`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetAccessPoint

Service: Amazon S3 Control

Returns configuration information about the specified access point.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

The following actions are related to `GetAccessPoint`:

- CreateAccessPoint
- DeleteAccessPoint
- ListAccessPoints

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accesspoint/name HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the access point whose configuration information you want to retrieve.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the access point accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/accesspoint/<my-accesspoint-name>`. For example, to access the access point `reports-ap` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/accesspoint/reports-ap`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID for the account that owns the specified access point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetAccessPointResult>
   <Name>string</Name>
   <Bucket>string</Bucket>
   <NetworkOrigin>string</NetworkOrigin>
   <VpcConfiguration>
      <VpcId>string</VpcId>
   </VpcConfiguration>
   <PublicAccessBlockConfiguration>
      <BlockPublicAcls>boolean</BlockPublicAcls>
```

```
      <BlockPublicPolicy>boolean</BlockPublicPolicy>
      <IgnorePublicAcls>boolean</IgnorePublicAcls>
      <RestrictPublicBuckets>boolean</RestrictPublicBuckets>
   </PublicAccessBlockConfiguration>
   <CreationDate>timestamp</CreationDate>
   <Alias>string</Alias>
   <AccessPointArn>string</AccessPointArn>
   <Endpoints>
      <entry>
         <key>string</key>
         <value>string</value>
      </entry>
   </Endpoints>
   <BucketAccountId>string</BucketAccountId>
   <DataSourceId>string</DataSourceId>
   <DataSourceType>string</DataSourceType>
</GetAccessPointResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetAccessPointResult

Root level tag for the GetAccessPointResult parameters.

Required: Yes

AccessPointArn

The ARN of the access point.

Type: String

Length Constraints: Minimum length of 4. Maximum length of 128.

Alias

The name or alias of the access point.

Type: String

Length Constraints: Maximum length of 63.

Pattern: `^[0-9a-z\\-]{63}`

Bucket

The name of the bucket associated with the specified access point.

Type: String

Length Constraints: Maximum length of 255.

BucketAccountId

The AWS account ID associated with the S3 bucket associated with this access point.

Type: String

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

CreationDate

The date and time when the specified access point was created.

Type: Timestamp

DataSourceId

The unique identifier for the data source of the access point.

Type: String

Length Constraints: Maximum length of 191.

DataSourceType

The type of the data source that the access point is attached to.

Type: String

Endpoints

The VPC endpoint for the access point.

Type: String to string map

Key Length Constraints: Minimum length of 1. Maximum length of 64.

Value Length Constraints: Minimum length of 1. Maximum length of 1024.

Name

The name of the specified access point.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 255.

NetworkOrigin

Indicates whether this access point allows access from the public internet. If `VpcConfiguration` is specified for this access point, then `NetworkOrigin` is `VPC`, and the access point doesn't allow access from the public internet. Otherwise, `NetworkOrigin` is `Internet`, and the access point allows access from the public internet, subject to the access point and bucket access policies.

This will always be true for an Amazon S3 on Outposts access point

Type: String

Valid Values: `Internet | VPC`

PublicAccessBlockConfiguration

The `PublicAccessBlock` configuration that you want to apply to this Amazon S3 account. You can enable the configuration options in any combination. For more information about when Amazon S3 considers a bucket or object public, see The Meaning of "Public" in the *Amazon S3 User Guide*.

This data type is not supported for Amazon S3 on Outposts.

Type: PublicAccessBlockConfiguration data type

VpcConfiguration

Contains the virtual private cloud (VPC) configuration for the specified access point.

> **Note**
>
> This element is empty if this access point is an Amazon S3 on Outposts access point that is used by other AWS services.

Type: VpcConfiguration data type

Examples

Sample request syntax for getting an Amazon S3 on Outposts access point

The following request returns the access point of the specified S3 on Outposts access point.

```
GET /v20180820/accesspoint/example-access-point HTTP/1.1
Host: s3-outposts.<Region>.amazonaws.com
Date: Wed, 28 Oct 2020 22:32:00 GMT
Authorization: authorization string
x-amz-account-id: example-account-id
x-amz-outpost-id: op-01ac5d28a6a232904
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetAccessPointConfigurationForObjectLambda

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Returns configuration for an Object Lambda Access Point.

The following actions are related to `GetAccessPointConfigurationForObjectLambda`:

- PutAccessPointConfigurationForObjectLambda

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accesspointforobjectlambda/name/configuration HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the Object Lambda Access Point you want to return the configuration for.

Length Constraints: Minimum length of 3. Maximum length of 45.

Pattern: `^[a-z0-9]([a-z0-9\-]*[a-z0-9])?$`

Required: Yes

x-amz-account-id

The account ID for the account that owns the specified Object Lambda Access Point.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetAccessPointConfigurationForObjectLambdaResult>
   <Configuration>
      <AllowedFeatures>
         <AllowedFeature>string</AllowedFeature>
      </AllowedFeatures>
      <CloudWatchMetricsEnabled>boolean</CloudWatchMetricsEnabled>
      <SupportingAccessPoint>string</SupportingAccessPoint>
      <TransformationConfigurations>
         <TransformationConfiguration>
            <Actions>
               <Action>string</Action>
            </Actions>
            <ContentTransformation>
               <AwsLambda>
                  <FunctionArn>string</FunctionArn>
                  <FunctionPayload>string</FunctionPayload>
               </AwsLambda>
            </ContentTransformation>
         </TransformationConfiguration>
      </TransformationConfigurations>
   </Configuration>
</GetAccessPointConfigurationForObjectLambdaResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetAccessPointConfigurationForObjectLambdaResult

Root level tag for the GetAccessPointConfigurationForObjectLambdaResult parameters.

Required: Yes

Configuration

Object Lambda Access Point configuration document.

Type: ObjectLambdaConfiguration data type

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetAccessPointForObjectLambda

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Returns configuration information about the specified Object Lambda Access Point

The following actions are related to `GetAccessPointForObjectLambda`:

- CreateAccessPointForObjectLambda
- DeleteAccessPointForObjectLambda
- ListAccessPointsForObjectLambda

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accesspointforobjectlambda/name HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the Object Lambda Access Point.

Length Constraints: Minimum length of 3. Maximum length of 45.

Pattern: `^[a-z0-9]([a-z0-9\-]*[a-z0-9])?$`

Required: Yes

x-amz-account-id

The account ID for the account that owns the specified Object Lambda Access Point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetAccessPointForObjectLambdaResult>
   <Name>string</Name>
   <PublicAccessBlockConfiguration>
      <BlockPublicAcls>boolean</BlockPublicAcls>
      <BlockPublicPolicy>boolean</BlockPublicPolicy>
      <IgnorePublicAcls>boolean</IgnorePublicAcls>
      <RestrictPublicBuckets>boolean</RestrictPublicBuckets>
   </PublicAccessBlockConfiguration>
   <CreationDate>timestamp</CreationDate>
   <Alias>
      <Status>string</Status>
      <Value>string</Value>
   </Alias>
</GetAccessPointForObjectLambdaResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetAccessPointForObjectLambdaResult

Root level tag for the GetAccessPointForObjectLambdaResult parameters.

Required: Yes

Alias

The alias of the Object Lambda Access Point.

Type: ObjectLambdaAccessPointAlias data type

CreationDate

The date and time when the specified Object Lambda Access Point was created.

Type: Timestamp

Name

The name of the Object Lambda Access Point.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 45.

Pattern: `^[a-z0-9]([a-z0-9\-]*[a-z0-9])?$`

PublicAccessBlockConfiguration

Configuration to block all public access. This setting is turned on and can not be edited.

Type: PublicAccessBlockConfiguration data type

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2

- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetAccessPointPolicy

Service: Amazon S3 Control

Returns the access point policy associated with the specified access point.

The following actions are related to `GetAccessPointPolicy`:

- PutAccessPointPolicy
- DeleteAccessPointPolicy

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accesspoint/name/policy HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the access point whose policy you want to retrieve.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the access point accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/accesspoint/<my-accesspoint-name>`. For example, to access the access point `reports-ap` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL

encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/accesspoint/reports-ap`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The account ID for the account that owns the specified access point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetAccessPointPolicyResult>
   <Policy>string</Policy>
</GetAccessPointPolicyResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetAccessPointPolicyResult

Root level tag for the GetAccessPointPolicyResult parameters.

Required: Yes

Policy

The access point policy associated with the specified access point.

Type: String

Examples

Sample request

The following request returns the access point of the specified Amazon S3 on Outposts.

```
GET /v20180820/accesspoint/example-access-point/policy  HTTP/1.1
Host: s3-outposts.<Region>.amazonaws.com
Date: Wed, 28 Oct 2020 22:32:00 GMT
Authorization: authorization string
x-amz-account-id: 123456789012
x-amz-outpost-id: op-123456
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetAccessPointPolicyForObjectLambda

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Returns the resource policy for an Object Lambda Access Point.

The following actions are related to `GetAccessPointPolicyForObjectLambda`:

- DeleteAccessPointPolicyForObjectLambda
- PutAccessPointPolicyForObjectLambda

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accesspointforobjectlambda/name/policy HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the Object Lambda Access Point.

Length Constraints: Minimum length of 3. Maximum length of 45.

Pattern: `^[a-z0-9]([a-z0-9\-]*[a-z0-9])?$`

Required: Yes

x-amz-account-id

The account ID for the account that owns the specified Object Lambda Access Point.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetAccessPointPolicyForObjectLambdaResult>
   <Policy>string</Policy>
</GetAccessPointPolicyForObjectLambdaResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetAccessPointPolicyForObjectLambdaResult

Root level tag for the GetAccessPointPolicyForObjectLambdaResult parameters.

Required: Yes

Policy

Object Lambda Access Point resource policy document.

Type: String

Examples

Sample resource policy

The following illustrates a sample resource policy.

```
{
    "Version" : "2008-10-17",
    "Statement":[{
        "Sid": "Grant account 123456789012 GetObject access",
        "Effect":"Allow",
        "Principal" : {
            "AWS": "arn:aws:iam::123456789012:root"
        },
        "Action":["s3-object-lambda:GetObject"],
        "Resource":["arn:aws:s3-object-lambda:us-east-1:123456789012:accesspoint/my-
object-lambda-ap"]
        },
        {
        "Sid": "Grant account 444455556666 GetObject access",
        "Effect":"Allow",
        "Principal" : {
            "AWS": "arn:aws:iam::444455556666:root"
        },
        "Action":["s3-object-lambda:GetObject"],
        "Resource":["arn:aws:s3-object-lambda:us-east-1:123456789012:accesspoint/my-
object-lambda-ap"]
        }
    ]
}
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2

- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetAccessPointPolicyStatus

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Indicates whether the specified access point currently has a policy that allows public access. For more information about public access through access points, see Managing Data Access with Amazon S3 access points in the *Amazon S3 User Guide*.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accesspoint/name/policyStatus HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the access point whose policy status you want to retrieve.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The account ID for the account that owns the specified access point.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetAccessPointPolicyStatusResult>
   <PolicyStatus>
      <IsPublic>boolean</IsPublic>
   </PolicyStatus>
</GetAccessPointPolicyStatusResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetAccessPointPolicyStatusResult

Root level tag for the GetAccessPointPolicyStatusResult parameters.

Required: Yes

PolicyStatus

Indicates the current policy status of the specified access point.

Type: PolicyStatus data type

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetAccessPointPolicyStatusForObjectLambda

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Returns the status of the resource policy associated with an Object Lambda Access Point.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accesspointforobjectlambda/name/policyStatus HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the Object Lambda Access Point.

Length Constraints: Minimum length of 3. Maximum length of 45.

Pattern: `^[a-z0-9]([a-z0-9\-]*[a-z0-9])?$`

Required: Yes

x-amz-account-id

The account ID for the account that owns the specified Object Lambda Access Point.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetAccessPointPolicyStatusForObjectLambdaResult>
   <PolicyStatus>
      <IsPublic>boolean</IsPublic>
   </PolicyStatus>
</GetAccessPointPolicyStatusForObjectLambdaResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetAccessPointPolicyStatusForObjectLambdaResult

Root level tag for the GetAccessPointPolicyStatusForObjectLambdaResult parameters.

Required: Yes

PolicyStatus

Indicates whether this access point policy is public. For more information about how Amazon S3 evaluates policies to determine whether they are public, see The Meaning of "Public" in the *Amazon S3 User Guide*.

Type: PolicyStatus data type

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetAccessPointScope

Service: Amazon S3 Control

Returns the access point scope for a directory bucket.

To use this operation, you must have the permission to perform the `s3express:GetAccessPointScope` action.

For information about REST API errors, see REST error responses.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accesspoint/name/scope HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the access point with the scope you want to retrieve.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID that owns the access point with the scope that you want to retrieve.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetAccessPointScopeResult>
   <Scope>
      <Permissions>
         <Permission>string</Permission>
      </Permissions>
      <Prefixes>
         <Prefix>string</Prefix>
      </Prefixes>
   </Scope>
</GetAccessPointScopeResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetAccessPointScopeResult

Root level tag for the GetAccessPointScopeResult parameters.

Required: Yes

Scope

The contents of the access point scope.

Type: Scope data type

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucket

Service: Amazon S3 Control

Gets an Amazon S3 on Outposts bucket. For more information, see Using Amazon S3 on Outposts in the *Amazon S3 User Guide*.

If you are using an identity other than the root user of the AWS account that owns the Outposts bucket, the calling identity must have the `s3-outposts:GetBucket` permissions on the specified Outposts bucket and belong to the Outposts bucket owner's account in order to use this action. Only users from Outposts bucket owner account with the right permissions can perform actions on an Outposts bucket.

If you don't have `s3-outposts:GetBucket` permissions or you're not using an identity that belongs to the bucket owner's account, Amazon S3 returns a `403 Access Denied` error.

The following actions are related to `GetBucket` for Amazon S3 on Outposts:

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

- PutObject
- CreateBucket
- DeleteBucket

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/bucket/name HTTP/1.1
Host: Bucket.s3-control.amazonaws.com
```

```
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

Specifies the bucket.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the bucket accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/bucket/<my-bucket-name>`. For example, to access the bucket `reports` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/bucket/reports`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID of the Outposts bucket.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

```
<?xml version="1.0" encoding="UTF-8"?>
<GetBucketResult>
   <Bucket>string</Bucket>
   <PublicAccessBlockEnabled>boolean</PublicAccessBlockEnabled>
   <CreationDate>timestamp</CreationDate>
</GetBucketResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetBucketResult

Root level tag for the GetBucketResult parameters.

Required: Yes

Bucket

The Outposts bucket requested.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 255.

CreationDate

The creation date of the Outposts bucket.

Type: Timestamp

PublicAccessBlockEnabled

Type: Boolean

Examples

Sample request for getting Amazon S3 on Outposts bucket

This example illustrates one usage of GetBucket.

```
GET /v20180820/bucket/example-outpost-bucket/ HTTP/1.1
```

```
Host: s3-outposts.<Region>.amazonaws.com
            x-amz-account-id: example-account-id
            x-amz-outpost-id: op-01ac5d28a6a232904
            x-amz-Date: 20200928T203757Z
            Authorization: authorization string
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketLifecycleConfiguration

Service: Amazon S3 Control

> **Note**
>
> This action gets an Amazon S3 on Outposts bucket's lifecycle configuration. To get an S3 bucket's lifecycle configuration, see GetBucketLifecycleConfiguration in the *Amazon S3 API Reference*.

Returns the lifecycle configuration information set on the Outposts bucket. For more information, see Using Amazon S3 on Outposts and for information about lifecycle configuration, see Object Lifecycle Management in *Amazon S3 User Guide*.

To use this action, you must have permission to perform the `s3-outposts:GetLifecycleConfiguration` action. The Outposts bucket owner has this permission, by default. The bucket owner can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

`GetBucketLifecycleConfiguration` has the following special error:

- Error code: `NoSuchLifecycleConfiguration`
  - Description: The lifecycle configuration does not exist.
  - HTTP Status Code: 404 Not Found
  - SOAP Fault Code Prefix: Client

The following actions are related to `GetBucketLifecycleConfiguration`:

- PutBucketLifecycleConfiguration
- DeleteBucketLifecycleConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/bucket/name/lifecycleconfiguration HTTP/1.1
Host: Bucket.s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The Amazon Resource Name (ARN) of the bucket.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the bucket accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/bucket/<my-bucket-name>`. For example, to access the bucket `reports` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/bucket/reports`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID of the Outposts bucket.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetBucketLifecycleConfigurationResult>
   <Rules>
      <Rule>
         <AbortIncompleteMultipartUpload>
            <DaysAfterInitiation>integer</DaysAfterInitiation>
         </AbortIncompleteMultipartUpload>
         <Expiration>
            <Date>timestamp</Date>
            <Days>integer</Days>
            <ExpiredObjectDeleteMarker>boolean</ExpiredObjectDeleteMarker>
         </Expiration>
         <Filter>
            <And>
               <ObjectSizeGreaterThan>long</ObjectSizeGreaterThan>
               <ObjectSizeLessThan>long</ObjectSizeLessThan>
               <Prefix>string</Prefix>
               <Tags>
                  <S3Tag>
                     <Key>string</Key>
                     <Value>string</Value>
                  </S3Tag>
               </Tags>
            </And>
            <ObjectSizeGreaterThan>long</ObjectSizeGreaterThan>
            <ObjectSizeLessThan>long</ObjectSizeLessThan>
            <Prefix>string</Prefix>
            <Tag>
               <Key>string</Key>
               <Value>string</Value>
            </Tag>
         </Filter>
```

```
        <ID>string</ID>
        <NoncurrentVersionExpiration>
           <NewerNoncurrentVersions>integer</NewerNoncurrentVersions>
           <NoncurrentDays>integer</NoncurrentDays>
        </NoncurrentVersionExpiration>
        <NoncurrentVersionTransitions>
           <NoncurrentVersionTransition>
              <NoncurrentDays>integer</NoncurrentDays>
              <StorageClass>string</StorageClass>
           </NoncurrentVersionTransition>
        </NoncurrentVersionTransitions>
        <Status>string</Status>
        <Transitions>
           <Transition>
              <Date>timestamp</Date>
              <Days>integer</Days>
              <StorageClass>string</StorageClass>
           </Transition>
        </Transitions>
     </Rule>
  </Rules>
</GetBucketLifecycleConfigurationResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetBucketLifecycleConfigurationResult

Root level tag for the GetBucketLifecycleConfigurationResult parameters.

Required: Yes

Rules

Container for the lifecycle rule of the Outposts bucket.

Type: Array of LifecycleRule data types

Examples

Sample request to get the lifecycle configuration of the Amazon S3 on Outposts bucket

The following example shows how to get the lifecycle configuration of the Outposts bucket.

```
            GET /v20180820/bucket/example-outpost-bucket/lifecycleconfiguration
HTTP/1.1
            Host: s3-outposts.<Region>.amazonaws.com
            x-amz-account-id: example-account-id
            x-amz-outpost-id: op-01ac5d28a6a232904
            x-amz-date: Thu, 15 Nov 2012 00:17:21 GMT
            Authorization: signatureValue
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketPolicy

Service: Amazon S3 Control

> **Note**
>
> This action gets a bucket policy for an Amazon S3 on Outposts bucket. To get a policy for an S3 bucket, see GetBucketPolicy in the *Amazon S3 API Reference*.

Returns the policy of a specified Outposts bucket. For more information, see Using Amazon S3 on Outposts in the *Amazon S3 User Guide*.

If you are using an identity other than the root user of the AWS account that owns the bucket, the calling identity must have the `GetBucketPolicy` permissions on the specified bucket and belong to the bucket owner's account in order to use this action.

Only users from Outposts bucket owner account with the right permissions can perform actions on an Outposts bucket. If you don't have `s3-outposts:GetBucketPolicy` permissions or you're not using an identity that belongs to the bucket owner's account, Amazon S3 returns a `403 Access Denied` error.

> **Important**
>
> As a security precaution, the root user of the AWS account that owns a bucket can always use this action, even if the policy explicitly denies the root user the ability to perform this action.

For more information about bucket policies, see Using Bucket Policies and User Policies.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

The following actions are related to `GetBucketPolicy`:

- GetObject

- PutBucketPolicy
- DeleteBucketPolicy

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/bucket/name/policy HTTP/1.1
Host: Bucket.s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

Specifies the bucket.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the bucket accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/bucket/<my-bucket-name>`. For example, to access the bucket `reports` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/bucket/reports`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID of the Outposts bucket.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetBucketPolicyResult>
   <Policy>string</Policy>
</GetBucketPolicyResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetBucketPolicyResult

Root level tag for the GetBucketPolicyResult parameters.

Required: Yes

Policy

The policy of the Outposts bucket.

Type: String

Examples

Sample GetBucketPolicy request for an Amazon S3 on Outposts bucket

The following request gets the policy of the specified Outposts bucket `example-outpost-bucket`.

```
GET /v20180820/bucket/example-outpost-bucket/policy HTTP/1.1
Host: s3-outposts.<Region>.amazonaws.com
Date: Wed, 28 Oct 2009 22:32:00 GMT
Authorization: authorization string
x-amz-account-id: example-account-id
x-amz-outpost-id: op-01ac5d28a6a232904
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketReplication

Service: Amazon S3 Control

> **Note**
>
> This operation gets an Amazon S3 on Outposts bucket's replication configuration. To get an S3 bucket's replication configuration, see GetBucketReplication in the *Amazon S3 API Reference*.

Returns the replication configuration of an S3 on Outposts bucket. For more information about S3 on Outposts, see Using Amazon S3 on Outposts in the *Amazon S3 User Guide*. For information about S3 replication on Outposts configuration, see Replicating objects for S3 on Outposts in the *Amazon S3 User Guide*.

> **Note**
>
> It can take a while to propagate `PUT` or `DELETE` requests for a replication configuration to all S3 on Outposts systems. Therefore, the replication configuration that's returned by a `GET` request soon after a `PUT` or `DELETE` request might return a more recent result than what's on the Outpost. If an Outpost is offline, the delay in updating the replication configuration on that Outpost can be significant.

This action requires permissions for the `s3-outposts:GetReplicationConfiguration` action. The Outposts bucket owner has this permission by default and can grant it to others. For more information about permissions, see Setting up IAM with S3 on Outposts and Managing access to S3 on Outposts bucket in the *Amazon S3 User Guide*.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

If you include the `Filter` element in a replication configuration, you must also include the `DeleteMarkerReplication`, `Status`, and `Priority` elements. The response also returns those elements.

For information about S3 on Outposts replication failure reasons, see Replication failure reasons in the *Amazon S3 User Guide*.

The following operations are related to `GetBucketReplication`:

- PutBucketReplication
- DeleteBucketReplication

Request Syntax

```
GET /v20180820/bucket/name/replication HTTP/1.1
Host: Bucket.s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

Specifies the bucket to get the replication information for.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the bucket accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/bucket/<my-bucket-name>`. For example, to access the bucket `reports` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/bucket/reports`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID of the Outposts bucket.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetBucketReplicationResult>
   <ReplicationConfiguration>
      <Role>string</Role>
      <Rules>
         <Rule>
            <Bucket>string</Bucket>
            <DeleteMarkerReplication>
               <Status>string</Status>
            </DeleteMarkerReplication>
            <Destination>
               <AccessControlTranslation>
                  <Owner>string</Owner>
               </AccessControlTranslation>
               <Account>string</Account>
               <Bucket>string</Bucket>
               <EncryptionConfiguration>
                  <ReplicaKmsKeyID>string</ReplicaKmsKeyID>
               </EncryptionConfiguration>
               <Metrics>
                  <EventThreshold>
                     <Minutes>integer</Minutes>
                  </EventThreshold>
                  <Status>string</Status>
               </Metrics>
               <ReplicationTime>
                  <Status>string</Status>
                  <Time>
                     <Minutes>integer</Minutes>
                  </Time>
```

```
                </ReplicationTime>
                <StorageClass>string</StorageClass>
            </Destination>
            <ExistingObjectReplication>
                <Status>string</Status>
            </ExistingObjectReplication>
            <Filter>
                <And>
                    <Prefix>string</Prefix>
                    <Tags>
                        <S3Tag>
                            <Key>string</Key>
                            <Value>string</Value>
                        </S3Tag>
                    </Tags>
                </And>
                <Prefix>string</Prefix>
                <Tag>
                    <Key>string</Key>
                    <Value>string</Value>
                </Tag>
            </Filter>
            <ID>string</ID>
            <Prefix>string</Prefix>
            <Priority>integer</Priority>
            <SourceSelectionCriteria>
                <ReplicaModifications>
                    <Status>string</Status>
                </ReplicaModifications>
                <SseKmsEncryptedObjects>
                    <Status>string</Status>
                </SseKmsEncryptedObjects>
            </SourceSelectionCriteria>
            <Status>string</Status>
        </Rule>
    </Rules>
  </ReplicationConfiguration>
</GetBucketReplicationResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetBucketReplicationResult

Root level tag for the GetBucketReplicationResult parameters.

Required: Yes

ReplicationConfiguration

A container for one or more replication rules. A replication configuration must have at least one rule and you can add up to 100 rules. The maximum size of a replication configuration is 128 KB.

Type: ReplicationConfiguration data type

Examples

Sample request to get the replication configuration of an Amazon S3 on Outposts bucket

The following example shows how to get the replication configuration of an Outposts bucket.

```
GET /v20180820/bucket/example-outpost-bucket/replication HTTP/1.1
Host: s3-outposts.<Region>.amazonaws.com
x-amz-account-id: example-account-id
x-amz-outpost-id: op-01ac5d28a6a232904
Authorization: signatureValue
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin

- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketTagging

Service: Amazon S3 Control

> **Note**
>
> This action gets an Amazon S3 on Outposts bucket's tags. To get an S3 bucket tags, see GetBucketTagging in the *Amazon S3 API Reference*.

Returns the tag set associated with the Outposts bucket. For more information, see Using Amazon S3 on Outposts in the *Amazon S3 User Guide*.

To use this action, you must have permission to perform the `GetBucketTagging` action. By default, the bucket owner has this permission and can grant this permission to others.

`GetBucketTagging` has the following special error:

- Error code: `NoSuchTagSetError`
  - Description: There is no tag set associated with the bucket.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

The following actions are related to `GetBucketTagging`:

- PutBucketTagging
- DeleteBucketTagging

Request Syntax

```
GET /v20180820/bucket/name/tagging HTTP/1.1
Host: Bucket.s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

Specifies the bucket.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the bucket accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/bucket/<my-bucket-name>`. For example, to access the bucket `reports` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/bucket/reports`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID of the Outposts bucket.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
```

```
<GetBucketTaggingResult>
   <TagSet>
      <S3Tag>
         <Key>string</Key>
         <Value>string</Value>
      </S3Tag>
   </TagSet>
</GetBucketTaggingResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetBucketTaggingResult

Root level tag for the GetBucketTaggingResult parameters.

Required: Yes

TagSet

The tags set of the Outposts bucket.

Type: Array of S3Tag data types

Examples

Amazon S3 on Outposts request example for getting a tag set for an Outposts bucket

The following request gets the tag set of the specified Outposts bucket `example-outpost-bucket`.

```
GET /v20180820/bucket/example-outpost-bucket/tagging HTTP/1.1
Host: s3-outposts.<Region>.amazonaws.com
x-amz-date: Wed, 28 Oct 2020 22:32:00 GMT
x-amz-account-id: example-account-id
x-amz-outpost-id: op-01ac5d28a6a232904
Authorization: authorization string
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetBucketVersioning

Service: Amazon S3 Control

> **Note**
>
> This operation returns the versioning state for S3 on Outposts buckets only. To return the versioning state for an S3 bucket, see GetBucketVersioning in the *Amazon S3 API Reference*.

Returns the versioning state for an S3 on Outposts bucket. With S3 Versioning, you can save multiple distinct copies of your objects and recover from unintended user actions and application failures.

If you've never set versioning on your bucket, it has no versioning state. In that case, the `GetBucketVersioning` request does not return a versioning state value.

For more information about versioning, see Versioning in the *Amazon S3 User Guide*.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

The following operations are related to `GetBucketVersioning` for S3 on Outposts.

- PutBucketVersioning
- PutBucketLifecycleConfiguration
- GetBucketLifecycleConfiguration

Request Syntax

```
GET /v20180820/bucket/name/versioning HTTP/1.1
Host: Bucket.s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The S3 on Outposts bucket to return the versioning state for.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID of the S3 on Outposts bucket.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetBucketVersioningResult>
   <Status>string</Status>
   <MfaDelete>string</MfaDelete>
</GetBucketVersioningResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetBucketVersioningResult

Root level tag for the GetBucketVersioningResult parameters.

Required: Yes

MFADelete

Specifies whether MFA delete is enabled in the bucket versioning configuration. This element is returned only if the bucket has been configured with MFA delete. If MFA delete has never been configured for the bucket, this element is not returned.

Type: String

Valid Values: `Enabled | Disabled`

Status

The versioning state of the S3 on Outposts bucket.

Type: String

Valid Values: `Enabled | Suspended`

Examples

Sample GetBucketVersioning request on an S3 on Outposts bucket

This request returns the versioning state for an S3 on Outposts bucket that's named `example-outpost-bucket`.

```
GET /v20180820/bucket/example-outpost-bucket/?versioning HTTP/1.1
Host:s3-outposts.region-code.amazonaws.com
x-amz-account-id: example-account-id
x-amz-outpost-id: op-01ac5d28a6a232904
x-amz-date: Wed, 25 May  2022 00:14:21 GMT
Authorization: signatureValue
```

Sample GetBucketVersioning response on a versioning-enabled S3 on Outposts bucket

If you enabled versioning on a bucket, the response is:

```
    <VersioningConfiguration xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
        <Status>Enabled</Status>
```

```
    </VersioningConfiguration>
```

Sample GetBucketVersioning response on a versioning-suspended bucket

If you suspended versioning on a bucket, the response is:

```
    <VersioningConfiguration xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
        <Status>Suspended</Status>
    </VersioningConfiguration>
```

Sample GetBucketVersioning response if you have never enabled versioning.

If you have never enabled versioning on a bucket, the response is:

```
    <VersioningConfiguration xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetDataAccess

Service: Amazon S3 Control

Returns a temporary access credential from S3 Access Grants to the grantee or client application. The temporary credential is an AWS STS token that grants them access to the S3 data.

Permissions

You must have the `s3:GetDataAccess` permission to use this operation.

Additional Permissions

The IAM role that S3 Access Grants assumes must have the following permissions specified in the trust policy when registering the location: `sts:AssumeRole`, for directory users or groups `sts:SetContext`, and for IAM users or roles `sts:SetSourceIdentity`.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accessgrantsinstance/dataaccess?
durationSeconds=DurationSeconds&permission=Permission&privilege=Privilege&target=Target&targetT
 HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

durationSeconds

The session duration, in seconds, of the temporary access credential that S3 Access Grants vends to the grantee or client application. The default value is 1 hour, but the grantee can specify a range from 900 seconds (15 minutes) up to 43200 seconds (12 hours). If the grantee requests a value higher than this maximum, the operation fails.

Valid Range: Minimum value of 900. Maximum value of 43200.

permission

The type of permission granted to your S3 data, which can be set to one of the following values:

- `READ` – Grant read-only access to the S3 data.
- `WRITE` – Grant write-only access to the S3 data.
- `READWRITE` – Grant both read and write access to the S3 data.

Valid Values: `READ | WRITE | READWRITE`

Required: Yes

privilege

The scope of the temporary access credential that S3 Access Grants vends to the grantee or client application.

- `Default` – The scope of the returned temporary access token is the scope of the grant that is closest to the target scope.
- `Minimal` – The scope of the returned temporary access token is the same as the requested target scope as long as the requested scope is the same as or a subset of the grant scope.

Valid Values: `Minimal | Default`

target

The S3 URI path of the data to which you are requesting temporary access credentials. If the requesting account has an access grant for this data, S3 Access Grants vends temporary access credentials in the response.

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `^.+$`

Required: Yes

targetType

The type of `Target`. The only possible value is `Object`. Pass this value if the target data that you would like to access is a path to an object. Do not pass this value if the target data is a bucket or a bucket and a prefix.

Valid Values: `Object`

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetDataAccessResult>
   <Credentials>
      <AccessKeyId>string</AccessKeyId>
      <Expiration>timestamp</Expiration>
      <SecretAccessKey>string</SecretAccessKey>
      <SessionToken>string</SessionToken>
   </Credentials>
   <MatchedGrantTarget>string</MatchedGrantTarget>
   <Grantee>
      <GranteeIdentifier>string</GranteeIdentifier>
      <GranteeType>string</GranteeType>
   </Grantee>
</GetDataAccessResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetDataAccessResult

Root level tag for the GetDataAccessResult parameters.

Required: Yes

Credentials

The temporary credential token that S3 Access Grants vends.

Type: Credentials data type

Grantee

The user, group, or role that was granted access to the S3 location scope. For directory identities, this API also returns the grants of the IAM role used for the identity-aware request. For more information on identity-aware sessions, see Granting permissions to use identity-aware console sessions.

Type: Grantee data type

MatchedGrantTarget

The S3 URI path of the data to which you are being granted temporary access credentials.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `^.+$`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python

- AWS SDK for Ruby V3

GetJobTagging

Service: Amazon S3 Control

Returns the tags on an S3 Batch Operations job.

Permissions

To use the `GetJobTagging` operation, you must have permission to perform the `s3:GetJobTagging` action. For more information, see Controlling access and labeling jobs using tags in the *Amazon S3 User Guide*.

Related actions include:

- CreateJob
- PutJobTagging
- DeleteJobTagging

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/jobs/id/tagging HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

id

The ID for the S3 Batch Operations job whose tags you want to retrieve.

Length Constraints: Minimum length of 5. Maximum length of 36.

Pattern: `[a-zA-Z0-9\-\_]+`

Required: Yes

x-amz-account-id

The AWS account ID associated with the S3 Batch Operations job.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetJobTaggingResult>
   <Tags>
      <S3Tag>
         <Key>string</Key>
         <Value>string</Value>
      </S3Tag>
   </Tags>
</GetJobTaggingResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetJobTaggingResult

Root level tag for the GetJobTaggingResult parameters.

Required: Yes

Tags

The set of tags associated with the S3 Batch Operations job.

Type: Array of S3Tag data types

Errors

InternalServiceException

HTTP Status Code: 500

NotFoundException

HTTP Status Code: 400

TooManyRequestsException

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetMultiRegionAccessPoint

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Returns configuration information about the specified Multi-Region Access Point.

This action will always be routed to the US West (Oregon) Region. For more information about the restrictions around working with Multi-Region Access Points, see Multi-Region Access Point restrictions and limitations in the *Amazon S3 User Guide*.

The following actions are related to `GetMultiRegionAccessPoint`:

- CreateMultiRegionAccessPoint
- DeleteMultiRegionAccessPoint
- DescribeMultiRegionAccessPointOperation
- ListMultiRegionAccessPoints

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/mrap/instances/name+ HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the Multi-Region Access Point whose configuration information you want to receive. The name of the Multi-Region Access Point is different from the alias. For more information about the distinction between the name and the alias of an Multi-Region Access Point, see Rules for naming Amazon S3 Multi-Region Access Points in the *Amazon S3 User Guide*.

Length Constraints: Maximum length of 50.

Pattern: `^[a-z0-9][-a-z0-9]{1,48}[a-z0-9]$`

Required: Yes

x-amz-account-id

The AWS account ID for the owner of the Multi-Region Access Point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetMultiRegionAccessPointResult>
   <AccessPoint>
      <Alias>string</Alias>
      <CreatedAt>timestamp</CreatedAt>
      <Name>string</Name>
      <PublicAccessBlock>
         <BlockPublicAcls>boolean</BlockPublicAcls>
         <BlockPublicPolicy>boolean</BlockPublicPolicy>
         <IgnorePublicAcls>boolean</IgnorePublicAcls>
         <RestrictPublicBuckets>boolean</RestrictPublicBuckets>
      </PublicAccessBlock>
```

```
      <Regions>
         <Region>
            <Bucket>string</Bucket>
            <BucketAccountId>string</BucketAccountId>
            <Region>string</Region>
         </Region>
      </Regions>
      <Status>string</Status>
   </AccessPoint>
</GetMultiRegionAccessPointResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetMultiRegionAccessPointResult

Root level tag for the GetMultiRegionAccessPointResult parameters.

Required: Yes

AccessPoint

A container element containing the details of the requested Multi-Region Access Point.

Type: MultiRegionAccessPointReport data type

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin

- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetMultiRegionAccessPointPolicy

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Returns the access control policy of the specified Multi-Region Access Point.

This action will always be routed to the US West (Oregon) Region. For more information about the restrictions around working with Multi-Region Access Points, see Multi-Region Access Point restrictions and limitations in the *Amazon S3 User Guide*.

The following actions are related to `GetMultiRegionAccessPointPolicy`:

- GetMultiRegionAccessPointPolicyStatus
- PutMultiRegionAccessPointPolicy

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/mrap/instances/name+/policy HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

Specifies the Multi-Region Access Point. The name of the Multi-Region Access Point is different from the alias. For more information about the distinction between the name and the alias of

an Multi-Region Access Point, see Rules for naming Amazon S3 Multi-Region Access Points in the *Amazon S3 User Guide*.

Length Constraints: Maximum length of 50.

Pattern: `^[a-z0-9][-a-z0-9]{1,48}[a-z0-9]$`

Required: Yes

x-amz-account-id

The AWS account ID for the owner of the Multi-Region Access Point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetMultiRegionAccessPointPolicyResult>
   <Policy>
      <Established>
         <Policy>string</Policy>
      </Established>
      <Proposed>
         <Policy>string</Policy>
      </Proposed>
   </Policy>
</GetMultiRegionAccessPointPolicyResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetMultiRegionAccessPointPolicyResult

Root level tag for the GetMultiRegionAccessPointPolicyResult parameters.

Required: Yes

Policy

The policy associated with the specified Multi-Region Access Point.

Type: MultiRegionAccessPointPolicyDocument data type

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetMultiRegionAccessPointPolicyStatus

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Indicates whether the specified Multi-Region Access Point has an access control policy that allows public access.

This action will always be routed to the US West (Oregon) Region. For more information about the restrictions around working with Multi-Region Access Points, see Multi-Region Access Point restrictions and limitations in the *Amazon S3 User Guide*.

The following actions are related to `GetMultiRegionAccessPointPolicyStatus`:

- GetMultiRegionAccessPointPolicy
- PutMultiRegionAccessPointPolicy

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/mrap/instances/name+/policystatus HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

Specifies the Multi-Region Access Point. The name of the Multi-Region Access Point is different from the alias. For more information about the distinction between the name and the alias of an Multi-Region Access Point, see Rules for naming Amazon S3 Multi-Region Access Points in the *Amazon S3 User Guide*.

Length Constraints: Maximum length of 50.

Pattern: `^[a-z0-9][-a-z0-9]{1,48}[a-z0-9]$`

Required: Yes

x-amz-account-id

The AWS account ID for the owner of the Multi-Region Access Point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetMultiRegionAccessPointPolicyStatusResult>
   <Established>
      <IsPublic>boolean</IsPublic>
   </Established>
</GetMultiRegionAccessPointPolicyStatusResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetMultiRegionAccessPointPolicyStatusResult

Root level tag for the GetMultiRegionAccessPointPolicyStatusResult parameters.

Required: Yes

Established

Indicates whether this access point policy is public. For more information about how Amazon S3 evaluates policies to determine whether they are public, see The Meaning of "Public" in the *Amazon S3 User Guide*.

Type: PolicyStatus data type

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetMultiRegionAccessPointRoutes

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Returns the routing configuration for a Multi-Region Access Point, indicating which Regions are active or passive.

To obtain routing control changes and failover requests, use the Amazon S3 failover control infrastructure endpoints in these five AWS Regions:

- `us-east-1`
- `us-west-2`
- `ap-southeast-2`
- `ap-northeast-1`
- `eu-west-1`

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/mrap/instances/mrap+/routes HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

mrap

The Multi-Region Access Point ARN.

Length Constraints: Maximum length of 200.

Pattern: `^[a-zA-Z0-9\:.-]{3,200}$`

Required: Yes

x-amz-account-id

The AWS account ID for the owner of the Multi-Region Access Point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetMultiRegionAccessPointRoutesResult>
   <Mrap>string</Mrap>
   <Routes>
      <Route>
         <Bucket>string</Bucket>
         <Region>string</Region>
         <TrafficDialPercentage>integer</TrafficDialPercentage>
      </Route>
   </Routes>
</GetMultiRegionAccessPointRoutesResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetMultiRegionAccessPointRoutesResult

Root level tag for the GetMultiRegionAccessPointRoutesResult parameters.

Required: Yes

Mrap

The Multi-Region Access Point ARN.

Type: String

Length Constraints: Maximum length of 200.

Pattern: `^[a-zA-Z0-9\:.-]{3,200}$`

Routes

The different routes that make up the route configuration. Active routes return a value of `100`, and passive routes return a value of `0`.

Type: Array of MultiRegionAccessPointRoute data types

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetPublicAccessBlock

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Retrieves the `PublicAccessBlock` configuration for an AWS account. For more information, see Using Amazon S3 block public access.

Related actions include:

- DeletePublicAccessBlock
- PutPublicAccessBlock

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/configuration/publicAccessBlock HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The account ID for the AWS account whose `PublicAccessBlock` configuration you want to retrieve.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<PublicAccessBlockConfiguration>
   <BlockPublicAcls>boolean</BlockPublicAcls>
   <IgnorePublicAcls>boolean</IgnorePublicAcls>
   <BlockPublicPolicy>boolean</BlockPublicPolicy>
   <RestrictPublicBuckets>boolean</RestrictPublicBuckets>
</PublicAccessBlockConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

PublicAccessBlockConfiguration

Root level tag for the PublicAccessBlockConfiguration parameters.

Required: Yes

BlockPublicAcls

Specifies whether Amazon S3 should block public access control lists (ACLs) for buckets in this account. Setting this element to `TRUE` causes the following behavior:

- `PutBucketAcl` and `PutObjectAcl` calls fail if the specified ACL is public.
- PUT Object calls fail if the request includes a public ACL.
- PUT Bucket calls fail if the request includes a public ACL.

Enabling this setting doesn't affect existing policies or ACLs.

This property is not supported for Amazon S3 on Outposts.

Type: Boolean

BlockPublicPolicy

Specifies whether Amazon S3 should block public bucket policies for buckets in this account. Setting this element to TRUE causes Amazon S3 to reject calls to PUT Bucket policy if the specified bucket policy allows public access.

Enabling this setting doesn't affect existing bucket policies.

This property is not supported for Amazon S3 on Outposts.

Type: Boolean

IgnorePublicAcls

Specifies whether Amazon S3 should ignore public ACLs for buckets in this account. Setting this element to TRUE causes Amazon S3 to ignore all public ACLs on buckets in this account and any objects that they contain.

Enabling this setting doesn't affect the persistence of any existing ACLs and doesn't prevent new public ACLs from being set.

This property is not supported for Amazon S3 on Outposts.

Type: Boolean

RestrictPublicBuckets

Specifies whether Amazon S3 should restrict public bucket policies for buckets in this account. Setting this element to TRUE restricts access to buckets with public policies to only AWS service principals and authorized users within this account.

Enabling this setting doesn't affect previously stored bucket policies, except that public and cross-account access within any public bucket policy, including non-public delegation to specific accounts, is blocked.

This property is not supported for Amazon S3 on Outposts.

Type: Boolean

Errors

NoSuchPublicAccessBlockConfiguration

Amazon S3 throws this exception if you make a `GetPublicAccessBlock` request against an account that doesn't have a `PublicAccessBlockConfiguration` set.

HTTP Status Code: 404

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetStorageLensConfiguration

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Gets the Amazon S3 Storage Lens configuration. For more information, see Assessing your storage activity and usage with Amazon S3 Storage Lens in the *Amazon S3 User Guide*. For a complete list of S3 Storage Lens metrics, see S3 Storage Lens metrics glossary in the *Amazon S3 User Guide*.

> **Note**
>
> To use this action, you must have permission to perform the `s3:GetStorageLensConfiguration` action. For more information, see Setting permissions to use Amazon S3 Storage Lens in the *Amazon S3 User Guide*.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/storagelens/storagelensid HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

storagelensid

The ID of the Amazon S3 Storage Lens configuration.

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-\_\.]+`

Required: Yes

x-amz-account-id

The account ID of the requester.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<StorageLensConfiguration>
   <Id>string</Id>
   <AccountLevel>
      <ActivityMetrics>
         <IsEnabled>boolean</IsEnabled>
      </ActivityMetrics>
      <AdvancedCostOptimizationMetrics>
         <IsEnabled>boolean</IsEnabled>
      </AdvancedCostOptimizationMetrics>
      <AdvancedDataProtectionMetrics>
         <IsEnabled>boolean</IsEnabled>
      </AdvancedDataProtectionMetrics>
      <BucketLevel>
         <ActivityMetrics>
            <IsEnabled>boolean</IsEnabled>
         </ActivityMetrics>
         <AdvancedCostOptimizationMetrics>
            <IsEnabled>boolean</IsEnabled>
         </AdvancedCostOptimizationMetrics>
         <AdvancedDataProtectionMetrics>
            <IsEnabled>boolean</IsEnabled>
```

```
            </AdvancedDataProtectionMetrics>
            <DetailedStatusCodesMetrics>
               <IsEnabled>boolean</IsEnabled>
            </DetailedStatusCodesMetrics>
            <PrefixLevel>
               <StorageMetrics>
                  <IsEnabled>boolean</IsEnabled>
                  <SelectionCriteria>
                     <Delimiter>string</Delimiter>
                     <MaxDepth>integer</MaxDepth>
                     <MinStorageBytesPercentage>double</MinStorageBytesPercentage>
                  </SelectionCriteria>
               </StorageMetrics>
            </PrefixLevel>
         </BucketLevel>
         <DetailedStatusCodesMetrics>
            <IsEnabled>boolean</IsEnabled>
         </DetailedStatusCodesMetrics>
         <StorageLensGroupLevel>
            <SelectionCriteria>
               <Exclude>
                  <Arn>string</Arn>
               </Exclude>
               <Include>
                  <Arn>string</Arn>
               </Include>
            </SelectionCriteria>
         </StorageLensGroupLevel>
      </AccountLevel>
      <Include>
         <Buckets>
            <Arn>string</Arn>
         </Buckets>
         <Regions>
            <Region>string</Region>
         </Regions>
      </Include>
      <Exclude>
         <Buckets>
            <Arn>string</Arn>
         </Buckets>
         <Regions>
            <Region>string</Region>
         </Regions>
```

```
    </Exclude>
    <DataExport>
       <CloudWatchMetrics>
          <IsEnabled>boolean</IsEnabled>
       </CloudWatchMetrics>
       <S3BucketDestination>
          <AccountId>string</AccountId>
          <Arn>string</Arn>
          <Encryption>
             <SSE-KMS>
                <KeyId>string</KeyId>
             </SSE-KMS>
             <SSE-S3>
             </SSE-S3>
          </Encryption>
          <Format>string</Format>
          <OutputSchemaVersion>string</OutputSchemaVersion>
          <Prefix>string</Prefix>
       </S3BucketDestination>
    </DataExport>
    <IsEnabled>boolean</IsEnabled>
    <AwsOrg>
       <Arn>string</Arn>
    </AwsOrg>
    <StorageLensArn>string</StorageLensArn>
</StorageLensConfiguration>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

StorageLensConfiguration

Root level tag for the StorageLensConfiguration parameters.

Required: Yes

AccountLevel

A container for all the account-level configurations of your S3 Storage Lens configuration.

Type: AccountLevel data type

AwsOrg

A container for the AWS organization for this S3 Storage Lens configuration.

Type: StorageLensAwsOrg data type

DataExport

A container to specify the properties of your S3 Storage Lens metrics export including, the destination, schema and format.

Type: StorageLensDataExport data type

Exclude

A container for what is excluded in this configuration. This container can only be valid if there is no `Include` container submitted, and it's not empty.

Type: Exclude data type

Id

A container for the Amazon S3 Storage Lens configuration ID.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-\_\.]+`

Include

A container for what is included in this configuration. This container can only be valid if there is no `Exclude` container submitted, and it's not empty.

Type: Include data type

IsEnabled

A container for whether the S3 Storage Lens configuration is enabled.

Type: Boolean

StorageLensArn

The Amazon Resource Name (ARN) of the S3 Storage Lens configuration. This property is read-only and follows the following format: `arn:aws:s3:`*`us-east-1`*`:`*`example-account-id`*`:storage-lens/`*`your-dashboard-name`*

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:storage\-lens\/.*`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetStorageLensConfigurationTagging

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Gets the tags of Amazon S3 Storage Lens configuration. For more information about S3 Storage Lens, see Assessing your storage activity and usage with Amazon S3 Storage Lens in the *Amazon S3 User Guide*.

> **Note**
>
> To use this action, you must have permission to perform the `s3:GetStorageLensConfigurationTagging` action. For more information, see Setting permissions to use Amazon S3 Storage Lens in the *Amazon S3 User Guide*.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/storagelens/storagelensid/tagging HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

storagelensid

The ID of the Amazon S3 Storage Lens configuration.

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-\_\.]+`

Required: Yes

x-amz-account-id

The account ID of the requester.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<GetStorageLensConfigurationTaggingResult>
   <Tags>
      <Tag>
         <Key>string</Key>
         <Value>string</Value>
      </Tag>
   </Tags>
</GetStorageLensConfigurationTaggingResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

GetStorageLensConfigurationTaggingResult

Root level tag for the GetStorageLensConfigurationTaggingResult parameters.

Required: Yes

Tags

The tags of S3 Storage Lens configuration requested.

Type: Array of StorageLensTag data types

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetStorageLensGroup

Service: Amazon S3 Control

Retrieves the Storage Lens group configuration details.

To use this operation, you must have the permission to perform the `s3:GetStorageLensGroup` action. For more information about the required Storage Lens Groups permissions, see Setting account permissions to use S3 Storage Lens groups.

For information about Storage Lens groups errors, see List of Amazon S3 Storage Lens error codes.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/storagelensgroup/name HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the Storage Lens group that you're trying to retrieve the configuration details for.

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-\_]+`

Required: Yes

x-amz-account-id

The AWS account ID associated with the Storage Lens group that you're trying to retrieve the details for.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<StorageLensGroup>
   <Name>string</Name>
   <Filter>
      <And>
         <MatchAnyPrefix>
            <Prefix>string</Prefix>
         </MatchAnyPrefix>
         <MatchAnySuffix>
            <Suffix>string</Suffix>
         </MatchAnySuffix>
         <MatchAnyTag>
            <Tag>
               <Key>string</Key>
               <Value>string</Value>
            </Tag>
         </MatchAnyTag>
         <MatchObjectAge>
            <DaysGreaterThan>integer</DaysGreaterThan>
            <DaysLessThan>integer</DaysLessThan>
         </MatchObjectAge>
         <MatchObjectSize>
            <BytesGreaterThan>long</BytesGreaterThan>
            <BytesLessThan>long</BytesLessThan>
         </MatchObjectSize>
      </And>
      <MatchAnyPrefix>
         <Prefix>string</Prefix>
      </MatchAnyPrefix>
      <MatchAnySuffix>
```

```
            <Suffix>string</Suffix>
        </MatchAnySuffix>
        <MatchAnyTag>
            <Tag>
                <Key>string</Key>
                <Value>string</Value>
            </Tag>
        </MatchAnyTag>
        <MatchObjectAge>
            <DaysGreaterThan>integer</DaysGreaterThan>
            <DaysLessThan>integer</DaysLessThan>
        </MatchObjectAge>
        <MatchObjectSize>
            <BytesGreaterThan>long</BytesGreaterThan>
            <BytesLessThan>long</BytesLessThan>
        </MatchObjectSize>
        <Or>
            <MatchAnyPrefix>
                <Prefix>string</Prefix>
            </MatchAnyPrefix>
            <MatchAnySuffix>
                <Suffix>string</Suffix>
            </MatchAnySuffix>
            <MatchAnyTag>
                <Tag>
                    <Key>string</Key>
                    <Value>string</Value>
                </Tag>
            </MatchAnyTag>
            <MatchObjectAge>
                <DaysGreaterThan>integer</DaysGreaterThan>
                <DaysLessThan>integer</DaysLessThan>
            </MatchObjectAge>
            <MatchObjectSize>
                <BytesGreaterThan>long</BytesGreaterThan>
                <BytesLessThan>long</BytesLessThan>
            </MatchObjectSize>
        </Or>
    </Filter>
    <StorageLensGroupArn>string</StorageLensGroupArn>
</StorageLensGroup>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

StorageLensGroup

Root level tag for the StorageLensGroup parameters.

Required: Yes

Filter

Sets the criteria for the Storage Lens group data that is displayed. For multiple filter conditions, the `AND` or `OR` logical operator is used.

Type: StorageLensGroupFilter data type

Name

Contains the name of the Storage Lens group.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-\_]+`

StorageLensGroupArn

Contains the Amazon Resource Name (ARN) of the Storage Lens group. This property is read-only.

Type: String

Length Constraints: Minimum length of 4. Maximum length of 1024.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:storage\-lens\-group\/.*`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListAccessGrants

Service: Amazon S3 Control

Returns the list of access grants in your S3 Access Grants instance.

Permissions

You must have the `s3:ListAccessGrants` permission to use this operation.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accessgrantsinstance/grants?
application_arn=ApplicationArn&granteeidentifier=GranteeIdentifier&granteetype=GranteeType&gran
 HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

application_arn

The Amazon Resource Name (ARN) of an AWS IAM Identity Center application associated with your Identity Center instance. If the grant includes an application ARN, the grantee can only access the S3 data through this application.

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::\d{12}:application/.*$`

granteeidentifier

The unique identifer of the `Grantee`. If the grantee type is `IAM`, the identifier is the IAM Amazon Resource Name (ARN) of the user or role. If the grantee type is a directory

user or group, the identifier is 128-bit universally unique identifier (UUID) in the format `a1b2c3d4-5678-90ab-cdef-EXAMPLE11111`. You can obtain this UUID from your AWS IAM Identity Center instance.

granteetype

The type of the grantee to which access has been granted. It can be one of the following values:

- `IAM` - An IAM user or role.
- `DIRECTORY_USER` - Your corporate directory user. You can use this option if you have added your corporate identity directory to IAM Identity Center and associated the IAM Identity Center instance with your S3 Access Grants instance.
- `DIRECTORY_GROUP` - Your corporate directory group. You can use this option if you have added your corporate identity directory to IAM Identity Center and associated the IAM Identity Center instance with your S3 Access Grants instance.

Valid Values: `DIRECTORY_USER | DIRECTORY_GROUP | IAM`

grantscope

The S3 path of the data to which you are granting access. It is the result of appending the `Subprefix` to the location scope.

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `^.+$`

maxResults

The maximum number of access grants that you would like returned in the `List Access Grants` response. If the results include the pagination token `NextToken`, make another call using the `NextToken` to determine if there are more results.

Valid Range: Minimum value of 0. Maximum value of 1000.

nextToken

A pagination token to request the next page of results. Pass this value into a subsequent `List Access Grants` request in order to retrieve the next page of results.

permission

The type of permission granted to your S3 data, which can be set to one of the following values:

- READ – Grant read-only access to the S3 data.
- WRITE – Grant write-only access to the S3 data.
- READWRITE – Grant both read and write access to the S3 data.

Valid Values: READ | WRITE | READWRITE

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ListAccessGrantsResult>
   <NextToken>string</NextToken>
   <AccessGrantsList>
      <AccessGrant>
         <AccessGrantArn>string</AccessGrantArn>
         <AccessGrantId>string</AccessGrantId>
         <AccessGrantsLocationConfiguration>
            <S3SubPrefix>string</S3SubPrefix>
         </AccessGrantsLocationConfiguration>
         <AccessGrantsLocationId>string</AccessGrantsLocationId>
         <ApplicationArn>string</ApplicationArn>
         <CreatedAt>timestamp</CreatedAt>
         <Grantee>
            <GranteeIdentifier>string</GranteeIdentifier>
            <GranteeType>string</GranteeType>
         </Grantee>
         <GrantScope>string</GrantScope>
         <Permission>string</Permission>
      </AccessGrant>
```

```
    </AccessGrantsList>
</ListAccessGrantsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListAccessGrantsResult

Root level tag for the ListAccessGrantsResult parameters.

Required: Yes

AccessGrantsList

A container for a list of grants in an S3 Access Grants instance.

Type: Array of ListAccessGrantEntry data types

NextToken

A pagination token to request the next page of results. Pass this value into a subsequent `List Access Grants` request in order to retrieve the next page of results.

Type: String

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3

- AWS SDK for Python
- AWS SDK for Ruby V3

ListAccessGrantsInstances

Service: Amazon S3 Control

Returns a list of S3 Access Grants instances. An S3 Access Grants instance serves as a logical grouping for your individual access grants. You can only have one S3 Access Grants instance per Region per account.

Permissions

You must have the `s3:ListAccessGrantsInstances` permission to use this operation.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accessgrantsinstances?maxResults=MaxResults&nextToken=NextToken HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

maxResults

The maximum number of access grants that you would like returned in the `List Access Grants` response. If the results include the pagination token `NextToken`, make another call using the `NextToken` to determine if there are more results.

Valid Range: Minimum value of 0. Maximum value of 1000.

nextToken

A pagination token to request the next page of results. Pass this value into a subsequent `List Access Grants Instances` request in order to retrieve the next page of results.

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ListAccessGrantsInstancesResult>
   <NextToken>string</NextToken>
   <AccessGrantsInstancesList>
      <AccessGrantsInstance>
         <AccessGrantsInstanceArn>string</AccessGrantsInstanceArn>
         <AccessGrantsInstanceId>string</AccessGrantsInstanceId>
         <CreatedAt>timestamp</CreatedAt>
         <IdentityCenterApplicationArn>string</IdentityCenterApplicationArn>
         <IdentityCenterArn>string</IdentityCenterArn>
         <IdentityCenterInstanceArn>string</IdentityCenterInstanceArn>
      </AccessGrantsInstance>
   </AccessGrantsInstancesList>
</ListAccessGrantsInstancesResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListAccessGrantsInstancesResult

Root level tag for the ListAccessGrantsInstancesResult parameters.

Required: Yes

AccessGrantsInstancesList

A container for a list of S3 Access Grants instances.

Type: Array of ListAccessGrantsInstanceEntry data types

NextToken

A pagination token to request the next page of results. Pass this value into a subsequent `List Access Grants Instances` request in order to retrieve the next page of results.

Type: String

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListAccessGrantsLocations

Service: Amazon S3 Control

Returns a list of the locations registered in your S3 Access Grants instance.

Permissions

You must have the `s3:ListAccessGrantsLocations` permission to use this operation.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accessgrantsinstance/locations?
locationscope=LocationScope&maxResults=MaxResults&nextToken=NextToken HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

locationscope

The S3 path to the location that you are registering. The location scope can be the default S3 location `s3://`, the S3 path to a bucket `s3://<bucket>`, or the S3 path to a bucket and prefix `s3://<bucket>/<prefix>`. A prefix in S3 is a string of characters at the beginning of an object key name used to organize the objects that you store in your S3 buckets. For example, object key names that start with the `engineering/` prefix or object key names that start with the `marketing/campaigns/` prefix.

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `^.+$`

maxResults

The maximum number of access grants that you would like returned in the `List Access Grants` response. If the results include the pagination token `NextToken`, make another call using the `NextToken` to determine if there are more results.

Valid Range: Minimum value of 0. Maximum value of 1000.

nextToken

A pagination token to request the next page of results. Pass this value into a subsequent `List Access Grants Locations` request in order to retrieve the next page of results.

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ListAccessGrantsLocationsResult>
   <NextToken>string</NextToken>
   <AccessGrantsLocationsList>
      <AccessGrantsLocation>
         <AccessGrantsLocationArn>string</AccessGrantsLocationArn>
         <AccessGrantsLocationId>string</AccessGrantsLocationId>
         <CreatedAt>timestamp</CreatedAt>
         <IAMRoleArn>string</IAMRoleArn>
         <LocationScope>string</LocationScope>
      </AccessGrantsLocation>
   </AccessGrantsLocationsList>
</ListAccessGrantsLocationsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListAccessGrantsLocationsResult

Root level tag for the ListAccessGrantsLocationsResult parameters.

Required: Yes

AccessGrantsLocationsList

A container for a list of registered locations in an S3 Access Grants instance.

Type: Array of ListAccessGrantsLocationsEntry data types

NextToken

A pagination token to request the next page of results. Pass this value into a subsequent `List Access Grants Locations` request in order to retrieve the next page of results.

Type: String

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListAccessPoints

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Returns a list of the access points. You can retrieve up to 1,000 access points per call. If the call returns more than 1,000 access points (or the number specified in `maxResults`, whichever is less), the response will include a continuation token that you can use to list the additional access points.

Returns only access points attached to S3 buckets by default. To return all access points specify `DataSourceType` as `ALL`.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

The following actions are related to `ListAccessPoints`:

- CreateAccessPoint
- DeleteAccessPoint
- GetAccessPoint

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accesspoint?
bucket=Bucket&dataSourceId=DataSourceId&dataSourceType=DataSourceType&maxResults=MaxResults&nex
 HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

bucket

The name of the bucket whose associated access points you want to list.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the bucket accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/bucket/<my-bucket-name>`. For example, to access the bucket `reports` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/bucket/reports`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

dataSourceId

The unique identifier for the data source of the access point.

Length Constraints: Maximum length of 191.

dataSourceType

The type of the data source that the access point is attached to. Returns only access points attached to S3 buckets by default. To return all access points specify `DataSourceType` as `ALL`.

maxResults

The maximum number of access points that you want to include in the list. If the specified bucket has more than this number of access points, then the response will include a

continuation token in the `NextToken` field that you can use to retrieve the next page of access points.

Valid Range: Minimum value of 0. Maximum value of 1000.

nextToken

A continuation token. If a previous call to `ListAccessPoints` returned a continuation token in the `NextToken` field, then providing that value here causes Amazon S3 to retrieve the next page of results.

Length Constraints: Minimum length of 1. Maximum length of 1024.

x-amz-account-id

The AWS account ID for the account that owns the specified access points.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ListAccessPointsResult>
   <AccessPointList>
      <AccessPoint>
         <AccessPointArn>string</AccessPointArn>
         <Alias>string</Alias>
         <Bucket>string</Bucket>
         <BucketAccountId>string</BucketAccountId>
         <DataSourceId>string</DataSourceId>
         <DataSourceType>string</DataSourceType>
         <Name>string</Name>
         <NetworkOrigin>string</NetworkOrigin>
         <VpcConfiguration>
            <VpcId>string</VpcId>
```

```
        </VpcConfiguration>
      </AccessPoint>
    </AccessPointList>
    <NextToken>string</NextToken>
</ListAccessPointsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListAccessPointsResult

Root level tag for the ListAccessPointsResult parameters.

Required: Yes

AccessPointList

Contains identification and configuration information for one or more access points associated with the specified bucket.

Type: Array of AccessPoint data types

NextToken

If the specified bucket has more access points than can be returned in one call to this API, this field contains a continuation token that you can provide in subsequent calls to this API to retrieve additional access points.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Examples

Sample request syntax for ListAccessPoints for Amazon S3 on Outposts

The following request returns a list access points of the specified Amazon S3 on Outposts bucket `example-outpost-bucket`.

```
            GET /v20180820/accesspoint?Bucket=example-outpost-
bucket&MaxResults=MaxResults&NextToken=NextToken HTTP/1.1
            Host: s3-outposts.<Region>.amazonaws.com
            Date: Wed, 28 Oct 2020 22:32:00 GMT
            Authorization: authorization string
            x-amz-account-id: example-account-id
            x-amz-outpost-id: op-01ac5d28a6a232904
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListAccessPointsForDirectoryBuckets

Service: Amazon S3 Control

Returns a list of the access points that are owned by the AWS account and that are associated with the specified directory bucket.

To list access points for general purpose buckets, see ListAccesspoints.

To use this operation, you must have the permission to perform the `s3express:ListAccessPointsForDirectoryBuckets` action.

For information about REST API errors, see REST error responses.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accesspointfordirectory?
directoryBucket=DirectoryBucket&maxResults=MaxResults&nextToken=NextToken HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

directoryBucket

The name of the directory bucket associated with the access points you want to list.

Length Constraints: Minimum length of 3. Maximum length of 255.

maxResults

The maximum number of access points that you would like returned in the `ListAccessPointsForDirectoryBuckets` response. If the directory bucket is associated

with more than this number of access points, the results include the pagination token `NextToken`. Make another call using the `NextToken` to retrieve more results.

Valid Range: Minimum value of 0. Maximum value of 1000.

nextToken

If `NextToken` is returned, there are more access points available than requested in the `maxResults` value. The value of `NextToken` is a unique pagination token for each page. Make the call again using the returned token to retrieve the next page. Keep all other arguments unchanged. Each pagination token expires after 24 hours.

Length Constraints: Minimum length of 1. Maximum length of 1024.

x-amz-account-id

The AWS account ID that owns the access points.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ListAccessPointsForDirectoryBucketsResult>
   <AccessPointList>
      <AccessPoint>
         <AccessPointArn>string</AccessPointArn>
         <Alias>string</Alias>
         <Bucket>string</Bucket>
         <BucketAccountId>string</BucketAccountId>
         <DataSourceId>string</DataSourceId>
         <DataSourceType>string</DataSourceType>
         <Name>string</Name>
         <NetworkOrigin>string</NetworkOrigin>
         <VpcConfiguration>
```

```
            <VpcId>string</VpcId>
         </VpcConfiguration>
      </AccessPoint>
   </AccessPointList>
   <NextToken>string</NextToken>
</ListAccessPointsForDirectoryBucketsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListAccessPointsForDirectoryBucketsResult

Root level tag for the ListAccessPointsForDirectoryBucketsResult parameters.

Required: Yes

AccessPointList

Contains identification and configuration information for one or more access points associated with the directory bucket.

Type: Array of AccessPoint data types

NextToken

If `NextToken` is returned, there are more access points available than requested in the `maxResults` value. The value of `NextToken` is a unique pagination token for each page. Make the call again using the returned token to retrieve the next page. Keep all other arguments unchanged. Each pagination token expires after 24 hours.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface

- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListAccessPointsForObjectLambda

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Returns some or all (up to 1,000) access points associated with the Object Lambda Access Point per call. If there are more access points than what can be returned in one call, the response will include a continuation token that you can use to list the additional access points.

The following actions are related to `ListAccessPointsForObjectLambda`:

- CreateAccessPointForObjectLambda
- DeleteAccessPointForObjectLambda
- GetAccessPointForObjectLambda

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accesspointforobjectlambda?maxResults=MaxResults&nextToken=NextToken
 HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

maxResults

The maximum number of access points that you want to include in the list. The response may contain fewer access points but will never contain more. If there are more than this number of access points, then the response will include a continuation token in the `NextToken` field that you can use to retrieve the next page of access points.

Valid Range: Minimum value of 0. Maximum value of 1000.

nextToken

If the list has more access points than can be returned in one call to this API, this field contains a continuation token that you can provide in subsequent calls to this API to retrieve additional access points.

Length Constraints: Minimum length of 1. Maximum length of 1024.

x-amz-account-id

The account ID for the account that owns the specified Object Lambda Access Point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ListAccessPointsForObjectLambdaResult>
   <ObjectLambdaAccessPointList>
      <ObjectLambdaAccessPoint>
         <Alias>
            <Status>string</Status>
            <Value>string</Value>
         </Alias>
         <Name>string</Name>
```

```
        <ObjectLambdaAccessPointArn>string</ObjectLambdaAccessPointArn>
      </ObjectLambdaAccessPoint>
    </ObjectLambdaAccessPointList>
    <NextToken>string</NextToken>
</ListAccessPointsForObjectLambdaResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListAccessPointsForObjectLambdaResult

Root level tag for the ListAccessPointsForObjectLambdaResult parameters.

Required: Yes

NextToken

If the list has more access points than can be returned in one call to this API, this field contains a continuation token that you can provide in subsequent calls to this API to retrieve additional access points.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

ObjectLambdaAccessPointList

Returns list of Object Lambda Access Points.

Type: Array of ObjectLambdaAccessPoint data types

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++

- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListCallerAccessGrants

Service: Amazon S3 Control

Use this API to list the access grants that grant the caller access to Amazon S3 data through S3 Access Grants. The caller (grantee) can be an AWS Identity and Access Management (IAM) identity or AWS Identity Center corporate directory identity. You must pass the AWS account of the S3 data owner (grantor) in the request. You can, optionally, narrow the results by `GrantScope`, using a fragment of the data's S3 path, and S3 Access Grants will return only the grants with a path that contains the path fragment. You can also pass the `AllowedByApplication` filter in the request, which returns only the grants authorized for applications, whether the application is the caller's Identity Center application or any other application (`ALL`). For more information, see List the caller's access grants in the *Amazon S3 User Guide*.

Permissions

You must have the `s3:ListCallerAccessGrants` permission to use this operation.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/accessgrantsinstance/caller/grants?
allowedByApplication=AllowedByApplication&grantscope=GrantScope&maxResults=MaxResults&nextToken
 HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

allowedByApplication

If this optional parameter is passed in the request, a filter is applied to the results. The results will include only the access grants for the caller's Identity Center application or for any other applications (`ALL`).

grantscope

The S3 path of the data that you would like to access. Must start with `s3://`. You can optionally pass only the beginning characters of a path, and S3 Access Grants will search for all applicable grants for the path fragment.

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `^.+$`

maxResults

The maximum number of access grants that you would like returned in the `List Caller Access Grants` response. If the results include the pagination token `NextToken`, make another call using the `NextToken` to determine if there are more results.

Valid Range: Minimum value of 0. Maximum value of 1000.

nextToken

A pagination token to request the next page of results. Pass this value into a subsequent `List Caller Access Grants` request in order to retrieve the next page of results.

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

```
<?xml version="1.0" encoding="UTF-8"?>
<ListCallerAccessGrantsResult>
   <NextToken>string</NextToken>
   <CallerAccessGrantsList>
      <AccessGrant>
         <ApplicationArn>string</ApplicationArn>
         <GrantScope>string</GrantScope>
         <Permission>string</Permission>
      </AccessGrant>
   </CallerAccessGrantsList>
</ListCallerAccessGrantsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListCallerAccessGrantsResult

Root level tag for the ListCallerAccessGrantsResult parameters.

Required: Yes

CallerAccessGrantsList

A list of the caller's access grants that were created using S3 Access Grants and that grant the caller access to the S3 data of the AWS account ID that was specified in the request.

Type: Array of ListCallerAccessGrantsEntry data types

NextToken

A pagination token that you can use to request the next page of results. Pass this value into a subsequent `List Caller Access Grants` request in order to retrieve the next page of results.

Type: String

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListJobs

Service: Amazon S3 Control

Lists current S3 Batch Operations jobs as well as the jobs that have ended within the last 90 days for the AWS account making the request. For more information, see S3 Batch Operations in the *Amazon S3 User Guide*.

Permissions

To use the `ListJobs` operation, you must have permission to perform the `s3:ListJobs` action.

Related actions include:

- CreateJob
- DescribeJob
- UpdateJobPriority
- UpdateJobStatus

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/jobs?jobStatuses=JobStatuses&maxResults=MaxResults&nextToken=NextToken
 HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

jobStatuses

The `List Jobs` request returns jobs that match the statuses listed in this element.

Valid Values: `Active | Cancelled | Cancelling | Complete | Completing | Failed | Failing | New | Paused | Pausing | Preparing | Ready | Suspended`

maxResults

The maximum number of jobs that Amazon S3 will include in the `List Jobs` response. If there are more jobs than this number, the response will include a pagination token in the `NextToken` field to enable you to retrieve the next page of results.

Valid Range: Minimum value of 0. Maximum value of 1000.

nextToken

A pagination token to request the next page of results. Use the token that Amazon S3 returned in the `NextToken` element of the `ListJobsResult` from the previous `List Jobs` request.

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `^[A-Za-z0-9\+\:\/\=\?\#-_]+$`

x-amz-account-id

The AWS account ID associated with the S3 Batch Operations job.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
```

```
<ListJobsResult>
   <NextToken>string</NextToken>
   <Jobs>
      <JobListDescriptor>
         <CreationTime>timestamp</CreationTime>
         <Description>string</Description>
         <JobId>string</JobId>
         <Operation>string</Operation>
         <Priority>integer</Priority>
         <ProgressSummary>
            <NumberOfTasksFailed>long</NumberOfTasksFailed>
            <NumberOfTasksSucceeded>long</NumberOfTasksSucceeded>
            <Timers>
               <ElapsedTimeInActiveSeconds>long</ElapsedTimeInActiveSeconds>
            </Timers>
            <TotalNumberOfTasks>long</TotalNumberOfTasks>
         </ProgressSummary>
         <Status>string</Status>
         <TerminationDate>timestamp</TerminationDate>
      </JobListDescriptor>
   </Jobs>
</ListJobsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListJobsResult

Root level tag for the ListJobsResult parameters.

Required: Yes

Jobs

The list of current jobs and jobs that have ended within the last 30 days.

Type: Array of JobListDescriptor data types

NextToken

If the `List Jobs` request produced more than the maximum number of results, you can pass this value into a subsequent `List Jobs` request in order to retrieve the next page of results.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `^[A-Za-z0-9\+\:\/\=\?\#-_]+$`

Errors

InternalServiceException

HTTP Status Code: 500

InvalidNextTokenException

HTTP Status Code: 400

InvalidRequestException

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListMultiRegionAccessPoints

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Returns a list of the Multi-Region Access Points currently associated with the specified AWS account. Each call can return up to 100 Multi-Region Access Points, the maximum number of Multi-Region Access Points that can be associated with a single account.

This action will always be routed to the US West (Oregon) Region. For more information about the restrictions around working with Multi-Region Access Points, see Multi-Region Access Point restrictions and limitations in the *Amazon S3 User Guide*.

The following actions are related to `ListMultiRegionAccessPoint`:

- CreateMultiRegionAccessPoint
- DeleteMultiRegionAccessPoint
- DescribeMultiRegionAccessPointOperation
- GetMultiRegionAccessPoint

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/mrap/instances?maxResults=MaxResults&nextToken=NextToken HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

maxResults

Not currently used. Do not use this parameter.

Valid Range: Minimum value of 0. Maximum value of 1000.

nextToken

Not currently used. Do not use this parameter.

Length Constraints: Minimum length of 1. Maximum length of 1024.

x-amz-account-id

The AWS account ID for the owner of the Multi-Region Access Point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ListMultiRegionAccessPointsResult>
   <AccessPoints>
      <AccessPoint>
         <Alias>string</Alias>
         <CreatedAt>timestamp</CreatedAt>
         <Name>string</Name>
         <PublicAccessBlock>
            <BlockPublicAcls>boolean</BlockPublicAcls>
            <BlockPublicPolicy>boolean</BlockPublicPolicy>
```

```
            <IgnorePublicAcls>boolean</IgnorePublicAcls>
            <RestrictPublicBuckets>boolean</RestrictPublicBuckets>
         </PublicAccessBlock>
         <Regions>
            <Region>
               <Bucket>string</Bucket>
               <BucketAccountId>string</BucketAccountId>
               <Region>string</Region>
            </Region>
         </Regions>
         <Status>string</Status>
      </AccessPoint>
   </AccessPoints>
   <NextToken>string</NextToken>
</ListMultiRegionAccessPointsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListMultiRegionAccessPointsResult

Root level tag for the ListMultiRegionAccessPointsResult parameters.

Required: Yes

AccessPoints

The list of Multi-Region Access Points associated with the user.

Type: Array of MultiRegionAccessPointReport data types

NextToken

If the specified bucket has more Multi-Region Access Points than can be returned in one call to this action, this field contains a continuation token. You can use this token tin subsequent calls to this action to retrieve additional Multi-Region Access Points.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListRegionalBuckets

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Returns a list of all Outposts buckets in an Outpost that are owned by the authenticated sender of the request. For more information, see Using Amazon S3 on Outposts in the *Amazon S3 User Guide*.

For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and `x-amz-outpost-id` in your request, see the Examples section.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/bucket?maxResults=MaxResults&nextToken=NextToken HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
x-amz-outpost-id: OutpostId
```

URI Request Parameters

The request uses the following URI parameters.

maxResults

Valid Range: Minimum value of 0. Maximum value of 1000.

nextToken

Length Constraints: Minimum length of 1. Maximum length of 1024.

x-amz-account-id

The AWS account ID of the Outposts bucket.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

x-amz-outpost-id

The ID of the AWS Outposts resource.

> **Note**
>
> This ID is required by Amazon S3 on Outposts buckets.

Length Constraints: Minimum length of 1. Maximum length of 64.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ListRegionalBucketsResult>
   <RegionalBucketList>
      <RegionalBucket>
         <Bucket>string</Bucket>
         <BucketArn>string</BucketArn>
         <CreationDate>timestamp</CreationDate>
         <OutpostId>string</OutpostId>
         <PublicAccessBlockEnabled>boolean</PublicAccessBlockEnabled>
      </RegionalBucket>
   </RegionalBucketList>
   <NextToken>string</NextToken>
</ListRegionalBucketsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListRegionalBucketsResult

Root level tag for the ListRegionalBucketsResult parameters.

Required: Yes

NextToken

`NextToken` is sent when `isTruncated` is true, which means there are more buckets that can be listed. The next list requests to Amazon S3 can be continued with this `NextToken`. `NextToken` is obfuscated and is not a real key.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

RegionalBucketList

Type: Array of RegionalBucket data types

Examples

Sample request to list an account's Outposts buckets

This request lists regional buckets.

```
GET /v20180820/bucket HTTP /1.1
Host:s3-outposts.us-west-2.amazonaws.com
Content-Length: 0
x-amz-outpost-id: op-01ac5d28a6a232904
x-amz-account-id: example-account-id
Date: Wed, 01 Mar  2006 12:00:00 GMT
Authorization: authorization string
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListStorageLensConfigurations

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Gets a list of Amazon S3 Storage Lens configurations. For more information about S3 Storage Lens, see Assessing your storage activity and usage with Amazon S3 Storage Lens in the *Amazon S3 User Guide*.

> **Note**
>
> To use this action, you must have permission to perform the `s3:ListStorageLensConfigurations` action. For more information, see Setting permissions to use Amazon S3 Storage Lens in the *Amazon S3 User Guide*.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/storagelens?nextToken=NextToken HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

nextToken

A pagination token to request the next page of results.

x-amz-account-id

The account ID of the requester.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ListStorageLensConfigurationsResult>
   <NextToken>string</NextToken>
   <StorageLensConfiguration>
      <HomeRegion>string</HomeRegion>
      <Id>string</Id>
      <IsEnabled>boolean</IsEnabled>
      <StorageLensArn>string</StorageLensArn>
   </StorageLensConfiguration>
   ...
</ListStorageLensConfigurationsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListStorageLensConfigurationsResult

Root level tag for the ListStorageLensConfigurationsResult parameters.

Required: Yes

NextToken

If the request produced more than the maximum number of S3 Storage Lens configuration results, you can pass this value into a subsequent request to retrieve the next page of results.

Type: String

StorageLensConfiguration

A list of S3 Storage Lens configurations.

Type: Array of ListStorageLensConfigurationEntry data types

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListStorageLensGroups

Service: Amazon S3 Control

Lists all the Storage Lens groups in the specified home Region.

To use this operation, you must have the permission to perform the `s3:ListStorageLensGroups` action. For more information about the required Storage Lens Groups permissions, see Setting account permissions to use S3 Storage Lens groups.

For information about Storage Lens groups errors, see List of Amazon S3 Storage Lens error codes.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/storagelensgroup?nextToken=NextToken HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

nextToken

The token for the next set of results, or `null` if there are no more results.

x-amz-account-id

The AWS account ID that owns the Storage Lens groups.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ListStorageLensGroupsResult>
   <NextToken>string</NextToken>
   <StorageLensGroup>
      <HomeRegion>string</HomeRegion>
      <Name>string</Name>
      <StorageLensGroupArn>string</StorageLensGroupArn>
   </StorageLensGroup>
   ...
</ListStorageLensGroupsResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListStorageLensGroupsResult

Root level tag for the ListStorageLensGroupsResult parameters.

Required: Yes

NextToken

If `NextToken` is returned, there are more Storage Lens groups results available. The value of `NextToken` is a unique pagination token for each page. Make the call again using the returned token to retrieve the next page. Keep all other arguments unchanged. Each pagination token expires after 24 hours.

Type: String

StorageLensGroup

The list of Storage Lens groups that exist in the specified home Region.

Type: Array of ListStorageLensGroupEntry data types

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListTagsForResource

Service: Amazon S3 Control

This operation allows you to list all of the tags for a specified resource. Each tag is a label consisting of a key and value. Tags can help you organize, track costs for, and control access to resources.

> **Note**
>
> This operation is only supported for the following Amazon S3 resources:
>
> - Access Points for directory buckets
> - Access Points for general purpose buckets
> - Directory buckets
> - Storage Lens groups
> - S3 Access Grants instances, registered locations, and grants.

Permissions

For Storage Lens groups and S3 Access Grants, you must have the `s3:ListTagsForResource` permission to use this operation.

For more information about the required Storage Lens Groups permissions, see Setting account permissions to use S3 Storage Lens groups.

Directory bucket permissions

For directory buckets and access points for directory buckets, you must have the `s3express:ListTagsForResource` permission to use this operation. For more information about directory buckets policies and permissions, see Identity and Access Management (IAM) for S3 Express One Zone in the *Amazon S3 User Guide*.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `s3express-control.`*`region`*`.amazonaws.com`.

For information about S3 Tagging errors, see List of Amazon S3 Tagging error codes.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
GET /v20180820/tags/resourceArn+ HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

resourceArn

The Amazon Resource Name (ARN) of the S3 resource that you want to list tags for. The tagged resource can be a directory bucket, S3 Storage Lens group or S3 Access Grants instance, registered location, or grant.

Length Constraints: Maximum length of 1011.

Pattern: `arn:[^:]+:s3(express)?:[^:].*`

Required: Yes

x-amz-account-id

The AWS account ID of the resource owner.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<ListTagsForResourceResult>
   <Tags>
      <Tag>
         <Key>string</Key>
         <Value>string</Value>
      </Tag>
   </Tags>
</ListTagsForResourceResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

ListTagsForResourceResult

Root level tag for the ListTagsForResourceResult parameters.

Required: Yes

Tags

The AWS resource tags that are associated with the resource.

Type: Array of Tag data types

Array Members: Minimum number of 0 items. Maximum number of 50 items.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2

- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutAccessGrantsInstanceResourcePolicy

Service: Amazon S3 Control

Updates the resource policy of the S3 Access Grants instance.

Permissions

You must have the `s3:PutAccessGrantsInstanceResourcePolicy` permission to use this operation.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /v20180820/accessgrantsinstance/resourcepolicy HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<PutAccessGrantsInstanceResourcePolicyRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
   <Policy>string</Policy>
   <Organization>string</Organization>
</PutAccessGrantsInstanceResourcePolicyRequest>
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

PutAccessGrantsInstanceResourcePolicyRequest

Root level tag for the PutAccessGrantsInstanceResourcePolicyRequest parameters.

Required: Yes

Organization

The Organization of the resource policy of the S3 Access Grants instance.

Type: String

Length Constraints: Minimum length of 12. Maximum length of 34.

Pattern: `^o-[a-z0-9]{10,32}$`

Required: No

Policy

The resource policy of the S3 Access Grants instance that you are updating.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 350000.

Required: Yes

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<PutAccessGrantsInstanceResourcePolicyResult>
   <Policy>string</Policy>
   <Organization>string</Organization>
   <CreatedAt>timestamp</CreatedAt>
</PutAccessGrantsInstanceResourcePolicyResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

PutAccessGrantsInstanceResourcePolicyResult

Root level tag for the PutAccessGrantsInstanceResourcePolicyResult parameters.

Required: Yes

CreatedAt

The date and time when you created the S3 Access Grants instance resource policy.

Type: Timestamp

Organization

The Organization of the resource policy of the S3 Access Grants instance.

Type: String

Length Constraints: Minimum length of 12. Maximum length of 34.

Pattern: `^o-[a-z0-9]{10,32}$`

Policy

The updated resource policy of the S3 Access Grants instance.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 350000.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++

- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutAccessPointConfigurationForObjectLambda

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Replaces configuration for an Object Lambda Access Point.

The following actions are related to `PutAccessPointConfigurationForObjectLambda`:

- GetAccessPointConfigurationForObjectLambda

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /v20180820/accesspointforobjectlambda/name/configuration HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<PutAccessPointConfigurationForObjectLambdaRequest xmlns="http://
awss3control.amazonaws.com/doc/2018-08-20/">
   <Configuration>
      <AllowedFeatures>
         <AllowedFeature>string</AllowedFeature>
      </AllowedFeatures>
      <CloudWatchMetricsEnabled>boolean</CloudWatchMetricsEnabled>
      <SupportingAccessPoint>string</SupportingAccessPoint>
      <TransformationConfigurations>
         <TransformationConfiguration>
            <Actions>
               <Action>string</Action>
            </Actions>
```

```
            <ContentTransformation>
               <AwsLambda>
                  <FunctionArn>string</FunctionArn>
                  <FunctionPayload>string</FunctionPayload>
               </AwsLambda>
            </ContentTransformation>
         </TransformationConfiguration>
      </TransformationConfigurations>
   </Configuration>
</PutAccessPointConfigurationForObjectLambdaRequest>
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the Object Lambda Access Point.

Length Constraints: Minimum length of 3. Maximum length of 45.

Pattern: `^[a-z0-9]([a-z0-9\-]*[a-z0-9])?$`

Required: Yes

x-amz-account-id

The account ID for the account that owns the specified Object Lambda Access Point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

PutAccessPointConfigurationForObjectLambdaRequest

Root level tag for the PutAccessPointConfigurationForObjectLambdaRequest parameters.

Required: Yes

Configuration

Object Lambda Access Point configuration document.

Type: ObjectLambdaConfiguration data type

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutAccessPointPolicy

Service: Amazon S3 Control

Associates an access policy with the specified access point. Each access point can have only one policy, so a request made to this API replaces any existing policy associated with the specified access point.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

The following actions are related to `PutAccessPointPolicy`:

- GetAccessPointPolicy
- DeleteAccessPointPolicy

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /v20180820/accesspoint/name/policy HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<PutAccessPointPolicyRequest xmlns="http://awss3control.amazonaws.com/doc/2018-08-20/">
   <Policy>string</Policy>
</PutAccessPointPolicyRequest>
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the access point that you want to associate with the specified policy.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the access point accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/accesspoint/<my-accesspoint-name>`. For example, to access the access point `reports-ap` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/accesspoint/reports-ap`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID for owner of the bucket associated with the specified access point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

PutAccessPointPolicyRequest

Root level tag for the PutAccessPointPolicyRequest parameters.

Required: Yes

Policy

The policy that you want to apply to the specified access point. For more information about access point policies, see Managing data access with Amazon S3 access points or Managing access to shared datasets in directory buckets with access points in the *Amazon S3 User Guide*.

Type: String

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample request syntax for the PutAccessPointPolicy action for Amazon S3 on Outposts access point

This example illustrates one usage of PutAccessPointPolicy.

```
           PUT /v20180820/accesspoint/example-access-point/policy HTTP/1.1
           Host: s3-outposts.<Region>.amazonaws.com
           Date: Wed, 28 Oct 2020 22:32:00 GMT
           Authorization: authorization string
           x-amz-account-id: example-account-id
           x-amz-outpost-id: op-01ac5d28a6a232904
           <?xml version="1.0" encoding="UTF-8"?>
               <PutAccessPointPolicyRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
                  <Policy>
{
   "Version":"2012-10-17",
   "Id":"AccessPointPolicy-for-example-access-point",
   "Statement":[
      {
         "Sid":"st1",
         "Effect":"Allow",
         "Principal":{
            "AWS":"example-account-id"
         },
         "Action":"s3-outposts:*",
         "Resource":"arn:aws:s3-outposts:your-Region:example-account-id:outpost/
op-01ac5d28a6a232904/accesspoint/example-access-point
```

```
      }
   ]
}
                   </Policy>
                </PutAccessPointPolicyRequest>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutAccessPointPolicyForObjectLambda

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Creates or replaces resource policy for an Object Lambda Access Point. For an example policy, see Creating Object Lambda Access Points in the *Amazon S3 User Guide*.

The following actions are related to `PutAccessPointPolicyForObjectLambda`:

- DeleteAccessPointPolicyForObjectLambda
- GetAccessPointPolicyForObjectLambda

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /v20180820/accesspointforobjectlambda/name/policy HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<PutAccessPointPolicyForObjectLambdaRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
   <Policy>string</Policy>
</PutAccessPointPolicyForObjectLambdaRequest>
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the Object Lambda Access Point.

Length Constraints: Minimum length of 3. Maximum length of 45.

Pattern: `^[a-z0-9]([a-z0-9\-]*[a-z0-9])?$`

Required: Yes

x-amz-account-id

The account ID for the account that owns the specified Object Lambda Access Point.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

PutAccessPointPolicyForObjectLambdaRequest

Root level tag for the PutAccessPointPolicyForObjectLambdaRequest parameters.

Required: Yes

Policy

Object Lambda Access Point resource policy document.

Type: String

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample resource policy

The following illustrates a sample resource policy.

```
{
    "Version" : "2008-10-17",
    "Statement":[{
        "Sid": "Grant account 123456789012 GetObject access",
        "Effect":"Allow",
        "Principal" : {
            "AWS": "arn:aws:iam::123456789012:root"
        },
        "Action":["s3-object-lambda:GetObject"],
        "Resource":["arn:aws:s3-object-lambda:us-east-1:123456789012:accesspoint/my-
object-lambda-ap"]
        },
        {
        "Sid": "Grant account 444455556666 GetObject access",
        "Effect":"Allow",
        "Principal" : {
            "AWS": "arn:aws:iam::444455556666:root"
        },
        "Action":["s3-object-lambda:GetObject"],
        "Resource":["arn:aws:s3-object-lambda:us-east-1:123456789012:accesspoint/my-
object-lambda-ap"]
        }
    ]
}
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET

- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutAccessPointScope

Service: Amazon S3 Control

Creates or replaces the access point scope for a directory bucket. You can use the access point scope to restrict access to specific prefixes, API operations, or a combination of both.

> **Note**
>
> You can specify any amount of prefixes, but the total length of characters of all prefixes must be less than 256 bytes in size.

To use this operation, you must have the permission to perform the `s3express:PutAccessPointScope` action.

For information about REST API errors, see REST error responses.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /v20180820/accesspoint/name/scope HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<PutAccessPointScopeRequest xmlns="http://awss3control.amazonaws.com/doc/2018-08-20/">
   <Scope>
      <Permissions>
         <Permission>string</Permission>
      </Permissions>
      <Prefixes>
         <Prefix>string</Prefix>
      </Prefixes>
   </Scope>
</PutAccessPointScopeRequest>
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the access point with the scope that you want to create or replace.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID that owns the access point with scope that you want to create or replace.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

PutAccessPointScopeRequest

Root level tag for the PutAccessPointScopeRequest parameters.

Required: Yes

Scope

Object prefixes, API operations, or a combination of both.

Type: Scope data type

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketLifecycleConfiguration

Service: Amazon S3 Control

> **Note**
>
> This action puts a lifecycle configuration to an Amazon S3 on Outposts bucket. To put a lifecycle configuration to an S3 bucket, see PutBucketLifecycleConfiguration in the *Amazon S3 API Reference*.

Creates a new lifecycle configuration for the S3 on Outposts bucket or replaces an existing lifecycle configuration. Outposts buckets only support lifecycle configurations that delete/expire objects after a certain period of time and abort incomplete multipart uploads.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

The following actions are related to `PutBucketLifecycleConfiguration`:

- GetBucketLifecycleConfiguration
- DeleteBucketLifecycleConfiguration

Request Syntax

```
PUT /v20180820/bucket/name/lifecycleconfiguration HTTP/1.1
Host: Bucket.s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<LifecycleConfiguration xmlns="http://awss3control.amazonaws.com/doc/2018-08-20/">
   <Rules>
      <Rule>
         <AbortIncompleteMultipartUpload>
            <DaysAfterInitiation>integer</DaysAfterInitiation>
         </AbortIncompleteMultipartUpload>
         <Expiration>
            <Date>timestamp</Date>
```

```
            <Days>integer</Days>
            <ExpiredObjectDeleteMarker>boolean</ExpiredObjectDeleteMarker>
         </Expiration>
         <Filter>
            <And>
               <ObjectSizeGreaterThan>long</ObjectSizeGreaterThan>
               <ObjectSizeLessThan>long</ObjectSizeLessThan>
               <Prefix>string</Prefix>
               <Tags>
                  <S3Tag>
                     <Key>string</Key>
                     <Value>string</Value>
                  </S3Tag>
               </Tags>
            </And>
            <ObjectSizeGreaterThan>long</ObjectSizeGreaterThan>
            <ObjectSizeLessThan>long</ObjectSizeLessThan>
            <Prefix>string</Prefix>
            <Tag>
               <Key>string</Key>
               <Value>string</Value>
            </Tag>
         </Filter>
         <ID>string</ID>
         <NoncurrentVersionExpiration>
            <NewerNoncurrentVersions>integer</NewerNoncurrentVersions>
            <NoncurrentDays>integer</NoncurrentDays>
         </NoncurrentVersionExpiration>
         <NoncurrentVersionTransitions>
            <NoncurrentVersionTransition>
               <NoncurrentDays>integer</NoncurrentDays>
               <StorageClass>string</StorageClass>
            </NoncurrentVersionTransition>
         </NoncurrentVersionTransitions>
         <Status>string</Status>
         <Transitions>
            <Transition>
               <Date>timestamp</Date>
               <Days>integer</Days>
               <StorageClass>string</StorageClass>
            </Transition>
         </Transitions>
      </Rule>
   </Rules>
```

```
</LifecycleConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the bucket for which to set the configuration.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID of the Outposts bucket.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

LifecycleConfiguration

Root level tag for the LifecycleConfiguration parameters.

Required: Yes

Rules

A lifecycle rule for individual objects in an Outposts bucket.

Type: Array of LifecycleRule data types

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample PutBucketLifecycleConfiguration request on an Amazon S3 on Outposts bucket

This request puts a lifecycle configuration on an Outposts bucket named `example-outpost-bucket`.

```
           PUT /v20180820/bucket/example-outpost-bucket/lifecycleconfiguration
HTTP/1.1
           Host:s3-outposts.<Region>.amazonaws.com
           x-amz-account-id: example-account-id
           x-amz-outpost-id: op-01ac5d28a6a232904
           Content-Length: 0
           Date: Wed, 01 Mar  2006 12:00:00 GMT
           Content-MD5: q6yJDlIkcBaGGfb3QLY69A==
           Authorization: authorization string
           Content-Length: 214

           <LifecycleConfiguration>
             <Rule>
               <ID>id2</ID>
               <Filter>
                  <Prefix>logs/</Prefix>
               </Filter>
               <Status>Enabled</Status>
               <Expiration>
                 <Days>365</Days>
               </Expiration>
             </Rule>
           </LifecycleConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface

- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketPolicy

Service: Amazon S3 Control

> **Note**
>
> This action puts a bucket policy to an Amazon S3 on Outposts bucket. To put a policy on an S3 bucket, see PutBucketPolicy in the *Amazon S3 API Reference*.

Applies an Amazon S3 bucket policy to an Outposts bucket. For more information, see Using Amazon S3 on Outposts in the *Amazon S3 User Guide*.

If you are using an identity other than the root user of the AWS account that owns the Outposts bucket, the calling identity must have the `PutBucketPolicy` permissions on the specified Outposts bucket and belong to the bucket owner's account in order to use this action.

If you don't have `PutBucketPolicy` permissions, Amazon S3 returns a `403 Access Denied` error. If you have the correct permissions, but you're not using an identity that belongs to the bucket owner's account, Amazon S3 returns a `405 Method Not Allowed` error.

> **Important**
>
> As a security precaution, the root user of the AWS account that owns a bucket can always use this action, even if the policy explicitly denies the root user the ability to perform this action.

For more information about bucket policies, see Using Bucket Policies and User Policies.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

The following actions are related to `PutBucketPolicy`:

- GetBucketPolicy
- DeleteBucketPolicy

Request Syntax

```
PUT /v20180820/bucket/name/policy HTTP/1.1
Host: Bucket.s3-control.amazonaws.com
x-amz-account-id: AccountId
x-amz-confirm-remove-self-bucket-access: ConfirmRemoveSelfBucketAccess
<?xml version="1.0" encoding="UTF-8"?>
<PutBucketPolicyRequest xmlns="http://awss3control.amazonaws.com/doc/2018-08-20/">
   <Policy>string</Policy>
</PutBucketPolicyRequest>
```

URI Request Parameters

The request uses the following URI parameters.

name

Specifies the bucket.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the bucket accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/bucket/<my-bucket-name>`. For example, to access the bucket `reports` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/bucket/reports`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID of the Outposts bucket.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

x-amz-confirm-remove-self-bucket-access

Set this parameter to true to confirm that you want to remove your permissions to change this bucket policy in the future.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Request Body

The request accepts the following data in XML format.

PutBucketPolicyRequest

Root level tag for the PutBucketPolicyRequest parameters.

Required: Yes

Policy

The bucket policy as a JSON document.

Type: String

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample request for putting a bucket policy in an Amazon S3 on Outposts bucket

The following request shows the PUT an individual policy request for the Outposts bucket `example-outpost-bucket`.

```
PUT v20180820/bucket/example-outpost-bucket/policy HTTP/1.1
Host: s3-outposts.<Region>.amazonaws.com
Date: Tue, 04 Apr 2010 20:34:56 GMT
Authorization: authorization string
x-amz-account-id: example-account-id
x-amz-outpost-id: op-01ac5d28a6a232904
{
   "Version":"2012-10-17",
   "Id":"exampleS3OnOutpostBucketPolicy",
   "Statement":[
      {
         "Sid":"st1",
         "Effect":"Allow",
         "Principal":{
            "AWS":"example-account-id"
         },
         "Action":"s3-outposts:*",
         "Resource":"arn:aws:s3-outposts:<your-region>:example-account-id:outpost/
op-01ac5d28a6a232904/bucket/example-outpost-bucket"
      }
   ]
}
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3

- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketReplication

Service: Amazon S3 Control

> **Note**
>
> This action creates an Amazon S3 on Outposts bucket's replication configuration. To create an S3 bucket's replication configuration, see PutBucketReplication in the *Amazon S3 API Reference*.

Creates a replication configuration or replaces an existing one. For information about S3 replication on Outposts configuration, see Replicating objects for S3 on Outposts in the *Amazon S3 User Guide*.

> **Note**
>
> It can take a while to propagate `PUT` or `DELETE` requests for a replication configuration to all S3 on Outposts systems. Therefore, the replication configuration that's returned by a `GET` request soon after a `PUT` or `DELETE` request might return a more recent result than what's on the Outpost. If an Outpost is offline, the delay in updating the replication configuration on that Outpost can be significant.

Specify the replication configuration in the request body. In the replication configuration, you provide the following information:

- The name of the destination bucket or buckets where you want S3 on Outposts to replicate objects
- The AWS Identity and Access Management (IAM) role that S3 on Outposts can assume to replicate objects on your behalf
- Other relevant information, such as replication rules

A replication configuration must include at least one rule and can contain a maximum of 100. Each rule identifies a subset of objects to replicate by filtering the objects in the source Outposts bucket. To choose additional subsets of objects to replicate, add a rule for each subset.

To specify a subset of the objects in the source Outposts bucket to apply a replication rule to, add the `Filter` element as a child of the `Rule` element. You can filter objects based on an object key

prefix, one or more object tags, or both. When you add the `Filter` element in the configuration, you must also add the following elements: `DeleteMarkerReplication`, `Status`, and `Priority`.

Using `PutBucketReplication` on Outposts requires that both the source and destination buckets must have versioning enabled. For information about enabling versioning on a bucket, see Managing S3 Versioning for your S3 on Outposts bucket.

For information about S3 on Outposts replication failure reasons, see Replication failure reasons in the *Amazon S3 User Guide*.

Handling Replication of Encrypted Objects

Outposts buckets are encrypted at all times. All the objects in the source Outposts bucket are encrypted and can be replicated. Also, all the replicas in the destination Outposts bucket are encrypted with the same encryption key as the objects in the source Outposts bucket.

Permissions

To create a `PutBucketReplication` request, you must have `s3-outposts:PutReplicationConfiguration` permissions for the bucket. The Outposts bucket owner has this permission by default and can grant it to others. For more information about permissions, see Setting up IAM with S3 on Outposts and Managing access to S3 on Outposts buckets.

> **Note**
>
> To perform this operation, the user or role must also have the `iam:CreateRole` and `iam:PassRole` permissions. For more information, see Granting a user permissions to pass a role to an AWS service.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

The following operations are related to `PutBucketReplication`:

- GetBucketReplication

- DeleteBucketReplication

Request Syntax

```
PUT /v20180820/bucket/name/replication HTTP/1.1
Host: Bucket.s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<ReplicationConfiguration xmlns="http://awss3control.amazonaws.com/doc/2018-08-20/">
   <Role>string</Role>
   <Rules>
      <Rule>
         <Bucket>string</Bucket>
         <DeleteMarkerReplication>
            <Status>string</Status>
         </DeleteMarkerReplication>
         <Destination>
            <AccessControlTranslation>
               <Owner>string</Owner>
            </AccessControlTranslation>
            <Account>string</Account>
            <Bucket>string</Bucket>
            <EncryptionConfiguration>
               <ReplicaKmsKeyID>string</ReplicaKmsKeyID>
            </EncryptionConfiguration>
            <Metrics>
               <EventThreshold>
                  <Minutes>integer</Minutes>
               </EventThreshold>
               <Status>string</Status>
            </Metrics>
            <ReplicationTime>
               <Status>string</Status>
               <Time>
                  <Minutes>integer</Minutes>
               </Time>
            </ReplicationTime>
            <StorageClass>string</StorageClass>
         </Destination>
         <ExistingObjectReplication>
            <Status>string</Status>
         </ExistingObjectReplication>
         <Filter>
```

```
            <And>
               <Prefix>string</Prefix>
               <Tags>
                  <S3Tag>
                     <Key>string</Key>
                     <Value>string</Value>
                  </S3Tag>
               </Tags>
            </And>
            <Prefix>string</Prefix>
            <Tag>
               <Key>string</Key>
               <Value>string</Value>
            </Tag>
         </Filter>
         <ID>string</ID>
         <Prefix>string</Prefix>
         <Priority>integer</Priority>
         <SourceSelectionCriteria>
            <ReplicaModifications>
               <Status>string</Status>
            </ReplicaModifications>
            <SseKmsEncryptedObjects>
               <Status>string</Status>
            </SseKmsEncryptedObjects>
         </SourceSelectionCriteria>
         <Status>string</Status>
      </Rule>
   </Rules>
</ReplicationConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

name

Specifies the S3 on Outposts bucket to set the configuration for.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the bucket accessed in the format `arn:aws:s3-outposts:<Region>:<account-`

id>:outpost/<outpost-id>/bucket/<my-bucket-name>. For example, to access the bucket reports through Outpost my-outpost owned by account 123456789012 in Region us-west-2, use the URL encoding of arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/bucket/reports. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID of the Outposts bucket.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request accepts the following data in XML format.

ReplicationConfiguration

Root level tag for the ReplicationConfiguration parameters.

Required: Yes

Role

The Amazon Resource Name (ARN) of the AWS Identity and Access Management (IAM) role that S3 on Outposts assumes when replicating objects. For information about S3 replication on Outposts configuration, see Setting up replication in the *Amazon S3 User Guide*.

Type: String

Required: Yes

Rules

A container for one or more replication rules. A replication configuration must have at least one rule and can contain an array of 100 rules at the most.

Type: Array of ReplicationRule data types

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample Request: Add a replication configuration to an Amazon S3 on Outposts bucket

The following sample PUT request creates a replication subresource on the specified Outposts bucket named `example-outpost-bucket` and saves the replication configuration in it. The replication configuration specifies a rule to replicate objects to the `example-outpost-bucket` bucket. The rule includes a filter to replicate only the objects that are created with the key name prefix `TaxDocs` and that have two specific tags.

After you add a replication configuration to your Outposts bucket, S3 on Outposts assumes the AWS Identity and Access Management (IAM) role that's specified in the configuration to replicate objects on behalf of the Outposts bucket owner. The bucket owner is the AWS account that created the Outposts bucket.

Filtering by using the `Filter` element is supported in the latest XML configuration. The earlier version of the XML configuration isn't supported.

For more examples of S3 replication on Outposts configuration, see Creating replication rules on Outposts in the *Amazon S3 User Guide*.

```
PUT /v20180820/bucket/example-outpost-bucket/replication HTTP/1.1
Host:s3-outposts.<Region>.amazonaws.com
x-amz-account-id: example-account-id
x-amz-outpost-id: op-01ac5d28a6a232904
Authorization: authorization string
```

```
<ReplicationConfiguration>
  <Role>arn:aws:iam::35667example:role/ReplicationRoleForS3Outposts</Role>
  <Rules>
   <Rule>
      <Bucket>arn:aws:s3-outposts:us-east-1:example-account-id:outpost/SOURCE-OUTPOST-
ID/accesspoint/SOURCE-OUTPOSTS-BUCKET-ACCESS-POINT</Bucket>
      <ID>rule1</ID>
      <Status>Enabled</Status>
      <Priority>1</Priority>
      <DeleteMarkerReplication>
         <Status>Disabled</Status>
      </DeleteMarkerReplication>
      <Filter>
         <And>
            <Prefix>TaxDocs</Prefix>
            <Tag>
               <Key>key1</Key>
               <Value>value1</Value>
            </Tag>
            <Tag>
               <Key>key2</Key>
               <Value>value2</Value>
            </Tag>
         </And>
      </Filter>
      <Destination>
         <Bucket>arn:aws:s3-outposts:us-east-1:example-account-id:outpost/DESTINATION-
OUTPOST-ID/accesspoint/DESTINATION-OUTPOSTS-BUCKET-ACCESS-POINT</Bucket>
      </Destination>
   </Rule>
  </Rules>
</ReplicationConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++

- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketTagging

Service: Amazon S3 Control

> **Note**
>
> This action puts tags on an Amazon S3 on Outposts bucket. To put tags on an S3 bucket, see PutBucketTagging in the *Amazon S3 API Reference*.

Sets the tags for an S3 on Outposts bucket. For more information, see Using Amazon S3 on Outposts in the *Amazon S3 User Guide*.

Use tags to organize your AWS bill to reflect your own cost structure. To do this, sign up to get your AWS account bill with tag key values included. Then, to see the cost of combined resources, organize your billing information according to resources with the same tag key values. For example, you can tag several resources with a specific application name, and then organize your billing information to see the total cost of that application across several services. For more information, see Cost allocation and tagging.

> **Note**
>
> Within a bucket, if you add a tag that has the same key as an existing tag, the new value overwrites the old value. For more information, see Using cost allocation in Amazon S3 bucket tags.

To use this action, you must have permissions to perform the `s3-outposts:PutBucketTagging` action. The Outposts bucket owner has this permission by default and can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing access permissions to your Amazon S3 resources.

`PutBucketTagging` has the following special errors:

- Error code: `InvalidTagError`
  - Description: The tag provided was not a valid tag. This error can occur if the tag did not pass input validation. For information about tag restrictions, see User-Defined Tag Restrictions and AWS-Generated Cost Allocation Tag Restrictions.
- Error code: `MalformedXMLError`

- Description: The XML provided does not match the schema.
- Error code: `OperationAbortedError`
  - Description: A conflicting conditional action is currently in progress against this resource. Try again.
- Error code: `InternalError`
  - Description: The service was unable to apply the provided tag to the bucket.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

The following actions are related to `PutBucketTagging`:

- GetBucketTagging
- DeleteBucketTagging

Request Syntax

```
PUT /v20180820/bucket/name/tagging HTTP/1.1
Host: Bucket.s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<Tagging xmlns="http://awss3control.amazonaws.com/doc/2018-08-20/">
   <TagSet>
      <S3Tag>
         <Key>string</Key>
         <Value>string</Value>
      </S3Tag>
   </TagSet>
</Tagging>
```

URI Request Parameters

The request uses the following URI parameters.

name

The Amazon Resource Name (ARN) of the bucket.

For using this parameter with Amazon S3 on Outposts with the REST API, you must specify the name and the x-amz-outpost-id as well.

For using this parameter with S3 on Outposts with the AWS SDK and CLI, you must specify the ARN of the bucket accessed in the format `arn:aws:s3-outposts:<Region>:<account-id>:outpost/<outpost-id>/bucket/<my-bucket-name>`. For example, to access the bucket `reports` through Outpost `my-outpost` owned by account `123456789012` in Region `us-west-2`, use the URL encoding of `arn:aws:s3-outposts:us-west-2:123456789012:outpost/my-outpost/bucket/reports`. The value must be URL encoded.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID of the Outposts bucket.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

Tagging

Root level tag for the Tagging parameters.

Required: Yes

TagSet

A collection for a set of tags.

Type: Array of S3Tag data types

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample request: Add tag set to an Amazon S3 on Outposts bucket

The following request adds a tag set to the existing `example-outpost-bucket` bucket.

```
PUT v20180820/bucket/example-outpost-bucket/tagging HTTP/1.1
Host: s3-outposts.<Region>.amazonaws.com
Content-Length: 1660
x-amz-date: Thu, 12 Nov 2020 20:04:21 GMT
x-amz-account-id: example-account-id
x-amz-outpost-id: op-01ac5d28a6a232904
Authorization: authorization string

<Tagging>
  <TagSet>
    <Tag>
      <Key>Project</Key>
      <Value>Project One</Value>
    </Tag>
    <Tag>
      <Key>User</Key>
      <Value>jsmith</Value>
    </Tag>
  </TagSet>
</Tagging>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutBucketVersioning

Service: Amazon S3 Control

> **Note**
>
> This operation sets the versioning state for S3 on Outposts buckets only. To set the versioning state for an S3 bucket, see PutBucketVersioning in the *Amazon S3 API Reference*.

Sets the versioning state for an S3 on Outposts bucket. With S3 Versioning, you can save multiple distinct copies of your objects and recover from unintended user actions and application failures.

You can set the versioning state to one of the following:

- **Enabled** - Enables versioning for the objects in the bucket. All objects added to the bucket receive a unique version ID.
- **Suspended** - Suspends versioning for the objects in the bucket. All objects added to the bucket receive the version ID `null`.

If you've never set versioning on your bucket, it has no versioning state. In that case, a GetBucketVersioning request does not return a versioning state value.

When you enable S3 Versioning, for each object in your bucket, you have a current version and zero or more noncurrent versions. You can configure your bucket S3 Lifecycle rules to expire noncurrent versions after a specified time period. For more information, see Creating and managing a lifecycle configuration for your S3 on Outposts bucket in the *Amazon S3 User Guide*.

If you have an object expiration lifecycle configuration in your non-versioned bucket and you want to maintain the same permanent delete behavior when you enable versioning, you must add a noncurrent expiration policy. The noncurrent expiration lifecycle configuration will manage the deletes of the noncurrent object versions in the version-enabled bucket. For more information, see Versioning in the *Amazon S3 User Guide*.

All Amazon S3 on Outposts REST API requests for this action require an additional parameter of `x-amz-outpost-id` to be passed with the request. In addition, you must use an S3 on Outposts endpoint hostname prefix instead of `s3-control`. For an example of the request syntax for Amazon S3 on Outposts that uses the S3 on Outposts endpoint hostname prefix and the `x-amz-outpost-id` derived by using the access point ARN, see the Examples section.

The following operations are related to `PutBucketVersioning` for S3 on Outposts.

- GetBucketVersioning
- PutBucketLifecycleConfiguration
- GetBucketLifecycleConfiguration

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /v20180820/bucket/name/versioning HTTP/1.1
Host: Bucket.s3-control.amazonaws.com
x-amz-account-id: AccountId
x-amz-mfa: MFA
<?xml version="1.0" encoding="UTF-8"?>
<VersioningConfiguration xmlns="http://awss3control.amazonaws.com/doc/2018-08-20/">
   <MfaDelete>string</MfaDelete>
   <Status>string</Status>
</VersioningConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

name

The S3 on Outposts bucket to set the versioning state for.

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

x-amz-account-id

The AWS account ID of the S3 on Outposts bucket.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

x-amz-mfa

The concatenation of the authentication device's serial number, a space, and the value that is displayed on your authentication device.

Request Body

The request accepts the following data in XML format.

VersioningConfiguration

Root level tag for the VersioningConfiguration parameters.

Required: Yes

MFADelete

Specifies whether MFA delete is enabled or disabled in the bucket versioning configuration for the S3 on Outposts bucket.

Type: String

Valid Values: `Enabled | Disabled`

Required: No

Status

Sets the versioning state of the S3 on Outposts bucket.

Type: String

Valid Values: `Enabled | Suspended`

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample PutBucketVersioning request on an Amazon S3 on Outposts bucket

This request sets the versioning state on an S3 on Outposts bucket that's named `example-outpost-bucket`.

```
PUT /v20180820/bucket/example-outpost-bucket/?versioning HTTP/1.1
Host:s3-outposts.region-code.amazonaws.com
x-amz-account-id: example-account-id
x-amz-outpost-id: op-01ac5d28a6a232904
Content-Length: 0
Date: Wed, 25 May  2022 12:00:00 GMT
Content-MD5: q6yJDlIkcBaGGfb3QLY69A==
Authorization: authorization string
Content-Length: 214

<VersioningConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
 <Status>Enabled</Status>
</VersioningConfiguration>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3

- AWS SDK for Python
- AWS SDK for Ruby V3

PutJobTagging

Service: Amazon S3 Control

Sets the supplied tag-set on an S3 Batch Operations job.

A tag is a key-value pair. You can associate S3 Batch Operations tags with any job by sending a PUT request against the tagging subresource that is associated with the job. To modify the existing tag set, you can either replace the existing tag set entirely, or make changes within the existing tag set by retrieving the existing tag set using GetJobTagging, modify that tag set, and use this operation to replace the tag set with the one you modified. For more information, see Controlling access and labeling jobs using tags in the *Amazon S3 User Guide*.

> **Note**
>
> - If you send this request with an empty tag set, Amazon S3 deletes the existing tag set on the Batch Operations job. If you use this method, you are charged for a Tier 1 Request (PUT). For more information, see Amazon S3 pricing.
> - For deleting existing tags for your Batch Operations job, a DeleteJobTagging request is preferred because it achieves the same result without incurring charges.
> - A few things to consider about using tags:
> - Amazon S3 limits the maximum number of tags to 50 tags per job.
> - You can associate up to 50 tags with a job as long as they have unique tag keys.
> - A tag key can be up to 128 Unicode characters in length, and tag values can be up to 256 Unicode characters in length.
> - The key and values are case sensitive.
> - For tagging-related restrictions related to characters and encodings, see User-Defined Tag Restrictions in the *AWS Billing and Cost Management User Guide*.

Permissions

To use the `PutJobTagging` operation, you must have permission to perform the `s3:PutJobTagging` action.

Related actions include:

- CreateJob
- GetJobTagging
- DeleteJobTagging

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /v20180820/jobs/id/tagging HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<PutJobTaggingRequest xmlns="http://awss3control.amazonaws.com/doc/2018-08-20/">
   <Tags>
      <S3Tag>
         <Key>string</Key>
         <Value>string</Value>
      </S3Tag>
   </Tags>
</PutJobTaggingRequest>
```

URI Request Parameters

The request uses the following URI parameters.

id

The ID for the S3 Batch Operations job whose tags you want to replace.

Length Constraints: Minimum length of 5. Maximum length of 36.

Pattern: `[a-zA-Z0-9\-\_]+`

Required: Yes

x-amz-account-id

The AWS account ID associated with the S3 Batch Operations job.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

PutJobTaggingRequest

Root level tag for the PutJobTaggingRequest parameters.

Required: Yes

Tags

The set of tags to associate with the S3 Batch Operations job.

Type: Array of S3Tag data types

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

InternalServiceException

HTTP Status Code: 500

NotFoundException

HTTP Status Code: 400

TooManyRequestsException

HTTP Status Code: 400

TooManyTagsException

Amazon S3 throws this exception if you have too many tags in your tag set.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutMultiRegionAccessPointPolicy

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Associates an access control policy with the specified Multi-Region Access Point. Each Multi-Region Access Point can have only one policy, so a request made to this action replaces any existing policy that is associated with the specified Multi-Region Access Point.

This action will always be routed to the US West (Oregon) Region. For more information about the restrictions around working with Multi-Region Access Points, see Multi-Region Access Point restrictions and limitations in the *Amazon S3 User Guide*.

The following actions are related to `PutMultiRegionAccessPointPolicy`:

- GetMultiRegionAccessPointPolicy
- GetMultiRegionAccessPointPolicyStatus

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /v20180820/async-requests/mrap/put-policy HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<PutMultiRegionAccessPointPolicyRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
   <ClientToken>string</ClientToken>
   <Details>
      <Name>string</Name>
```

```
      <Policy>string</Policy>
   </Details>
</PutMultiRegionAccessPointPolicyRequest>
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The AWS account ID for the owner of the Multi-Region Access Point.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request accepts the following data in XML format.

PutMultiRegionAccessPointPolicyRequest

Root level tag for the PutMultiRegionAccessPointPolicyRequest parameters.

Required: Yes

ClientToken

An idempotency token used to identify the request and guarantee that requests are unique.

Type: String

Length Constraints: Maximum length of 64.

Pattern: \S+

Required: Yes

Details

A container element containing the details of the policy for the Multi-Region Access Point.

Type: PutMultiRegionAccessPointPolicyInput data type

Required: Yes

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<PutMultiRegionAccessPointPolicyResult>
   <RequestTokenARN>string</RequestTokenARN>
</PutMultiRegionAccessPointPolicyResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

PutMultiRegionAccessPointPolicyResult

Root level tag for the PutMultiRegionAccessPointPolicyResult parameters.

Required: Yes

RequestTokenARN

The request token associated with the request. You can use this token with DescribeMultiRegionAccessPointOperation to determine the status of asynchronous requests.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `arn:.+`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++

- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutPublicAccessBlock

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Creates or modifies the `PublicAccessBlock` configuration for an AWS account. For this operation, users must have the `s3:PutAccountPublicAccessBlock` permission. For more information, see Using Amazon S3 block public access.

Related actions include:

- GetPublicAccessBlock
- DeletePublicAccessBlock

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /v20180820/configuration/publicAccessBlock HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<PublicAccessBlockConfiguration xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
   <BlockPublicAcls>boolean</BlockPublicAcls>
   <IgnorePublicAcls>boolean</IgnorePublicAcls>
   <BlockPublicPolicy>boolean</BlockPublicPolicy>
   <RestrictPublicBuckets>boolean</RestrictPublicBuckets>
</PublicAccessBlockConfiguration>
```

URI Request Parameters

The request uses the following URI parameters.

x-amz-account-id

The account ID for the AWS account whose `PublicAccessBlock` configuration you want to set.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

PublicAccessBlockConfiguration

Root level tag for the PublicAccessBlockConfiguration parameters.

Required: Yes

BlockPublicAcls

Specifies whether Amazon S3 should block public access control lists (ACLs) for buckets in this account. Setting this element to `TRUE` causes the following behavior:

- `PutBucketAcl` and `PutObjectAcl` calls fail if the specified ACL is public.
- PUT Object calls fail if the request includes a public ACL.
- PUT Bucket calls fail if the request includes a public ACL.

Enabling this setting doesn't affect existing policies or ACLs.

This property is not supported for Amazon S3 on Outposts.

Type: Boolean

Required: No

BlockPublicPolicy

Specifies whether Amazon S3 should block public bucket policies for buckets in this account. Setting this element to TRUE causes Amazon S3 to reject calls to PUT Bucket policy if the specified bucket policy allows public access.

Enabling this setting doesn't affect existing bucket policies.

This property is not supported for Amazon S3 on Outposts.

Type: Boolean

Required: No

IgnorePublicAcls

Specifies whether Amazon S3 should ignore public ACLs for buckets in this account. Setting this element to TRUE causes Amazon S3 to ignore all public ACLs on buckets in this account and any objects that they contain.

Enabling this setting doesn't affect the persistence of any existing ACLs and doesn't prevent new public ACLs from being set.

This property is not supported for Amazon S3 on Outposts.

Type: Boolean

Required: No

RestrictPublicBuckets

Specifies whether Amazon S3 should restrict public bucket policies for buckets in this account. Setting this element to TRUE restricts access to buckets with public policies to only AWS service principals and authorized users within this account.

Enabling this setting doesn't affect previously stored bucket policies, except that public and cross-account access within any public bucket policy, including non-public delegation to specific accounts, is blocked.

This property is not supported for Amazon S3 on Outposts.

Type: Boolean

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutStorageLensConfiguration

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Puts an Amazon S3 Storage Lens configuration. For more information about S3 Storage Lens, see Working with Amazon S3 Storage Lens in the *Amazon S3 User Guide*. For a complete list of S3 Storage Lens metrics, see S3 Storage Lens metrics glossary in the *Amazon S3 User Guide*.

> **Note**
>
> To use this action, you must have permission to perform the `s3:PutStorageLensConfiguration` action. For more information, see Setting permissions to use Amazon S3 Storage Lens in the *Amazon S3 User Guide*.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /v20180820/storagelens/storagelensid HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<PutStorageLensConfigurationRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
   <StorageLensConfiguration>
      <AccountLevel>
         <ActivityMetrics>
            <IsEnabled>boolean</IsEnabled>
         </ActivityMetrics>
         <AdvancedCostOptimizationMetrics>
```

```
            <IsEnabled>boolean</IsEnabled>
         </AdvancedCostOptimizationMetrics>
         <AdvancedDataProtectionMetrics>
            <IsEnabled>boolean</IsEnabled>
         </AdvancedDataProtectionMetrics>
         <BucketLevel>
            <ActivityMetrics>
               <IsEnabled>boolean</IsEnabled>
            </ActivityMetrics>
            <AdvancedCostOptimizationMetrics>
               <IsEnabled>boolean</IsEnabled>
            </AdvancedCostOptimizationMetrics>
            <AdvancedDataProtectionMetrics>
               <IsEnabled>boolean</IsEnabled>
            </AdvancedDataProtectionMetrics>
            <DetailedStatusCodesMetrics>
               <IsEnabled>boolean</IsEnabled>
            </DetailedStatusCodesMetrics>
            <PrefixLevel>
               <StorageMetrics>
                  <IsEnabled>boolean</IsEnabled>
                  <SelectionCriteria>
                     <Delimiter>string</Delimiter>
                     <MaxDepth>integer</MaxDepth>
                     <MinStorageBytesPercentage>double</MinStorageBytesPercentage>
                  </SelectionCriteria>
               </StorageMetrics>
            </PrefixLevel>
         </BucketLevel>
         <DetailedStatusCodesMetrics>
            <IsEnabled>boolean</IsEnabled>
         </DetailedStatusCodesMetrics>
         <StorageLensGroupLevel>
            <SelectionCriteria>
               <Exclude>
                  <Arn>string</Arn>
               </Exclude>
               <Include>
                  <Arn>string</Arn>
               </Include>
            </SelectionCriteria>
         </StorageLensGroupLevel>
      </AccountLevel>
      <AwsOrg>
```

```
            <Arn>string</Arn>
        </AwsOrg>
        <DataExport>
            <CloudWatchMetrics>
                <IsEnabled>boolean</IsEnabled>
            </CloudWatchMetrics>
            <S3BucketDestination>
                <AccountId>string</AccountId>
                <Arn>string</Arn>
                <Encryption>
                    <SSE-KMS>
                        <KeyId>string</KeyId>
                    </SSE-KMS>
                    <SSE-S3>
                    </SSE-S3>
                </Encryption>
                <Format>string</Format>
                <OutputSchemaVersion>string</OutputSchemaVersion>
                <Prefix>string</Prefix>
            </S3BucketDestination>
        </DataExport>
        <Exclude>
            <Buckets>
                <Arn>string</Arn>
            </Buckets>
            <Regions>
                <Region>string</Region>
            </Regions>
        </Exclude>
        <Id>string</Id>
        <Include>
            <Buckets>
                <Arn>string</Arn>
            </Buckets>
            <Regions>
                <Region>string</Region>
            </Regions>
        </Include>
        <IsEnabled>boolean</IsEnabled>
        <StorageLensArn>string</StorageLensArn>
    </StorageLensConfiguration>
    <Tags>
        <Tag>
            <Key>string</Key>
```

```
        <Value>string</Value>
      </Tag>
    </Tags>
</PutStorageLensConfigurationRequest>
```

URI Request Parameters

The request uses the following URI parameters.

storagelensid

The ID of the S3 Storage Lens configuration.

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-\_\.]+`

Required: Yes

x-amz-account-id

The account ID of the requester.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

PutStorageLensConfigurationRequest

Root level tag for the PutStorageLensConfigurationRequest parameters.

Required: Yes

StorageLensConfiguration

The S3 Storage Lens configuration.

Type: StorageLensConfiguration data type

Required: Yes

Tags

The tag set of the S3 Storage Lens configuration.

> **Note**
>
> You can set up to a maximum of 50 tags.

Type: Array of StorageLensTag data types

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutStorageLensConfigurationTagging

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Put or replace tags on an existing Amazon S3 Storage Lens configuration. For more information about S3 Storage Lens, see Assessing your storage activity and usage with Amazon S3 Storage Lens in the *Amazon S3 User Guide*.

> **Note**
>
> To use this action, you must have permission to perform the `s3:PutStorageLensConfigurationTagging` action. For more information, see Setting permissions to use Amazon S3 Storage Lens in the *Amazon S3 User Guide*.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /v20180820/storagelens/storagelensid/tagging HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<PutStorageLensConfigurationTaggingRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
   <Tags>
      <Tag>
         <Key>string</Key>
         <Value>string</Value>
      </Tag>
```

```
    </Tags>
</PutStorageLensConfigurationTaggingRequest>
```

URI Request Parameters

The request uses the following URI parameters.

storagelensid

The ID of the S3 Storage Lens configuration.

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-\_\.]+`

Required: Yes

x-amz-account-id

The account ID of the requester.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

PutStorageLensConfigurationTaggingRequest

Root level tag for the PutStorageLensConfigurationTaggingRequest parameters.

Required: Yes

Tags

The tag set of the S3 Storage Lens configuration.

> **Note**
>
> You can set up to a maximum of 50 tags.

Type: Array of StorageLensTag data types

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

SubmitMultiRegionAccessPointRoutes

Service: Amazon S3 Control

> **Note**
>
> This operation is not supported by directory buckets.

Submits an updated route configuration for a Multi-Region Access Point. This API operation updates the routing status for the specified Regions from active to passive, or from passive to active. A value of `0` indicates a passive status, which means that traffic won't be routed to the specified Region. A value of `100` indicates an active status, which means that traffic will be routed to the specified Region. At least one Region must be active at all times.

When the routing configuration is changed, any in-progress operations (uploads, copies, deletes, and so on) to formerly active Regions will continue to run to their final completion state (success or failure). The routing configurations of any Regions that aren't specified remain unchanged.

> **Note**
>
> Updated routing configurations might not be immediately applied. It can take up to 2 minutes for your changes to take effect.

To submit routing control changes and failover requests, use the Amazon S3 failover control infrastructure endpoints in these five AWS Regions:

- `us-east-1`
- `us-west-2`
- `ap-southeast-2`
- `ap-northeast-1`
- `eu-west-1`

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PATCH /v20180820/mrap/instances/mrap+/routes HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<SubmitMultiRegionAccessPointRoutesRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
   <RouteUpdates>
      <Route>
         <Bucket>string</Bucket>
         <Region>string</Region>
         <TrafficDialPercentage>integer</TrafficDialPercentage>
      </Route>
   </RouteUpdates>
</SubmitMultiRegionAccessPointRoutesRequest>
```

URI Request Parameters

The request uses the following URI parameters.

mrap

The Multi-Region Access Point ARN.

Length Constraints: Maximum length of 200.

Pattern: `^[a-zA-Z0-9\:.-]{3,200}$`

Required: Yes

x-amz-account-id

The AWS account ID for the owner of the Multi-Region Access Point.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request accepts the following data in XML format.

SubmitMultiRegionAccessPointRoutesRequest

Root level tag for the SubmitMultiRegionAccessPointRoutesRequest parameters.

Required: Yes

RouteUpdates

The different routes that make up the new route configuration. Active routes return a value of `100`, and passive routes return a value of `0`.

Type: Array of MultiRegionAccessPointRoute data types

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Examples

Sample request for initiating failover

In the following example, the request to submit these routing changes to initiate a failover is sent to the failover control infrastructure in the `us-east-1` Region. In this example, the `eu-north-1` Region is set to active, and the `ap-northeast-3` Region is set to passive. In other words, the `ap-northeast-3` Region is failed over to the `eu-north-1` Region.

```
PATCH /v20180820/mrap/instances/<Multi-Region Access Point>/routes HTTP/1.1
Host: example-account-id.s3-control.us-east-1.amazonaws.com

<SubmitMultiRegionAccessPointRoutesRequest>
  <RouteUpdates>
     <Route>
      <Region>eu-north-1</Region>
      <Bucket>example-bucket-eu-north-1</Bucket>
      <TrafficDialPercentage>100</TrafficDialPercentage>
     </Route>
     <Route>
      <Region>ap-northeast-3</Region>
      <Bucket>example-bucket-ap-northeast-3</Bucket>
      <TrafficDialPercentage>0</TrafficDialPercentage>
     </Route>
  </RouteUpdates>
</SubmitMultiRegionAccessPointRoutesRequest>
```

Sample request for setting a Region to active status

The following request updates the route configuration of the `eu-north-1` Region to active. The request is sent to the failover control infrastructure in the `eu-west-1` Region.

```
PATCH /v20180820/mrap/instances/<Multi-Region Access Point>/routes HTTP/1.1
Host: example-account-id.s3-control.eu-west-1.amazonaws.com

<SubmitMultiRegionAccessPointRoutesRequest>
   <RouteUpdates>
    <Route>
      <Region>eu-north-1<Region>
      <Bucket>example-bucket-eu-north-1</Bucket>
      <TrafficDialPercentage>100</TrafficDialPercentage>
    </Route>
   </RouteUpdates>
</SubmitMultiRegionAccessPointRoutesRequest>
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

TagResource

Service: Amazon S3 Control

Creates a new user-defined tag or updates an existing tag. Each tag is a label consisting of a key and value that is applied to your resource. Tags can help you organize, track costs for, and control access to your resources. You can add up to 50 AWS resource tags for each S3 resource.

> **Note**
>
> This operation is only supported for the following Amazon S3 resource:
>
> - Access Points for directory buckets
> - Access Points for general purpose buckets
> - Directory buckets
> - S3 Storage Lens groups
> - S3 Access Grants instances, registered locations, or grants.

> **Note**
>
> This operation is only supported for the following Amazon S3 resource:
>
> - Directory buckets
> - S3 Storage Lens groups
> - S3 Access Grants instances, registered locations, or grants.

Permissions

For Storage Lens groups and S3 Access Grants, you must have the `s3:TagResource` permission to use this operation.

For more information about the required Storage Lens Groups permissions, see Setting account permissions to use S3 Storage Lens groups.

Directory bucket permissions

For directory buckets and access points for directory buckets, you must have the `s3express:TagResource` permission to use this operation. For more information about

directory buckets policies and permissions, see Identity and Access Management (IAM) for S3 Express One Zone in the *Amazon S3 User Guide*.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `s3express-control.region.amazonaws.com`.

For information about S3 Tagging errors, see List of Amazon S3 Tagging error codes.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /v20180820/tags/resourceArn+ HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<TagResourceRequest xmlns="http://awss3control.amazonaws.com/doc/2018-08-20/">
   <Tags>
      <Tag>
         <Key>string</Key>
         <Value>string</Value>
      </Tag>
   </Tags>
</TagResourceRequest>
```

URI Request Parameters

The request uses the following URI parameters.

resourceArn

The Amazon Resource Name (ARN) of the S3 resource that you're applying tags to. The tagged resource can be a directory bucket, S3 Storage Lens group or S3 Access Grants instance, registered location, or grant.

Length Constraints: Maximum length of 1011.

Pattern: `arn:[^:]+:s3(express)?:[^:].*`

Required: Yes

x-amz-account-id

The AWS account ID that created the S3 resource that you're trying to add tags to or the requester's account ID.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

TagResourceRequest

Root level tag for the TagResourceRequest parameters.

Required: Yes

Tags

The AWS resource tags that you want to add to the specified S3 resource.

Type: Array of Tag data types

Array Members: Minimum number of 0 items. Maximum number of 50 items.

Required: Yes

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

UntagResource

Service: Amazon S3 Control

This operation removes the specified user-defined tags from an S3 resource. You can pass one or more tag keys.

> **Note**
>
> This operation is only supported for the following Amazon S3 resources:
>
> - Access Points for directory buckets
> - Access Points for general purpose buckets
> - Directory buckets
> - Storage Lens groups
> - S3 Access Grants instances, registered locations, and grants.

Permissions

For Storage Lens groups and S3 Access Grants, you must have the `s3:UntagResource` permission to use this operation.

For more information about the required Storage Lens Groups permissions, see Setting account permissions to use S3 Storage Lens groups.

Directory bucket permissions

For directory buckets and access points for directory buckets, you must have the `s3express:UntagResource` permission to use this operation. For more information about directory buckets policies and permissions, see Identity and Access Management (IAM) for S3 Express One Zone in the *Amazon S3 User Guide*.

HTTP Host header syntax

Directory buckets - The HTTP Host header syntax is `s3express-control.`*`region`*`.amazonaws.com`.

For information about S3 Tagging errors, see List of Amazon S3 Tagging error codes.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
DELETE /v20180820/tags/resourceArn+?tagKeys=TagKeys HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

resourceArn

The Amazon Resource Name (ARN) of the S3 resource that you're removing tags from. The tagged resource can be a directory bucket, S3 Storage Lens group or S3 Access Grants instance, registered location, or grant.

Length Constraints: Maximum length of 1011.

Pattern: `arn:[^:]+:s3(express)?:[^:].*`

Required: Yes

tagKeys

The array of tag key-value pairs that you're trying to remove from of the S3 resource.

Array Members: Minimum number of 0 items. Maximum number of 50 items.

Length Constraints: Minimum length of 1. Maximum length of 128.

Pattern: `^([\p{L}\p{Z}\p{N}_.:/=+\-@]*)$`

Required: Yes

x-amz-account-id

The AWS account ID that owns the resource that you're trying to remove the tags from.

Length Constraints: Maximum length of 64.

Pattern: ^\d{12}$

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

UpdateAccessGrantsLocation

Service: Amazon S3 Control

Updates the IAM role of a registered location in your S3 Access Grants instance.

Permissions

You must have the `s3:UpdateAccessGrantsLocation` permission to use this operation.

Additional Permissions

You must also have the following permission: `iam:PassRole`

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /v20180820/accessgrantsinstance/location/id HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<UpdateAccessGrantsLocationRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
   <IAMRoleArn>string</IAMRoleArn>
</UpdateAccessGrantsLocationRequest>
```

URI Request Parameters

The request uses the following URI parameters.

id

The ID of the registered location that you are updating. S3 Access Grants assigns this ID when you register the location. S3 Access Grants assigns the ID `default` to the default location `s3://` and assigns an auto-generated ID to other locations that you register.

The ID of the registered location to which you are granting access. S3 Access Grants assigned this ID when you registered the location. S3 Access Grants assigns the ID `default` to the default location `s3://` and assigns an auto-generated ID to other locations that you register.

If you are passing the `default` location, you cannot create an access grant for the entire default location. You must also specify a bucket or a bucket and prefix in the `Subprefix` field.

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

Required: Yes

x-amz-account-id

The AWS account ID of the S3 Access Grants instance.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

UpdateAccessGrantsLocationRequest

Root level tag for the UpdateAccessGrantsLocationRequest parameters.

Required: Yes

IAMRoleArn

The Amazon Resource Name (ARN) of the IAM role for the registered location. S3 Access Grants assumes this role to manage access to the registered location.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[^:]+:iam::\d{12}:role/.*`

Required: Yes

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<UpdateAccessGrantsLocationResult>
   <CreatedAt>timestamp</CreatedAt>
   <AccessGrantsLocationId>string</AccessGrantsLocationId>
   <AccessGrantsLocationArn>string</AccessGrantsLocationArn>
   <LocationScope>string</LocationScope>
   <IAMRoleArn>string</IAMRoleArn>
</UpdateAccessGrantsLocationResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

UpdateAccessGrantsLocationResult

Root level tag for the UpdateAccessGrantsLocationResult parameters.

Required: Yes

AccessGrantsLocationArn

The Amazon Resource Name (ARN) of the registered location that you are updating.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:access\-grants\/location/[a-zA-Z0-9\-]+`

AccessGrantsLocationId

The ID of the registered location to which you are granting access. S3 Access Grants assigned this ID when you registered the location. S3 Access Grants assigns the ID `default` to the default location `s3://` and assigns an auto-generated ID to other locations that you register.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

CreatedAt

The date and time when you registered the location.

Type: Timestamp

IAMRoleArn

The Amazon Resource Name (ARN) of the IAM role of the registered location. S3 Access Grants assumes this role to manage access to the registered location.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[^:]+:iam::\d{12}:role/.*`

LocationScope

The S3 URI path of the location that you are updating. You cannot update the scope of the registered location. The location scope can be the default S3 location `s3://`, the S3 path to a bucket `s3://<bucket>`, or the S3 path to a bucket and prefix `s3://<bucket>/<prefix>`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `^.+$`

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2

- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

UpdateJobPriority

Service: Amazon S3 Control

Updates an existing S3 Batch Operations job's priority. For more information, see S3 Batch Operations in the *Amazon S3 User Guide*.

Permissions

To use the `UpdateJobPriority` operation, you must have permission to perform the `s3:UpdateJobPriority` action.

Related actions include:

- CreateJob
- ListJobs
- DescribeJob
- UpdateJobStatus

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /v20180820/jobs/id/priority?priority=Priority HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

id

The ID for the job whose priority you want to update.

Length Constraints: Minimum length of 5. Maximum length of 36.

Pattern: `[a-zA-Z0-9\-\_]+`

Required: Yes

priority

The priority you want to assign to this job.

Valid Range: Minimum value of 0. Maximum value of 2147483647.

Required: Yes

x-amz-account-id

The AWS account ID associated with the S3 Batch Operations job.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<UpdateJobPriorityResult>
   <JobId>string</JobId>
   <Priority>integer</Priority>
</UpdateJobPriorityResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

UpdateJobPriorityResult

Root level tag for the UpdateJobPriorityResult parameters.

Required: Yes

JobId

The ID for the job whose priority Amazon S3 updated.

Type: String

Length Constraints: Minimum length of 5. Maximum length of 36.

Pattern: `[a-zA-Z0-9\-\_]+`

Priority

The new priority assigned to the specified job.

Type: Integer

Valid Range: Minimum value of 0. Maximum value of 2147483647.

Errors

BadRequestException

HTTP Status Code: 400

InternalServiceException

HTTP Status Code: 500

NotFoundException

HTTP Status Code: 400

TooManyRequestsException

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

UpdateJobStatus

Service: Amazon S3 Control

Updates the status for the specified job. Use this operation to confirm that you want to run a job or to cancel an existing job. For more information, see S3 Batch Operations in the *Amazon S3 User Guide*.

Permissions

To use the `UpdateJobStatus` operation, you must have permission to perform the `s3:UpdateJobStatus` action.

Related actions include:

- CreateJob
- ListJobs
- DescribeJob
- UpdateJobStatus

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
POST /v20180820/jobs/id/status?
requestedJobStatus=RequestedJobStatus&statusUpdateReason=StatusUpdateReason HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
```

URI Request Parameters

The request uses the following URI parameters.

id

The ID of the job whose status you want to update.

Length Constraints: Minimum length of 5. Maximum length of 36.

Pattern: `[a-zA-Z0-9\-\_]+`

Required: Yes

requestedJobStatus

The status that you want to move the specified job to.

Valid Values: `Cancelled | Ready`

Required: Yes

statusUpdateReason

A description of the reason why you want to change the specified job's status. This field can be any string up to the maximum length.

Length Constraints: Minimum length of 1. Maximum length of 256.

x-amz-account-id

The AWS account ID associated with the S3 Batch Operations job.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
<?xml version="1.0" encoding="UTF-8"?>
<UpdateJobStatusResult>
```

```
    <JobId>string</JobId>
    <Status>string</Status>
    <StatusUpdateReason>string</StatusUpdateReason>
</UpdateJobStatusResult>
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in XML format by the service.

UpdateJobStatusResult

Root level tag for the UpdateJobStatusResult parameters.

Required: Yes

JobId

The ID for the job whose status was updated.

Type: String

Length Constraints: Minimum length of 5. Maximum length of 36.

Pattern: `[a-zA-Z0-9\-\_]+`

Status

The current status for the specified job.

Type: String

Valid Values: `Active | Cancelled | Cancelling | Complete | Completing | Failed | Failing | New | Paused | Pausing | Preparing | Ready | Suspended`

StatusUpdateReason

The reason that the specified job's status was updated.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Errors

BadRequestException

HTTP Status Code: 400

InternalServiceException

HTTP Status Code: 500

JobStatusException

HTTP Status Code: 400

NotFoundException

HTTP Status Code: 400

TooManyRequestsException

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

UpdateStorageLensGroup

Service: Amazon S3 Control

Updates the existing Storage Lens group.

To use this operation, you must have the permission to perform the `s3:UpdateStorageLensGroup` action. For more information about the required Storage Lens Groups permissions, see Setting account permissions to use S3 Storage Lens groups.

For information about Storage Lens groups errors, see List of Amazon S3 Storage Lens error codes.

> **Important**
>
> You must URL encode any signed header values that contain spaces. For example, if your header value is `my  file.txt`, containing two spaces after `my`, you must URL encode this value to `my%20%20file.txt`.

Request Syntax

```
PUT /v20180820/storagelensgroup/name HTTP/1.1
Host: s3-control.amazonaws.com
x-amz-account-id: AccountId
<?xml version="1.0" encoding="UTF-8"?>
<UpdateStorageLensGroupRequest xmlns="http://awss3control.amazonaws.com/
doc/2018-08-20/">
   <StorageLensGroup>
      <Filter>
         <And>
            <MatchAnyPrefix>
               <Prefix>string</Prefix>
            </MatchAnyPrefix>
            <MatchAnySuffix>
               <Suffix>string</Suffix>
            </MatchAnySuffix>
            <MatchAnyTag>
               <Tag>
                  <Key>string</Key>
                  <Value>string</Value>
               </Tag>
            </MatchAnyTag>
            <MatchObjectAge>
```

```
            <DaysGreaterThan>integer</DaysGreaterThan>
            <DaysLessThan>integer</DaysLessThan>
         </MatchObjectAge>
         <MatchObjectSize>
            <BytesGreaterThan>long</BytesGreaterThan>
            <BytesLessThan>long</BytesLessThan>
         </MatchObjectSize>
      </And>
      <MatchAnyPrefix>
         <Prefix>string</Prefix>
      </MatchAnyPrefix>
      <MatchAnySuffix>
         <Suffix>string</Suffix>
      </MatchAnySuffix>
      <MatchAnyTag>
         <Tag>
            <Key>string</Key>
            <Value>string</Value>
         </Tag>
      </MatchAnyTag>
      <MatchObjectAge>
         <DaysGreaterThan>integer</DaysGreaterThan>
         <DaysLessThan>integer</DaysLessThan>
      </MatchObjectAge>
      <MatchObjectSize>
         <BytesGreaterThan>long</BytesGreaterThan>
         <BytesLessThan>long</BytesLessThan>
      </MatchObjectSize>
      <Or>
         <MatchAnyPrefix>
            <Prefix>string</Prefix>
         </MatchAnyPrefix>
         <MatchAnySuffix>
            <Suffix>string</Suffix>
         </MatchAnySuffix>
         <MatchAnyTag>
            <Tag>
               <Key>string</Key>
               <Value>string</Value>
            </Tag>
         </MatchAnyTag>
         <MatchObjectAge>
            <DaysGreaterThan>integer</DaysGreaterThan>
            <DaysLessThan>integer</DaysLessThan>
```

```
            </MatchObjectAge>
            <MatchObjectSize>
               <BytesGreaterThan>long</BytesGreaterThan>
               <BytesLessThan>long</BytesLessThan>
            </MatchObjectSize>
         </Or>
      </Filter>
      <Name>string</Name>
      <StorageLensGroupArn>string</StorageLensGroupArn>
   </StorageLensGroup>
</UpdateStorageLensGroupRequest>
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the Storage Lens group that you want to update.

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-\_]+`

Required: Yes

x-amz-account-id

The AWS account ID of the Storage Lens group owner.

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Request Body

The request accepts the following data in XML format.

UpdateStorageLensGroupRequest

Root level tag for the UpdateStorageLensGroupRequest parameters.

Required: Yes

StorageLensGroup

The JSON file that contains the Storage Lens group configuration.

Type: StorageLensGroup data type

Required: Yes

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

Amazon S3 on Outposts

The following actions are supported by Amazon S3 on Outposts:

- CreateEndpoint
- DeleteEndpoint
- ListEndpoints
- ListOutpostsWithS3
- ListSharedEndpoints

CreateEndpoint

Service: Amazon S3 on Outposts

Creates an endpoint and associates it with the specified Outpost.

> **Note**
>
> It can take up to 5 minutes for this action to finish.

Related actions include:

- DeleteEndpoint
- ListEndpoints

Request Syntax

```
POST /S3Outposts/CreateEndpoint HTTP/1.1
Content-type: application/json

{
   "AccessType": "string",
   "CustomerOwnedIpv4Pool": "string",
   "OutpostId": "string",
   "SecurityGroupId": "string",
   "SubnetId": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

AccessType

The type of access for the network connectivity for the Amazon S3 on Outposts endpoint. To use the AWS VPC, choose `Private`. To use the endpoint with an on-premises network, choose

`CustomerOwnedIp`. If you choose `CustomerOwnedIp`, you must also provide the customer-owned IP address pool (CoIP pool).

> **Note**
>
> `Private` is the default access type value.

Type: String

Valid Values: `Private | CustomerOwnedIp`

Required: No

CustomerOwnedIpv4Pool

The ID of the customer-owned IPv4 address pool (CoIP pool) for the endpoint. IP addresses are allocated from this pool for the endpoint.

Type: String

Pattern: `^ipv4pool-coip-([0-9a-f]{17})$`

Required: No

OutpostId

The ID of the AWS Outposts.

Type: String

Pattern: `^(op-[a-f0-9]{17}|\d{12}|ec2)$`

Required: Yes

SecurityGroupId

The ID of the security group to use with the endpoint.

Type: String

Pattern: `^sg-([0-9a-f]{8}|[0-9a-f]{17})$`

Required: Yes

SubnetId

The ID of the subnet in the selected VPC. The endpoint subnet must belong to the Outpost that has Amazon S3 on Outposts provisioned.

Type: String

Pattern: `^subnet-([0-9a-f]{8}|[0-9a-f]{17})$`

Required: Yes

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "EndpointArn": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

EndpointArn

The Amazon Resource Name (ARN) of the endpoint.

Type: String

Pattern: `^arn:(aws|aws-cn|aws-us-gov|aws-iso|aws-iso-b):s3-outposts:[a-z\-0-9]*:[0-9]{12}:outpost/(op-[a-f0-9]{17}|ec2)/endpoint/[a-zA-Z0-9]{19}$`

Errors

AccessDeniedException

Access was denied for this action.

HTTP Status Code: 403

ConflictException

There was a conflict with this action, and it could not be completed.

HTTP Status Code: 409

InternalServerException

There was an exception with the internal server.

HTTP Status Code: 500

OutpostOfflineException

The service link connection to your Outposts home Region is down. Check your connection and try again.

HTTP Status Code: 400

ResourceNotFoundException

The requested resource was not found.

HTTP Status Code: 404

ThrottlingException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

There was an exception validating this data.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET

- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteEndpoint

Service: Amazon S3 on Outposts

Deletes an endpoint.

> **Note**
>
> It can take up to 5 minutes for this action to finish.

Related actions include:

- CreateEndpoint
- ListEndpoints

Request Syntax

```
DELETE /S3Outposts/DeleteEndpoint?endpointId=EndpointId&outpostId=OutpostId HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

EndpointId

The ID of the endpoint.

Pattern: `^[a-zA-Z0-9]{19}$`

Required: Yes

OutpostId

The ID of the AWS Outposts.

Pattern: `^(op-[a-f0-9]{17}|\d{12}|ec2)$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

AccessDeniedException

Access was denied for this action.

HTTP Status Code: 403

InternalServerException

There was an exception with the internal server.

HTTP Status Code: 500

OutpostOfflineException

The service link connection to your Outposts home Region is down. Check your connection and try again.

HTTP Status Code: 400

ResourceNotFoundException

The requested resource was not found.

HTTP Status Code: 404

ThrottlingException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

There was an exception validating this data.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListEndpoints

Service: Amazon S3 on Outposts

Lists endpoints associated with the specified Outpost.

Related actions include:

- CreateEndpoint
- DeleteEndpoint

Request Syntax

```
GET /S3Outposts/ListEndpoints?maxResults=MaxResults&nextToken=NextToken HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

MaxResults

The maximum number of endpoints that will be returned in the response.

Valid Range: Minimum value of 0. Maximum value of 100.

NextToken

If a previous response from this operation included a `NextToken` value, provide that value here to retrieve the next page of results.

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `^[A-Za-z0-9\+\:\/\=\?\#-_]+$`

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json
```

```
{
   "Endpoints": [
      {
         "AccessType": "string",
         "CidrBlock": "string",
         "CreationTime": number,
         "CustomerOwnedIpv4Pool": "string",
         "EndpointArn": "string",
         "FailedReason": {
            "ErrorCode": "string",
            "Message": "string"
         },
         "NetworkInterfaces": [
            {
               "NetworkInterfaceId": "string"
            }
         ],
         "OutpostsId": "string",
         "SecurityGroupId": "string",
         "Status": "string",
         "SubnetId": "string",
         "VpcId": "string"
      }
   ],
   "NextToken": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

Endpoints

The list of endpoints associated with the specified Outpost.

Type: Array of Endpoint objects

NextToken

If the number of endpoints associated with the specified Outpost exceeds `MaxResults`, you can include this value in subsequent calls to this operation to retrieve more results.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `^[A-Za-z0-9\+\:\/\=\?\#-_]+$`

Errors

AccessDeniedException

Access was denied for this action.

HTTP Status Code: 403

InternalServerException

There was an exception with the internal server.

HTTP Status Code: 500

ResourceNotFoundException

The requested resource was not found.

HTTP Status Code: 404

ThrottlingException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

There was an exception validating this data.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface

- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListOutpostsWithS3

Service: Amazon S3 on Outposts

Lists the Outposts with S3 on Outposts capacity for your AWS account. Includes S3 on Outposts that you have access to as the Outposts owner, or as a shared user from Resource Access Manager (RAM).

Request Syntax

```
GET /S3Outposts/ListOutpostsWithS3?maxResults=MaxResults&nextToken=NextToken HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

MaxResults

The maximum number of Outposts to return. The limit is 100.

Valid Range: Minimum value of 0. Maximum value of 100.

NextToken

When you can get additional results from the `ListOutpostsWithS3` call, a `NextToken` parameter is returned in the output. You can then pass in a subsequent command to the `NextToken` parameter to continue listing additional Outposts.

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `^[A-Za-z0-9\+\:\/\=\?\#-_]+$`

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "NextToken": "string",
```

```
   "Outposts": [
      {
         "CapacityInBytes": number,
         "OutpostArn": "string",
         "OutpostId": "string",
         "OwnerId": "string",
         "S3OutpostArn": "string"
      }
   ]
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

NextToken

Returns a token that you can use to call `ListOutpostsWithS3` again and receive additional results, if there are any.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `^[A-Za-z0-9\+\:\/\=\?\#-_]+$`

Outposts

Returns the list of Outposts that have the following characteristics:

- outposts that have S3 provisioned
- outposts that are `Active` (not pending any provisioning nor decommissioned)
- outposts to which the the calling AWS account has access

Type: Array of Outpost objects

Errors

AccessDeniedException

Access was denied for this action.

HTTP Status Code: 403

InternalServerException

There was an exception with the internal server.

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

There was an exception validating this data.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListSharedEndpoints

Service: Amazon S3 on Outposts

Lists all endpoints associated with an Outpost that has been shared by AWS Resource Access Manager (RAM).

Related actions include:

- CreateEndpoint
- DeleteEndpoint

Request Syntax

```
GET /S3Outposts/ListSharedEndpoints?
maxResults=MaxResults&nextToken=NextToken&outpostId=OutpostId HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

MaxResults

The maximum number of endpoints that will be returned in the response.

Valid Range: Minimum value of 0. Maximum value of 100.

NextToken

If a previous response from this operation included a `NextToken` value, you can provide that value here to retrieve the next page of results.

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `^[A-Za-z0-9\+\:\/\=\?\#-_]+$`

OutpostId

The ID of the AWS Outpost.

Pattern: `^(op-[a-f0-9]{17}|\d{12}|ec2)$`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "Endpoints": [
      {
         "AccessType": "string",
         "CidrBlock": "string",
         "CreationTime": number,
         "CustomerOwnedIpv4Pool": "string",
         "EndpointArn": "string",
         "FailedReason": {
            "ErrorCode": "string",
            "Message": "string"
         },
         "NetworkInterfaces": [
            {
               "NetworkInterfaceId": "string"
            }
         ],
         "OutpostsId": "string",
         "SecurityGroupId": "string",
         "Status": "string",
         "SubnetId": "string",
         "VpcId": "string"
      }
   ],
   "NextToken": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

Endpoints

The list of endpoints associated with the specified Outpost that have been shared by AWS Resource Access Manager (RAM).

Type: Array of Endpoint objects

NextToken

If the number of endpoints associated with the specified Outpost exceeds `MaxResults`, you can include this value in subsequent calls to this operation to retrieve more results.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `^[A-Za-z0-9\+\:\/\=\?\#-_]+$`

Errors

AccessDeniedException

Access was denied for this action.

HTTP Status Code: 403

InternalServerException

There was an exception with the internal server.

HTTP Status Code: 500

ResourceNotFoundException

The requested resource was not found.

HTTP Status Code: 404

ThrottlingException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

There was an exception validating this data.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

Amazon S3 Tables

The following actions are supported by Amazon S3 Tables:

- CreateNamespace
- CreateTable
- CreateTableBucket
- DeleteNamespace
- DeleteTable
- DeleteTableBucket
- DeleteTableBucketEncryption
- DeleteTableBucketPolicy
- DeleteTablePolicy
- GetNamespace
- GetTable

- GetTableBucket
- GetTableBucketEncryption
- GetTableBucketMaintenanceConfiguration
- GetTableBucketPolicy
- GetTableEncryption
- GetTableMaintenanceConfiguration
- GetTableMaintenanceJobStatus
- GetTableMetadataLocation
- GetTablePolicy
- ListNamespaces
- ListTableBuckets
- ListTables
- PutTableBucketEncryption
- PutTableBucketMaintenanceConfiguration
- PutTableBucketPolicy
- PutTableMaintenanceConfiguration
- PutTablePolicy
- RenameTable
- UpdateTableMetadataLocation

CreateNamespace

Service: Amazon S3 Tables

Creates a namespace. A namespace is a logical grouping of tables within your table bucket, which you can use to organize tables. For more information, see Create a namespace in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:CreateNamespace` permission to use this operation.

Request Syntax

```
PUT /namespaces/tableBucketARN HTTP/1.1
Content-type: application/json

{
   "namespace": [ "string" ]
}
```

URI Request Parameters

The request uses the following URI parameters.

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket to create the namespace in.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request accepts the following data in JSON format.

namespace

A name for the namespace.

Type: Array of strings

Array Members: Fixed number of 1 item.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "namespace": [ "string" ],
   "tableBucketARN": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

namespace

The name of the namespace.

Type: Array of strings

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket the namespace was created in.

Type: String

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET

- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateTable

Service: Amazon S3 Tables

Creates a new table associated with the given namespace in a table bucket. For more information, see Creating an Amazon S3 table in the *Amazon Simple Storage Service User Guide*.

Permissions

- You must have the `s3tables:CreateTable` permission to use this operation.
- If you use this operation with the optional `metadata` request parameter you must have the `s3tables:PutTableData` permission.
- If you use this operation with the optional `encryptionConfiguration` request parameter you must have the `s3tables:PutTableEncryption` permission.

> **Note**
>
> Additionally, If you choose SSE-KMS encryption you must grant the S3 Tables maintenance principal access to your KMS key. For more information, see Permissions requirements for S3 Tables SSE-KMS encryption.

Request Syntax

```
PUT /tables/tableBucketARN/namespace HTTP/1.1
Content-type: application/json

{
   "encryptionConfiguration": {
      "kmsKeyArn": "string",
      "sseAlgorithm": "string"
   },
   "format": "string",
   "metadata": { ... },
   "name": "string"
}
```

URI Request Parameters

The request uses the following URI parameters.

namespace

The namespace to associated with the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket to create the table in.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request accepts the following data in JSON format.

encryptionConfiguration

The encryption configuration to use for the table. This configuration specifies the encryption algorithm and, if using SSE-KMS, the KMS key to use for encrypting the table.

> **Note**
>
> If you choose SSE-KMS encryption you must grant the S3 Tables maintenance principal access to your KMS key. For more information, see Permissions requirements for S3 Tables SSE-KMS encryption.

Type: EncryptionConfiguration object

Required: No

format

The format for the table.

Type: String

Valid Values: `ICEBERG`

Required: Yes

metadata

The metadata for the table.

Type: TableMetadata object

Note: This object is a Union. Only one member of this object can be specified or returned.

Required: No

name

The name for the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "tableARN": "string",
   "versionToken": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

tableARN

The Amazon Resource Name (ARN) of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63}/table/[a-zA-Z0-9-_]{1,255})`

versionToken

The version token of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateTableBucket

Service: Amazon S3 Tables

Creates a table bucket. For more information, see Creating a table bucket in the *Amazon Simple Storage Service User Guide*.

Permissions

- You must have the `s3tables:CreateTableBucket` permission to use this operation.
- If you use this operation with the optional `encryptionConfiguration` parameter you must have the `s3tables:PutTableBucketEncryption` permission.

Request Syntax

```
PUT /buckets HTTP/1.1
Content-type: application/json

{
   "encryptionConfiguration": {
      "kmsKeyArn": "string",
      "sseAlgorithm": "string"
   },
   "name": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

encryptionConfiguration

The encryption configuration to use for the table bucket. This configuration specifies the default encryption settings that will be applied to all tables created in this bucket unless overridden at the table level. The configuration includes the encryption algorithm and, if using SSE-KMS, the KMS key to use.

Type: EncryptionConfiguration object

Required: No

name

The name for the table bucket.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Pattern: `[0-9a-z-]*`

Required: Yes

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "arn": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

arn

The Amazon Resource Name (ARN) of the table bucket.

Type: String

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3

- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteNamespace

Service: Amazon S3 Tables

Deletes a namespace. For more information, see Delete a namespace in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:DeleteNamespace` permission to use this operation.

Request Syntax

```
DELETE /namespaces/tableBucketARN/namespace HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

namespace

The name of the namespace.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket associated with the namespace.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteTable

Service: Amazon S3 Tables

Deletes a table. For more information, see Deleting an Amazon S3 table in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:DeleteTable` permission to use this operation.

Request Syntax

```
DELETE /tables/tableBucketARN/namespace/name?versionToken=versionToken HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

namespace

The namespace associated with the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket that contains the table.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

versionToken

The version token of the table.

Length Constraints: Minimum length of 1. Maximum length of 2048.

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

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- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteTableBucket

Service: Amazon S3 Tables

Deletes a table bucket. For more information, see Deleting a table bucket in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:DeleteTableBucket` permission to use this operation.

Request Syntax

```
DELETE /buckets/tableBucketARN HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET

- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteTableBucketEncryption

Service: Amazon S3 Tables

Deletes the encryption configuration for a table bucket.

Permissions

You must have the `s3tables:DeleteTableBucketEncryption` permission to use this operation.

Request Syntax

```
DELETE /buckets/tableBucketARN/encryption HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET

- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteTableBucketPolicy

Service: Amazon S3 Tables

Deletes a table bucket policy. For more information, see Deleting a table bucket policy in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:DeleteTableBucketPolicy` permission to use this operation.

Request Syntax

```
DELETE /buckets/tableBucketARN/policy HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET

- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteTablePolicy

Service: Amazon S3 Tables

Deletes a table policy. For more information, see Deleting a table policy in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:DeleteTablePolicy` permission to use this operation.

Request Syntax

```
DELETE /tables/tableBucketARN/namespace/name/policy HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

name

The table name.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

namespace

The namespace associated with the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket that contains the table.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

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- AWS SDK for .NET
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- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetNamespace

Service: Amazon S3 Tables

Gets details about a namespace. For more information, see Table namespaces in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:GetNamespace` permission to use this operation.

Request Syntax

```
GET /namespaces/tableBucketARN/namespace HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

namespace

The name of the namespace.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "createdAt": "string",
   "createdBy": "string",
   "namespace": [ "string" ],
   "namespaceId": "string",
   "ownerAccountId": "string",
   "tableBucketId": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

createdAt

The date and time the namespace was created at.

Type: Timestamp

createdBy

The ID of the account that created the namespace.

Type: String

Length Constraints: Fixed length of 12.

Pattern: `[0-9].*`

namespace

The name of the namespace.

Type: Array of strings

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

namespaceId

The unique identifier of the namespace.

Type: String

ownerAccountId

The ID of the account that owns the namespcace.

Type: String

Length Constraints: Fixed length of 12.

Pattern: `[0-9].*`

tableBucketId

The unique identifier of the table bucket containing this namespace.

Type: String

Errors

AccessDeniedException

The action cannot be performed because you do not have the required permission.

HTTP Status Code: 403

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

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- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetTable

Service: Amazon S3 Tables

Gets details about a table. For more information, see S3 Tables in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:GetTable` permission to use this operation.

Request Syntax

```
GET /get-table?
name=name&namespace=namespace&tableArn=tableArn&tableBucketARN=tableBucketARN HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

namespace

The name of the namespace the table is associated with.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

tableArn

The Amazon Resource Name (ARN) of the table.

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63}/table/[a-zA-Z0-9-_]{1,255})`

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket associated with the table.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "createdAt": "string",
   "createdBy": "string",
   "format": "string",
   "managedByService": "string",
   "metadataLocation": "string",
   "modifiedAt": "string",
   "modifiedBy": "string",
   "name": "string",
   "namespace": [ "string" ],
   "namespaceId": "string",
   "ownerAccountId": "string",
   "tableARN": "string",
   "tableBucketId": "string",
   "type": "string",
   "versionToken": "string",
   "warehouseLocation": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

createdAt

The date and time the table bucket was created at.

Type: Timestamp

createdBy

The ID of the account that created the table.

Type: String

Length Constraints: Fixed length of 12.

Pattern: `[0-9].*`

format

The format of the table.

Type: String

Valid Values: `ICEBERG`

managedByService

The service that manages the table.

Type: String

metadataLocation

The metadata location of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

modifiedAt

The date and time the table was last modified on.

Type: Timestamp

modifiedBy

The ID of the account that last modified the table.

Type: String

Length Constraints: Fixed length of 12.

Pattern: `[0-9].*`

name

The name of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

namespace

The namespace associated with the table.

Type: Array of strings

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

namespaceId

The unique identifier of the namespace containing this table.

Type: String

ownerAccountId

The ID of the account that owns the table.

Type: String

Length Constraints: Fixed length of 12.

Pattern: `[0-9].*`

tableARN

The Amazon Resource Name (ARN) of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63}/table/[a-zA-Z0-9-_]{1,255})`

tableBucketId

The unique identifier of the table bucket containing this table.

Type: String

type

The type of the table.

Type: String

Valid Values: `customer | aws`

versionToken

The version token of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

warehouseLocation

The warehouse location of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Errors

AccessDeniedException

The action cannot be performed because you do not have the required permission.

HTTP Status Code: 403

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
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- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3

- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetTableBucket

Service: Amazon S3 Tables

Gets details on a table bucket. For more information, see Viewing details about an Amazon S3 table bucket in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:GetTableBucket` permission to use this operation.

Request Syntax

```
GET /buckets/tableBucketARN HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "arn": "string",
   "createdAt": "string",
   "name": "string",
   "ownerAccountId": "string",
```

```
    "tableBucketId": "string",
    "type": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

arn

The Amazon Resource Name (ARN) of the table bucket.

Type: String

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

createdAt

The date and time the table bucket was created.

Type: Timestamp

name

The name of the table bucket

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Pattern: `[0-9a-z-]*`

ownerAccountId

The ID of the account that owns the table bucket.

Type: String

Length Constraints: Fixed length of 12.

Pattern: `[0-9].*`

tableBucketId

The unique identifier of the table bucket.

Type: String

type

The type of the table bucket.

Type: String

Valid Values: `customer | aws`

Errors

AccessDeniedException

The action cannot be performed because you do not have the required permission.

HTTP Status Code: 403

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetTableBucketEncryption

Service: Amazon S3 Tables

Gets the encryption configuration for a table bucket.

Permissions

You must have the `s3tables:GetTableBucketEncryption` permission to use this operation.

Request Syntax

```
GET /buckets/tableBucketARN/encryption HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "encryptionConfiguration": {
      "kmsKeyArn": "string",
      "sseAlgorithm": "string"
   }
```

```
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

encryptionConfiguration

The encryption configuration for the table bucket.

Type: EncryptionConfiguration object

Errors

AccessDeniedException

The action cannot be performed because you do not have the required permission.

HTTP Status Code: 403

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

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- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetTableBucketMaintenanceConfiguration

Service: Amazon S3 Tables

Gets details about a maintenance configuration for a given table bucket. For more information, see Amazon S3 table bucket maintenance in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:GetTableBucketMaintenanceConfiguration` permission to use this operation.

Request Syntax

```
GET /buckets/tableBucketARN/maintenance HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket associated with the maintenance configuration.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "configuration": {
```

```
      "string" : {
         "settings": { ... },
         "status": "string"
      }
   },
   "tableBucketARN": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

configuration

Details about the maintenance configuration for the table bucket.

Type: String to TableBucketMaintenanceConfigurationValue object map

Valid Keys: `icebergUnreferencedFileRemoval`

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket associated with the maintenance configuration.

Type: String

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

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- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetTableBucketPolicy

Service: Amazon S3 Tables

Gets details about a table bucket policy. For more information, see Viewing a table bucket policy in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:GetTableBucketPolicy` permission to use this operation.

Request Syntax

```
GET /buckets/tableBucketARN/policy HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "resourcePolicy": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

resourcePolicy

The `JSON` that defines the policy.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 20480.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetTableEncryption

Service: Amazon S3 Tables

Gets the encryption configuration for a table.

Permissions

You must have the `s3tables:GetTableEncryption` permission to use this operation.

Request Syntax

```
GET /tables/tableBucketARN/namespace/name/encryption HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

namespace

The namespace associated with the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket containing the table.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "encryptionConfiguration": {
      "kmsKeyArn": "string",
      "sseAlgorithm": "string"
   }
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

encryptionConfiguration

The encryption configuration for the table.

Type: EncryptionConfiguration object

Errors

AccessDeniedException

The action cannot be performed because you do not have the required permission.

HTTP Status Code: 403

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
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- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetTableMaintenanceConfiguration

Service: Amazon S3 Tables

Gets details about the maintenance configuration of a table. For more information, see S3 Tables maintenance in the *Amazon Simple Storage Service User Guide*.

Permissions

- You must have the `s3tables:GetTableMaintenanceConfiguration` permission to use this operation.
- You must have the `s3tables:GetTableData` permission to use set the compaction strategy to `sort` or `zorder`.

Request Syntax

```
GET /tables/tableBucketARN/namespace/name/maintenance HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

namespace

The namespace associated with the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "configuration": {
      "string" : {
         "settings": { ... },
         "status": "string"
      }
   },
   "tableARN": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

configuration

Details about the maintenance configuration for the table bucket.

Type: String to TableMaintenanceConfigurationValue object map

Valid Keys: `icebergCompaction | icebergSnapshotManagement`

tableARN

The Amazon Resource Name (ARN) of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63}/table/[a-zA-Z0-9-_]{1,255})`

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
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- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetTableMaintenanceJobStatus

Service: Amazon S3 Tables

Gets the status of a maintenance job for a table. For more information, see S3 Tables maintenance in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:GetTableMaintenanceJobStatus` permission to use this operation.

Request Syntax

```
GET /tables/tableBucketARN/namespace/name/maintenance-job-status HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the table containing the maintenance job status you want to check.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

namespace

The name of the namespace the table is associated with.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "status": {
      "string" : {
         "failureMessage": "string",
         "lastRunTimestamp": "string",
         "status": "string"
      }
   },
   "tableARN": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

status

The status of the maintenance job.

Type: String to TableMaintenanceJobStatusValue object map

Valid Keys: `icebergCompaction | icebergSnapshotManagement | icebergUnreferencedFileRemoval`

tableARN

The Amazon Resource Name (ARN) of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63}/table/[a-zA-Z0-9-_]{1,255})`

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetTableMetadataLocation

Service: Amazon S3 Tables

Gets the location of the table metadata.

Permissions

You must have the `s3tables:GetTableMetadataLocation` permission to use this operation.

Request Syntax

```
GET /tables/tableBucketARN/namespace/name/metadata-location HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

namespace

The namespace of the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "metadataLocation": "string",
   "versionToken": "string",
   "warehouseLocation": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

metadataLocation

The metadata location.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

versionToken

The version token.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

warehouseLocation

The warehouse location.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

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- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetTablePolicy

Service: Amazon S3 Tables

Gets details about a table policy. For more information, see Viewing a table policy in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:GetTablePolicy` permission to use this operation.

Request Syntax

```
GET /tables/tableBucketARN/namespace/name/policy HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

namespace

The namespace associated with the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket that contains the table.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "resourcePolicy": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

resourcePolicy

The JSON that defines the policy.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 20480.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListNamespaces

Service: Amazon S3 Tables

Lists the namespaces within a table bucket. For more information, see Table namespaces in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:ListNamespaces` permission to use this operation.

Request Syntax

```
GET /namespaces/tableBucketARN?
continuationToken=continuationToken&maxNamespaces=maxNamespaces&prefix=prefix HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

continuationToken

`ContinuationToken` indicates to Amazon S3 that the list is being continued on this bucket with a token. `ContinuationToken` is obfuscated and is not a real key. You can use this `ContinuationToken` for pagination of the list results.

Length Constraints: Minimum length of 1. Maximum length of 2048.

maxNamespaces

The maximum number of namespaces to return in the list.

Valid Range: Minimum value of 1. Maximum value of 1000.

prefix

The prefix of the namespaces.

Length Constraints: Minimum length of 1. Maximum length of 255.

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "continuationToken": "string",
   "namespaces": [
      {
         "createdAt": "string",
         "createdBy": "string",
         "namespace": [ "string" ],
         "namespaceId": "string",
         "ownerAccountId": "string",
         "tableBucketId": "string"
      }
   ]
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

continuationToken

The `ContinuationToken` for pagination of the list results.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

namespaces

A list of namespaces.

Type: Array of NamespaceSummary objects

Errors

AccessDeniedException

The action cannot be performed because you do not have the required permission.

HTTP Status Code: 403

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListTableBuckets

Service: Amazon S3 Tables

Lists table buckets for your account. For more information, see S3 Table buckets in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:ListTableBuckets` permission to use this operation.

Request Syntax

```
GET /buckets?
continuationToken=continuationToken&maxBuckets=maxBuckets&prefix=prefix&type=type
 HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

continuationToken

`ContinuationToken` indicates to Amazon S3 that the list is being continued on this bucket with a token. `ContinuationToken` is obfuscated and is not a real key. You can use this `ContinuationToken` for pagination of the list results.

Length Constraints: Minimum length of 1. Maximum length of 2048.

maxBuckets

The maximum number of table buckets to return in the list.

Valid Range: Minimum value of 1. Maximum value of 1000.

prefix

The prefix of the table buckets.

Length Constraints: Minimum length of 1. Maximum length of 63.

type

The type of table buckets to filter by in the list.

Valid Values: `customer | aws`

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "continuationToken": "string",
   "tableBuckets": [
      {
         "arn": "string",
         "createdAt": "string",
         "name": "string",
         "ownerAccountId": "string",
         "tableBucketId": "string",
         "type": "string"
      }
   ]
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

continuationToken

You can use this `ContinuationToken` for pagination of the list results.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

tableBuckets

A list of table buckets.

Type: Array of TableBucketSummary objects

Errors

AccessDeniedException

The action cannot be performed because you do not have the required permission.

HTTP Status Code: 403

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListTables

Service: Amazon S3 Tables

List tables in the given table bucket. For more information, see S3 Tables in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:ListTables` permission to use this operation.

Request Syntax

```
GET /tables/tableBucketARN?
continuationToken=continuationToken&maxTables=maxTables&namespace=namespace&prefix=prefix
 HTTP/1.1
```

URI Request Parameters

The request uses the following URI parameters.

continuationToken

`ContinuationToken` indicates to Amazon S3 that the list is being continued on this bucket with a token. `ContinuationToken` is obfuscated and is not a real key. You can use this `ContinuationToken` for pagination of the list results.

Length Constraints: Minimum length of 1. Maximum length of 2048.

maxTables

The maximum number of tables to return.

Valid Range: Minimum value of 1. Maximum value of 1000.

namespace

The namespace of the tables.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

prefix

The prefix of the tables.

Length Constraints: Minimum length of 1. Maximum length of 255.

tableBucketARN

The Amazon resource Name (ARN) of the table bucket.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request does not have a request body.

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "continuationToken": "string",
   "tables": [
      {
         "createdAt": "string",
         "modifiedAt": "string",
         "name": "string",
         "namespace": [ "string" ],
         "namespaceId": "string",
         "tableARN": "string",
         "tableBucketId": "string",
         "type": "string"
      }
   ]
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

continuationToken

You can use this `ContinuationToken` for pagination of the list results.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

tables

A list of tables.

Type: Array of TableSummary objects

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutTableBucketEncryption

Service: Amazon S3 Tables

Sets the encryption configuration for a table bucket.

Permissions

You must have the `s3tables:PutTableBucketEncryption` permission to use this operation.

> **Note**
>
> If you choose SSE-KMS encryption you must grant the S3 Tables maintenance principal access to your KMS key. For more information, see Permissions requirements for S3 Tables SSE-KMS encryption in the *Amazon Simple Storage Service User Guide*.

Request Syntax

```
PUT /buckets/tableBucketARN/encryption HTTP/1.1
Content-type: application/json

{
   "encryptionConfiguration": {
      "kmsKeyArn": "string",
      "sseAlgorithm": "string"
   }
}
```

URI Request Parameters

The request uses the following URI parameters.

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request accepts the following data in JSON format.

encryptionConfiguration

The encryption configuration to apply to the table bucket.

Type: EncryptionConfiguration object

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutTableBucketMaintenanceConfiguration

Service: Amazon S3 Tables

Creates a new maintenance configuration or replaces an existing maintenance configuration for a table bucket. For more information, see Amazon S3 table bucket maintenance in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:PutTableBucketMaintenanceConfiguration` permission to use this operation.

Request Syntax

```
PUT /buckets/tableBucketARN/maintenance/type HTTP/1.1
Content-type: application/json

{
   "value": {
      "settings": { ... },
      "status": "string"
   }
}
```

URI Request Parameters

The request uses the following URI parameters.

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket associated with the maintenance configuration.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

type

The type of the maintenance configuration.

Valid Values: `icebergUnreferencedFileRemoval`

Required: Yes

Request Body

The request accepts the following data in JSON format.

value

Defines the values of the maintenance configuration for the table bucket.

Type: TableBucketMaintenanceConfigurationValue object

Required: Yes

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutTableBucketPolicy

Service: Amazon S3 Tables

Creates a new table bucket policy or replaces an existing table bucket policy for a table bucket. For more information, see Adding a table bucket policy in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:PutTableBucketPolicy` permission to use this operation.

Request Syntax

```
PUT /buckets/tableBucketARN/policy HTTP/1.1
Content-type: application/json

{
   "resourcePolicy": "string"
}
```

URI Request Parameters

The request uses the following URI parameters.

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request accepts the following data in JSON format.

resourcePolicy

The `JSON` that defines the policy.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 20480.

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

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- AWS SDK for .NET
- AWS SDK for C++
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- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutTableMaintenanceConfiguration

Service: Amazon S3 Tables

Creates a new maintenance configuration or replaces an existing maintenance configuration for a table. For more information, see S3 Tables maintenance in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:PutTableMaintenanceConfiguration` permission to use this operation.

Request Syntax

```
PUT /tables/tableBucketARN/namespace/name/maintenance/type HTTP/1.1
Content-type: application/json

{
   "value": {
      "settings": { ... },
      "status": "string"
   }
}
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the maintenance configuration.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

namespace

The namespace of the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

tableBucketARN

The Amazon Resource Name (ARN) of the table associated with the maintenance configuration.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

type

The type of the maintenance configuration.

Valid Values: `icebergCompaction | icebergSnapshotManagement`

Required: Yes

Request Body

The request accepts the following data in JSON format.

value

Defines the values of the maintenance configuration for the table.

Type: TableMaintenanceConfigurationValue object

Required: Yes

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET

- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

PutTablePolicy

Service: Amazon S3 Tables

Creates a new table policy or replaces an existing table policy for a table. For more information, see Adding a table policy in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:PutTablePolicy` permission to use this operation.

Request Syntax

```
PUT /tables/tableBucketARN/namespace/name/policy HTTP/1.1
Content-type: application/json

{
   "resourcePolicy": "string"
}
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

namespace

The namespace associated with the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket that contains the table.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request accepts the following data in JSON format.

resourcePolicy

The `JSON` that defines the policy.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 20480.

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

RenameTable

Service: Amazon S3 Tables

Renames a table or a namespace. For more information, see S3 Tables in the *Amazon Simple Storage Service User Guide*.

Permissions

You must have the `s3tables:RenameTable` permission to use this operation.

Request Syntax

```
PUT /tables/tableBucketARN/namespace/name/rename HTTP/1.1
Content-type: application/json

{
   "newName": "string",
   "newNamespaceName": "string",
   "versionToken": "string"
}
```

URI Request Parameters

The request uses the following URI parameters.

name

The current name of the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

namespace

The namespace associated with the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request accepts the following data in JSON format.

newName

The new name for the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: No

newNamespaceName

The new name for the namespace.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: No

versionToken

The version token of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Required: No

Response Syntax

```
HTTP/1.1 204
```

Response Elements

If the action is successful, the service sends back an HTTP 204 response with an empty HTTP body.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
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- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

UpdateTableMetadataLocation

Service: Amazon S3 Tables

Updates the metadata location for a table. The metadata location of a table must be an S3 URI that begins with the table's warehouse location. The metadata location for an Apache Iceberg table must end with `.metadata.json`, or if the metadata file is Gzip-compressed, `.metadata.json.gz`.

Permissions

You must have the `s3tables:UpdateTableMetadataLocation` permission to use this operation.

Request Syntax

```
PUT /tables/tableBucketARN/namespace/name/metadata-location HTTP/1.1
Content-type: application/json

{
   "metadataLocation": "string",
   "versionToken": "string"
}
```

URI Request Parameters

The request uses the following URI parameters.

name

The name of the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

namespace

The namespace of the table.

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

tableBucketARN

The Amazon Resource Name (ARN) of the table bucket.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

Request Body

The request accepts the following data in JSON format.

metadataLocation

The new metadata location for the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Required: Yes

versionToken

The version token of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Required: Yes

Response Syntax

```
HTTP/1.1 200
Content-type: application/json
```

```
{
   "metadataLocation": "string",
   "name": "string",
   "namespace": [ "string" ],
   "tableARN": "string",
   "versionToken": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

metadataLocation

The metadata location of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

name

The name of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

namespace

The namespace the table is associated with.

Type: Array of strings

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

tableARN

The Amazon Resource Name (ARN) of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63}/table/[a-zA-Z0-9-_]{1,255})`

versionToken

The version token of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Errors

BadRequestException

The request is invalid or malformed.

HTTP Status Code: 400

ConflictException

The request failed because there is a conflict with a previous write. You can retry the request.

HTTP Status Code: 409

ForbiddenException

The caller isn't authorized to make the request.

HTTP Status Code: 403

InternalServerErrorException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource could not be found.

HTTP Status Code: 404

TooManyRequestsException

The limit on the number of requests per second was exceeded.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
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- AWS SDK for Go v2
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- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

Amazon S3 Vectors

The following actions are supported by Amazon S3 Vectors:

- CreateIndex
- CreateVectorBucket
- DeleteIndex
- DeleteVectorBucket
- DeleteVectorBucketPolicy
- DeleteVectors
- GetIndex
- GetVectorBucket

- GetVectorBucketPolicy
- GetVectors
- ListIndexes
- ListVectorBuckets
- ListVectors
- PutVectorBucketPolicy
- PutVectors
- QueryVectors

CreateIndex

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Creates a vector index within a vector bucket. To specify the vector bucket, you must use either the vector bucket name or the vector bucket Amazon Resource Name (ARN).

Permissions

You must have the `s3vectors:CreateIndex` permission to use this operation.

Request Syntax

```
POST /CreateIndex HTTP/1.1
Content-type: application/json

{
   "dataType": "string",
   "dimension": number,
   "distanceMetric": "string",
   "indexName": "string",
   "metadataConfiguration": {
      "nonFilterableMetadataKeys": [ "string" ]
   },
   "vectorBucketArn": "string",
   "vectorBucketName": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

dataType

The data type of the vectors to be inserted into the vector index.

Type: String

Valid Values: `float32`

Required: Yes

dimension

The dimensions of the vectors to be inserted into the vector index.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 4096.

Required: Yes

distanceMetric

The distance metric to be used for similarity search.

Type: String

Valid Values: `euclidean | cosine`

Required: Yes

indexName

The name of the vector index to create.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: Yes

metadataConfiguration

The metadata configuration for the vector index.

Type: MetadataConfiguration object

Required: No

vectorBucketArn

The Amazon Resource Name (ARN) of the vector bucket to create the vector index in.

Type: String

Required: No

vectorBucketName

The name of the vector bucket to create the vector index in.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

AccessDeniedException

Access denied.

HTTP Status Code: 403

ConflictException

The request failed because a vector bucket name or a vector index name already exists. Vector bucket names must be unique within your AWS account for each AWS Region. Vector index names must be unique within your vector bucket. Choose a different vector bucket name or vector index name, and try again.

HTTP Status Code: 409

InternalServerException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource can't be found.

HTTP Status Code: 404

ServiceQuotaExceededException

Your request exceeds a service quota.

HTTP Status Code: 402

ServiceUnavailableException

The service is unavailable. Wait briefly and retry your request. If it continues to fail, increase your waiting time between retries.

HTTP Status Code: 503

TooManyRequestsException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The requested action isn't valid.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++

- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

CreateVectorBucket

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Creates a vector bucket in the AWS Region that you want your bucket to be in.

Permissions

You must have the `s3vectors:CreateVectorBucket` permission to use this operation.

Request Syntax

```
POST /CreateVectorBucket HTTP/1.1
Content-type: application/json

{
   "encryptionConfiguration": {
      "kmsKeyArn": "string",
      "sseType": "string"
   },
   "vectorBucketName": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

encryptionConfiguration

The encryption configuration for the vector bucket. By default, if you don't specify, all new vectors in Amazon S3 vector buckets use server-side encryption with Amazon S3 managed keys (SSE-S3), specifically AES256.

Type: EncryptionConfiguration object

Required: No

vectorBucketName

The name of the vector bucket to create.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

AccessDeniedException

Access denied.

HTTP Status Code: 403

ConflictException

The request failed because a vector bucket name or a vector index name already exists. Vector bucket names must be unique within your AWS account for each AWS Region. Vector index names must be unique within your vector bucket. Choose a different vector bucket name or vector index name, and try again.

HTTP Status Code: 409

InternalServerException

The request failed due to an internal server error.

HTTP Status Code: 500

ServiceQuotaExceededException

Your request exceeds a service quota.

HTTP Status Code: 402

ServiceUnavailableException

The service is unavailable. Wait briefly and retry your request. If it continues to fail, increase your waiting time between retries.

HTTP Status Code: 503

TooManyRequestsException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The requested action isn't valid.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteIndex

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Deletes a vector index. To specify the vector index, you can either use both the vector bucket name and vector index name, or use the vector index Amazon Resource Name (ARN).

Permissions

You must have the `s3vectors:DeleteIndex` permission to use this operation.

Request Syntax

```
POST /DeleteIndex HTTP/1.1
Content-type: application/json

{
   "indexArn": "string",
   "indexName": "string",
   "vectorBucketName": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

indexArn

The ARN of the vector index to delete.

Type: String

Required: No

indexName

The name of the vector index to delete.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

vectorBucketName

The name of the vector bucket that contains the vector index.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

AccessDeniedException

Access denied.

HTTP Status Code: 403

InternalServerException

The request failed due to an internal server error.

HTTP Status Code: 500

ServiceQuotaExceededException

Your request exceeds a service quota.

HTTP Status Code: 402

ServiceUnavailableException

The service is unavailable. Wait briefly and retry your request. If it continues to fail, increase your waiting time between retries.

HTTP Status Code: 503

TooManyRequestsException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The requested action isn't valid.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteVectorBucket

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Deletes a vector bucket. All vector indexes in the vector bucket must be deleted before the vector bucket can be deleted. To perform this operation, you must use either the vector bucket name or the vector bucket Amazon Resource Name (ARN).

Permissions

You must have the `s3vectors:DeleteVectorBucket` permission to use this operation.

Request Syntax

```
POST /DeleteVectorBucket HTTP/1.1
Content-type: application/json

{
   "vectorBucketArn": "string",
   "vectorBucketName": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

vectorBucketArn

The ARN of the vector bucket to delete.

Type: String

Required: No

vectorBucketName

The name of the vector bucket to delete.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

AccessDeniedException

Access denied.

HTTP Status Code: 403

ConflictException

The request failed because a vector bucket name or a vector index name already exists. Vector bucket names must be unique within your AWS account for each AWS Region. Vector index names must be unique within your vector bucket. Choose a different vector bucket name or vector index name, and try again.

HTTP Status Code: 409

InternalServerException

The request failed due to an internal server error.

HTTP Status Code: 500

ServiceQuotaExceededException

Your request exceeds a service quota.

HTTP Status Code: 402

ServiceUnavailableException

The service is unavailable. Wait briefly and retry your request. If it continues to fail, increase your waiting time between retries.

HTTP Status Code: 503

TooManyRequestsException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The requested action isn't valid.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteVectorBucketPolicy

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Deletes a vector bucket policy. To specify the bucket, you must use either the vector bucket name or the vector bucket Amazon Resource Name (ARN).

Permissions

You must have the `s3vectors:DeleteVectorBucketPolicy` permission to use this operation.

Request Syntax

```
POST /DeleteVectorBucketPolicy HTTP/1.1
Content-type: application/json

{
   "vectorBucketArn": "string",
   "vectorBucketName": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

vectorBucketArn

The ARN of the vector bucket to delete the policy from.

Type: String

Required: No

vectorBucketName

The name of the vector bucket to delete the policy from.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

AccessDeniedException

Access denied.

HTTP Status Code: 403

InternalServerException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource can't be found.

HTTP Status Code: 404

ServiceQuotaExceededException

Your request exceeds a service quota.

HTTP Status Code: 402

ServiceUnavailableException

The service is unavailable. Wait briefly and retry your request. If it continues to fail, increase your waiting time between retries.

HTTP Status Code: 503

TooManyRequestsException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The requested action isn't valid.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

DeleteVectors

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Deletes one or more vectors in a vector index. To specify the vector index, you can either use both the vector bucket name and vector index name, or use the vector index Amazon Resource Name (ARN).

Permissions

You must have the `s3vectors:DeleteVectors` permission to use this operation.

Request Syntax

```
POST /DeleteVectors HTTP/1.1
Content-type: application/json

{
   "indexArn": "string",
   "indexName": "string",
   "keys": [ "string" ],
   "vectorBucketName": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

indexArn

The ARN of the vector index that contains a vector you want to delete.

Type: String

Required: No

indexName

The name of the vector index that contains a vector you want to delete.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

keys

The keys of the vectors to delete.

Type: Array of strings

Array Members: Minimum number of 1 item. Maximum number of 500 items.

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: Yes

vectorBucketName

The name of the vector bucket that contains the vector index.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

AccessDeniedException

Access denied.

HTTP Status Code: 403

InternalServerException

The request failed due to an internal server error.

HTTP Status Code: 500

KmsDisabledException

The specified AWS KMS key isn't enabled.

HTTP Status Code: 400

KmsInvalidKeyUsageException

The request was rejected for one of the following reasons:

- The `KeyUsage` value of the KMS key is incompatible with the API operation.
- The encryption algorithm or signing algorithm specified for the operation is incompatible with the type of key material in the KMS key (`KeySpec`).

For more information, see InvalidKeyUsageException in the *AWS Key Management Service API Reference*.

HTTP Status Code: 400

KmsInvalidStateException

The key state of the KMS key isn't compatible with the operation.

For more information, see KMSInvalidStateException in the *AWS Key Management Service API Reference*.

HTTP Status Code: 400

KmsNotFoundException

The KMS key can't be found.

HTTP Status Code: 400

NotFoundException

The request was rejected because the specified resource can't be found.

HTTP Status Code: 404

ServiceQuotaExceededException

Your request exceeds a service quota.

HTTP Status Code: 402

ServiceUnavailableException

The service is unavailable. Wait briefly and retry your request. If it continues to fail, increase your waiting time between retries.

HTTP Status Code: 503

TooManyRequestsException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The requested action isn't valid.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetIndex

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Returns vector index attributes. To specify the vector index, you can either use both the vector bucket name and the vector index name, or use the vector index Amazon Resource Name (ARN).

Permissions

You must have the `s3vectors:GetIndex` permission to use this operation.

Request Syntax

```
POST /GetIndex HTTP/1.1
Content-type: application/json

{
   "indexArn": "string",
   "indexName": "string",
   "vectorBucketName": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

indexArn

The ARN of the vector index.

Type: String

Required: No

indexName

The name of the vector index.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

vectorBucketName

The name of the vector bucket that contains the vector index.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "index": {
      "creationTime": number,
      "dataType": "string",
      "dimension": number,
      "distanceMetric": "string",
      "indexArn": "string",
      "indexName": "string",
      "metadataConfiguration": {
         "nonFilterableMetadataKeys": [ "string" ]
      },
      "vectorBucketName": "string"
   }
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

index

The attributes of the vector index.

Type: Index object

Errors

AccessDeniedException

Access denied.

HTTP Status Code: 403

InternalServerException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource can't be found.

HTTP Status Code: 404

ServiceQuotaExceededException

Your request exceeds a service quota.

HTTP Status Code: 402

ServiceUnavailableException

The service is unavailable. Wait briefly and retry your request. If it continues to fail, increase your waiting time between retries.

HTTP Status Code: 503

TooManyRequestsException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The requested action isn't valid.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetVectorBucket

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Returns vector bucket attributes. To specify the bucket, you must use either the vector bucket name or the vector bucket Amazon Resource Name (ARN).

Permissions

You must have the `s3vectors:GetVectorBucket` permission to use this operation.

Request Syntax

```
POST /GetVectorBucket HTTP/1.1
Content-type: application/json

{
   "vectorBucketArn": "string",
   "vectorBucketName": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

vectorBucketArn

The ARN of the vector bucket to retrieve information about.

Type: String

Required: No

vectorBucketName

The name of the vector bucket to retrieve information about.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "vectorBucket": {
      "creationTime": number,
      "encryptionConfiguration": {
         "kmsKeyArn": "string",
         "sseType": "string"
      },
      "vectorBucketArn": "string",
      "vectorBucketName": "string"
   }
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

vectorBucket

The attributes of the vector bucket.

Type: VectorBucket object

Errors

AccessDeniedException

Access denied.

HTTP Status Code: 403

InternalServerException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource can't be found.

HTTP Status Code: 404

ServiceQuotaExceededException

Your request exceeds a service quota.

HTTP Status Code: 402

ServiceUnavailableException

The service is unavailable. Wait briefly and retry your request. If it continues to fail, increase your waiting time between retries.

HTTP Status Code: 503

TooManyRequestsException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The requested action isn't valid.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetVectorBucketPolicy

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Gets details about a vector bucket policy. To specify the bucket, you must use either the vector bucket name or the vector bucket Amazon Resource Name (ARN).

Permissions

You must have the `s3vectors:GetVectorBucketPolicy` permission to use this operation.

Request Syntax

```
POST /GetVectorBucketPolicy HTTP/1.1
Content-type: application/json

{
   "vectorBucketArn": "string",
   "vectorBucketName": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

vectorBucketArn

The ARN of the vector bucket.

Type: String

Required: No

vectorBucketName

The name of the vector bucket.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "policy": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

policy

The JSON that defines the policy.

Type: String

Errors

AccessDeniedException

Access denied.

HTTP Status Code: 403

InternalServerException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource can't be found.

HTTP Status Code: 404

ServiceQuotaExceededException

Your request exceeds a service quota.

HTTP Status Code: 402

ServiceUnavailableException

The service is unavailable. Wait briefly and retry your request. If it continues to fail, increase your waiting time between retries.

HTTP Status Code: 503

TooManyRequestsException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The requested action isn't valid.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3

- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetVectors

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Returns vector attributes. To specify the vector index, you can either use both the vector bucket name and the vector index name, or use the vector index Amazon Resource Name (ARN).

Permissions

You must have the `s3vectors:GetVectors` permission to use this operation.

Request Syntax

```
POST /GetVectors HTTP/1.1
Content-type: application/json

{
   "indexArn": "string",
   "indexName": "string",
   "keys": [ "string" ],
   "returnData": boolean,
   "returnMetadata": boolean,
   "vectorBucketName": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

indexArn

The ARN of the vector index.

Type: String

Required: No

indexName

The name of the vector index.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

keys

The names of the vectors you want to return attributes for.

Type: Array of strings

Array Members: Minimum number of 1 item. Maximum number of 100 items.

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: Yes

returnData

Indicates whether to include the vector data in the response. The default value is `false`.

Type: Boolean

Required: No

returnMetadata

Indicates whether to include metadata in the response. The default value is `false`.

Type: Boolean

Required: No

vectorBucketName

The name of the vector bucket that contains the vector index.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "vectors": [
      {
         "data": { ... },
         "key": "string",
         "metadata": JSON value
      }
   ]
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

vectors

The attributes of the vectors.

Type: Array of GetOutputVector objects

Errors

AccessDeniedException

Access denied.

HTTP Status Code: 403

InternalServerException

The request failed due to an internal server error.

HTTP Status Code: 500

KmsDisabledException

The specified AWS KMS key isn't enabled.

HTTP Status Code: 400

KmsInvalidKeyUsageException

The request was rejected for one of the following reasons:

- The `KeyUsage` value of the KMS key is incompatible with the API operation.
- The encryption algorithm or signing algorithm specified for the operation is incompatible with the type of key material in the KMS key (`KeySpec`).

For more information, see InvalidKeyUsageException in the *AWS Key Management Service API Reference*.

HTTP Status Code: 400

KmsInvalidStateException

The key state of the KMS key isn't compatible with the operation.

For more information, see KMSInvalidStateException in the *AWS Key Management Service API Reference*.

HTTP Status Code: 400

KmsNotFoundException

The KMS key can't be found.

HTTP Status Code: 400

NotFoundException

The request was rejected because the specified resource can't be found.

HTTP Status Code: 404

ServiceQuotaExceededException

Your request exceeds a service quota.

HTTP Status Code: 402

ServiceUnavailableException

The service is unavailable. Wait briefly and retry your request. If it continues to fail, increase your waiting time between retries.

HTTP Status Code: 503

TooManyRequestsException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The requested action isn't valid.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListIndexes

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Returns a list of all the vector indexes within the specified vector bucket. To specify the bucket, you must use either the vector bucket name or the vector bucket Amazon Resource Name (ARN).

Permissions

You must have the `s3vectors:ListIndexes` permission to use this operation.

Request Syntax

```
POST /ListIndexes HTTP/1.1
Content-type: application/json

{
   "maxResults": number,
   "nextToken": "string",
   "prefix": "string",
   "vectorBucketArn": "string",
   "vectorBucketName": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

maxResults

The maximum number of items to be returned in the response.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 500.

Required: No

nextToken

The previous pagination token.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 512.

Required: No

prefix

Limits the response to vector indexes that begin with the specified prefix.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 63.

Required: No

vectorBucketArn

The ARN of the vector bucket that contains the vector indexes.

Type: String

Required: No

vectorBucketName

The name of the vector bucket that contains the vector indexes.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

Response Syntax

```
HTTP/1.1 200
Content-type: application/json
```

```
{
   "indexes": [
      {
         "creationTime": number,
         "indexArn": "string",
         "indexName": "string",
         "vectorBucketName": "string"
      }
   ],
   "nextToken": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

indexes

The attributes of the vector indexes

Type: Array of IndexSummary objects

nextToken

The next pagination token.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 512.

Errors

AccessDeniedException

Access denied.

HTTP Status Code: 403

InternalServerException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource can't be found.

HTTP Status Code: 404

ServiceQuotaExceededException

Your request exceeds a service quota.

HTTP Status Code: 402

ServiceUnavailableException

The service is unavailable. Wait briefly and retry your request. If it continues to fail, increase your waiting time between retries.

HTTP Status Code: 503

TooManyRequestsException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The requested action isn't valid.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3

- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListVectorBuckets

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Returns a list of all the vector buckets that are owned by the authenticated sender of the request.

Permissions

You must have the `s3vectors:ListVectorBuckets` permission to use this operation.

Request Syntax

```
POST /ListVectorBuckets HTTP/1.1
Content-type: application/json

{
   "maxResults": number,
   "nextToken": "string",
   "prefix": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

maxResults

The maximum number of vector buckets to be returned in the response.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 500.

Required: No

nextToken

The previous pagination token.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 512.

Required: No

prefix

Limits the response to vector buckets that begin with the specified prefix.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 63.

Required: No

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "nextToken": "string",
   "vectorBuckets": [
      {
         "creationTime": number,
         "vectorBucketArn": "string",
         "vectorBucketName": "string"
      }
   ]
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

nextToken

The element is included in the response when there are more buckets to be listed with pagination.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 512.

vectorBuckets

The list of vector buckets owned by the requester.

Type: Array of VectorBucketSummary objects

Errors

AccessDeniedException

Access denied.

HTTP Status Code: 403

InternalServerException

The request failed due to an internal server error.

HTTP Status Code: 500

ServiceQuotaExceededException

Your request exceeds a service quota.

HTTP Status Code: 402

ServiceUnavailableException

The service is unavailable. Wait briefly and retry your request. If it continues to fail, increase your waiting time between retries.

HTTP Status Code: 503

TooManyRequestsException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The requested action isn't valid.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ListVectors

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

List vectors in the specified vector index. To specify the vector index, you can either use both the vector bucket name and the vector index name, or use the vector index Amazon Resource Name (ARN).

`ListVectors` operations proceed sequentially; however, for faster performance on a large number of vectors in a vector index, applications can request a parallel `ListVectors` operation by providing the `segmentCount` and `segmentIndex` parameters.

Permissions

You must have the `s3vectors:ListVectors` permission to use this operation. Additional permissions are required based on the request parameters you specify:

- With only `s3vectors:ListVectors` permission, you can list vector keys when `returnData` and `returnMetadata` are both set to false or not specified..
- If you set `returnData` or `returnMetadata` to true, you must have both `s3vectors:ListVectors` and `s3vectors:GetVectors` permissions. The request fails with a `403 Forbidden` error if you request vector data or metadata without the `s3vectors:GetVectors` permission.

Request Syntax

```
POST /ListVectors HTTP/1.1
Content-type: application/json

{
   "indexArn": "string",
   "indexName": "string",
   "maxResults": number,
   "nextToken": "string",
   "returnData": boolean,
   "returnMetadata": boolean,
```

```
    "segmentCount": number,
    "segmentIndex": number,
    "vectorBucketName": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

indexArn

The Amazon resource Name (ARN) of the vector index.

Type: String

Required: No

indexName

The name of the vector index.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

maxResults

The maximum number of vectors to return on a page.

If you don't specify `maxResults`, the `ListVectors` operation uses a default value of 500.

If the processed dataset size exceeds 1 MB before reaching the `maxResults` value, the operation stops and returns the vectors that are retrieved up to that point, along with a `nextToken` that you can use in a subsequent request to retrieve the next set of results.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 1000.

Required: No

nextToken

Pagination token from a previous request. The value of this field is empty for an initial request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Required: No

returnData

If true, the vector data of each vector will be included in the response. The default value is `false`.

Type: Boolean

Required: No

returnMetadata

If true, the metadata associated with each vector will be included in the response. The default value is `false`.

Type: Boolean

Required: No

segmentCount

For a parallel `ListVectors` request, `segmentCount` represents the total number of vector segments into which the `ListVectors` operation will be divided. The value of `segmentCount` corresponds to the number of application workers that will perform the parallel `ListVectors` operation. For example, if you want to use four application threads to list vectors in a vector index, specify a `segmentCount` value of 4.

If you specify a `segmentCount` value of 1, the `ListVectors` operation will be sequential rather than parallel.

If you specify `segmentCount`, you must also specify `segmentIndex`.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 16.

Required: No

segmentIndex

For a parallel `ListVectors` request, `segmentIndex` is the index of the segment from which to list vectors in the current request. It identifies an individual segment to be listed by an application worker.

Segment IDs are zero-based, so the first segment is always 0. For example, if you want to use four application threads to list vectors in a vector index, then the first thread specifies a `segmentIndex` value of 0, the second thread specifies 1, and so on.

The value of `segmentIndex` must be less than the value provided for `segmentCount`.

If you provide `segmentIndex`, you must also provide `segmentCount`.

Type: Integer

Valid Range: Minimum value of 0. Maximum value of 15.

Required: No

vectorBucketName

The name of the vector bucket.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "nextToken": "string",
   "vectors": [
      {
```

```
            "data": { ... },
            "key": "string",
            "metadata": JSON value
        }
    ]
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

nextToken

Pagination token to be used in the subsequent request. The field is empty if no further pagination is required.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

vectors

Vectors in the current segment.

Type: Array of ListOutputVector objects

Errors

AccessDeniedException

Access denied.

HTTP Status Code: 403

InternalServerException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource can't be found.

HTTP Status Code: 404

ServiceQuotaExceededException

Your request exceeds a service quota.

HTTP Status Code: 402

ServiceUnavailableException

The service is unavailable. Wait briefly and retry your request. If it continues to fail, increase your waiting time between retries.

HTTP Status Code: 503

TooManyRequestsException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The requested action isn't valid.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python

- AWS SDK for Ruby V3

PutVectorBucketPolicy

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Creates a bucket policy for a vector bucket. To specify the bucket, you must use either the vector bucket name or the vector bucket Amazon Resource Name (ARN).

Permissions

You must have the `s3vectors:PutVectorBucketPolicy` permission to use this operation.

Request Syntax

```
POST /PutVectorBucketPolicy HTTP/1.1
Content-type: application/json

{
   "policy": "string",
   "vectorBucketArn": "string",
   "vectorBucketName": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

policy

The `JSON` that defines the policy. For more information about bucket policies for S3 Vectors, see Managing vector bucket policies in the *Amazon S3 User Guide*.

Type: String

Required: Yes

vectorBucketArn

The Amazon Resource Name (ARN) of the vector bucket.

Type: String

Required: No

vectorBucketName

The name of the vector bucket.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

AccessDeniedException

Access denied.

HTTP Status Code: 403

InternalServerException

The request failed due to an internal server error.

HTTP Status Code: 500

NotFoundException

The request was rejected because the specified resource can't be found.

HTTP Status Code: 404

ServiceQuotaExceededException

Your request exceeds a service quota.

HTTP Status Code: 402

ServiceUnavailableException

The service is unavailable. Wait briefly and retry your request. If it continues to fail, increase your waiting time between retries.

HTTP Status Code: 503

TooManyRequestsException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The requested action isn't valid.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python

- AWS SDK for Ruby V3

PutVectors

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Adds one or more vectors to a vector index. To specify the vector index, you can either use both the vector bucket name and the vector index name, or use the vector index Amazon Resource Name (ARN).

For more information about limits, see Limitations and restrictions in the *Amazon S3 User Guide*.

> **Note**
>
> When inserting vector data into your vector index, you must provide the vector data as `float32` (32-bit floating point) values. If you pass higher-precision values to an AWS SDK, S3 Vectors converts the values to 32-bit floating point before storing them, and `GetVectors`, `ListVectors`, and `QueryVectors` operations return the float32 values. Different AWS SDKs may have different default numeric types, so ensure your vectors are properly formatted as `float32` values regardless of which SDK you're using. For example, in Python, use `numpy.float32` or explicitly cast your values.

Permissions

You must have the `s3vectors:PutVectors` permission to use this operation.

Request Syntax

```
POST /PutVectors HTTP/1.1
Content-type: application/json

{
   "indexArn": "string",
   "indexName": "string",
   "vectorBucketName": "string",
   "vectors": [
```

```
        {
            "data": { ... },
            "key": "string",
            "metadata": JSON value
        }
    ]
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

indexArn

The ARN of the vector index where you want to write vectors.

Type: String

Required: No

indexName

The name of the vector index where you want to write vectors.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

vectorBucketName

The name of the vector bucket that contains the vector index.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

vectors

The vectors to add to a vector index. The number of vectors in a single request must not exceed the resource capacity, otherwise the request will be rejected with the error `ServiceUnavailableException` with the error message "Currently unable to handle the request".

Type: Array of PutInputVector objects

Array Members: Minimum number of 1 item. Maximum number of 500 items.

Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

AccessDeniedException

Access denied.

HTTP Status Code: 403

InternalServerException

The request failed due to an internal server error.

HTTP Status Code: 500

KmsDisabledException

The specified AWS KMS key isn't enabled.

HTTP Status Code: 400

KmsInvalidKeyUsageException

The request was rejected for one of the following reasons:

- The `KeyUsage` value of the KMS key is incompatible with the API operation.
- The encryption algorithm or signing algorithm specified for the operation is incompatible with the type of key material in the KMS key (`KeySpec`).

For more information, see InvalidKeyUsageException in the *AWS Key Management Service API Reference*.

HTTP Status Code: 400

KmsInvalidStateException

The key state of the KMS key isn't compatible with the operation.

For more information, see KMSInvalidStateException in the *AWS Key Management Service API Reference*.

HTTP Status Code: 400

KmsNotFoundException

The KMS key can't be found.

HTTP Status Code: 400

NotFoundException

The request was rejected because the specified resource can't be found.

HTTP Status Code: 404

ServiceQuotaExceededException

Your request exceeds a service quota.

HTTP Status Code: 402

ServiceUnavailableException

The service is unavailable. Wait briefly and retry your request. If it continues to fail, increase your waiting time between retries.

HTTP Status Code: 503

TooManyRequestsException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The requested action isn't valid.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

QueryVectors

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Performs an approximate nearest neighbor search query in a vector index using a query vector. By default, it returns the keys of approximate nearest neighbors. You can optionally include the computed distance (between the query vector and each vector in the response), the vector data, and metadata of each vector in the response.

To specify the vector index, you can either use both the vector bucket name and the vector index name, or use the vector index Amazon Resource Name (ARN).

Permissions

You must have the `s3vectors:QueryVectors` permission to use this operation. Additional permissions are required based on the request parameters you specify:

- With only `s3vectors:QueryVectors` permission, you can retrieve vector keys of approximate nearest neighbors and computed distances between these vectors. This permission is sufficient only when you don't set any metadata filters and don't request vector data or metadata (by keeping the `returnMetadata` parameter set to `false` or not specified).
- If you specify a metadata filter or set `returnMetadata` to true, you must have both `s3vectors:QueryVectors` and `s3vectors:GetVectors` permissions. The request fails with a `403 Forbidden error` if you request metadata filtering, vector data, or metadata without the `s3vectors:GetVectors` permission.

Request Syntax

```
POST /QueryVectors HTTP/1.1
Content-type: application/json

{
   "filter": JSON value,
   "indexArn": "string",
   "indexName": "string",
```

```
    "queryVector": { ... },
    "returnDistance": boolean,
    "returnMetadata": boolean,
    "topK": number,
    "vectorBucketName": "string"
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

filter

Metadata filter to apply during the query. For more information about metadata keys, see Metadata filtering in the *Amazon S3 User Guide*.

Type: JSON value

Required: No

indexArn

The ARN of the vector index that you want to query.

Type: String

Required: No

indexName

The name of the vector index that you want to query.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

queryVector

The query vector. Ensure that the query vector has the same dimension as the dimension of the vector index that's being queried. For example, if your vector index contains vectors with 384 dimensions, your query vector must also have 384 dimensions.

Type: VectorData object

Note: This object is a Union. Only one member of this object can be specified or returned.

Required: Yes

returnDistance

Indicates whether to include the computed distance in the response. The default value is `false`.

Type: Boolean

Required: No

returnMetadata

Indicates whether to include metadata in the response. The default value is `false`.

Type: Boolean

Required: No

topK

The number of results to return for each query.

Type: Integer

Valid Range: Minimum value of 1.

Required: Yes

vectorBucketName

The name of the vector bucket that contains the vector index.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: No

Response Syntax

```
HTTP/1.1 200
```

```
Content-type: application/json

{
   "vectors": [
      {
         "data": { ... },
         "distance": number,
         "key": "string",
         "metadata": JSON value
      }
   ]
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

vectors

The vectors in the approximate nearest neighbor search.

Type: Array of QueryOutputVector objects

Errors

AccessDeniedException

Access denied.

HTTP Status Code: 403

InternalServerException

The request failed due to an internal server error.

HTTP Status Code: 500

KmsDisabledException

The specified AWS KMS key isn't enabled.

HTTP Status Code: 400

KmsInvalidKeyUsageException

The request was rejected for one of the following reasons:

- The `KeyUsage` value of the KMS key is incompatible with the API operation.
- The encryption algorithm or signing algorithm specified for the operation is incompatible with the type of key material in the KMS key (`KeySpec`).

For more information, see InvalidKeyUsageException in the *AWS Key Management Service API Reference*.

HTTP Status Code: 400

KmsInvalidStateException

The key state of the KMS key isn't compatible with the operation.

For more information, see KMSInvalidStateException in the *AWS Key Management Service API Reference*.

HTTP Status Code: 400

KmsNotFoundException

The KMS key can't be found.

HTTP Status Code: 400

NotFoundException

The request was rejected because the specified resource can't be found.

HTTP Status Code: 404

ServiceQuotaExceededException

Your request exceeds a service quota.

HTTP Status Code: 402

ServiceUnavailableException

The service is unavailable. Wait briefly and retry your request. If it continues to fail, increase your waiting time between retries.

HTTP Status Code: 503

TooManyRequestsException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The requested action isn't valid.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

Data Types

The following data types are supported by Amazon S3:

- AbortIncompleteMultipartUpload
- AccelerateConfiguration
- AccessControlPolicy
- AccessControlTranslation

- AnalyticsAndOperator
- AnalyticsConfiguration
- AnalyticsExportDestination
- AnalyticsFilter
- AnalyticsS3BucketDestination
- Bucket
- BucketInfo
- BucketLifecycleConfiguration
- BucketLoggingStatus
- Checksum
- CloudFunctionConfiguration
- CommonPrefix
- CompletedMultipartUpload
- CompletedPart
- Condition
- ContinuationEvent
- CopyObjectResult
- CopyPartResult
- CORSConfiguration
- CORSRule
- CreateBucketConfiguration
- CSVInput
- CSVOutput
- DefaultRetention
- Delete
- DeletedObject
- DeleteMarkerEntry
- DeleteMarkerReplication
- Destination
- DestinationResult

- Encryption
- EncryptionConfiguration
- EndEvent
- Error
- ErrorDetails
- ErrorDocument
- EventBridgeConfiguration
- ExistingObjectReplication
- FilterRule
- GetBucketMetadataConfigurationResult
- GetBucketMetadataTableConfigurationResult
- GetObjectAttributesParts
- GlacierJobParameters
- Grant
- Grantee
- IndexDocument
- Initiator
- InputSerialization
- IntelligentTieringAndOperator
- IntelligentTieringConfiguration
- IntelligentTieringFilter
- InventoryConfiguration
- InventoryDestination
- InventoryEncryption
- InventoryFilter
- InventoryS3BucketDestination
- InventorySchedule
- InventoryTableConfiguration
- InventoryTableConfigurationResult
- InventoryTableConfigurationUpdates

- JournalTableConfiguration
- JournalTableConfigurationResult
- JournalTableConfigurationUpdates
- JSONInput
- JSONOutput
- LambdaFunctionConfiguration
- LifecycleConfiguration
- LifecycleExpiration
- LifecycleRule
- LifecycleRuleAndOperator
- LifecycleRuleFilter
- LocationInfo
- LoggingEnabled
- MetadataConfiguration
- MetadataConfigurationResult
- MetadataEntry
- MetadataTableConfiguration
- MetadataTableConfigurationResult
- MetadataTableEncryptionConfiguration
- Metrics
- MetricsAndOperator
- MetricsConfiguration
- MetricsFilter
- MultipartUpload
- NoncurrentVersionExpiration
- NoncurrentVersionTransition
- NotificationConfiguration
- NotificationConfigurationDeprecated
- NotificationConfigurationFilter
- Object

- ObjectIdentifier
- ObjectLockConfiguration
- ObjectLockLegalHold
- ObjectLockRetention
- ObjectLockRule
- ObjectPart
- ObjectVersion
- OutputLocation
- OutputSerialization
- Owner
- OwnershipControls
- OwnershipControlsRule
- ParquetInput
- Part
- PartitionedPrefix
- PolicyStatus
- Progress
- ProgressEvent
- PublicAccessBlockConfiguration
- QueueConfiguration
- QueueConfigurationDeprecated
- RecordExpiration
- RecordsEvent
- Redirect
- RedirectAllRequestsTo
- ReplicaModifications
- ReplicationConfiguration
- ReplicationRule
- ReplicationRuleAndOperator
- ReplicationRuleFilter

- ReplicationTime
- ReplicationTimeValue
- RequestPaymentConfiguration
- RequestProgress
- RestoreRequest
- RestoreStatus
- RoutingRule
- Rule
- S3KeyFilter
- S3Location
- S3TablesDestination
- S3TablesDestinationResult
- ScanRange
- SelectObjectContentEventStream
- SelectParameters
- ServerSideEncryptionByDefault
- ServerSideEncryptionConfiguration
- ServerSideEncryptionRule
- SessionCredentials
- SimplePrefix
- SourceSelectionCriteria
- SSEKMS
- SseKmsEncryptedObjects
- SSES3
- Stats
- StatsEvent
- StorageClassAnalysis
- StorageClassAnalysisDataExport
- Tag
- Tagging

- TargetGrant
- TargetObjectKeyFormat
- Tiering
- TopicConfiguration
- TopicConfigurationDeprecated
- Transition
- VersioningConfiguration
- WebsiteConfiguration

The following data types are supported by Amazon S3 Control:

- AbortIncompleteMultipartUpload
- AccessControlTranslation
- AccessGrantsLocationConfiguration
- AccessPoint
- AccountLevel
- ActivityMetrics
- AdvancedCostOptimizationMetrics
- AdvancedDataProtectionMetrics
- AsyncErrorDetails
- AsyncOperation
- AsyncRequestParameters
- AsyncResponseDetails
- AwsLambdaTransformation
- BucketLevel
- CloudWatchMetrics
- CreateBucketConfiguration
- CreateMultiRegionAccessPointInput
- Credentials
- DeleteMarkerReplication
- DeleteMultiRegionAccessPointInput

- Destination
- DetailedStatusCodesMetrics
- EncryptionConfiguration
- EstablishedMultiRegionAccessPointPolicy
- Exclude
- ExistingObjectReplication
- GeneratedManifestEncryption
- Grantee
- Include
- JobDescriptor
- JobFailure
- JobListDescriptor
- JobManifest
- JobManifestGenerator
- JobManifestGeneratorFilter
- JobManifestLocation
- JobManifestSpec
- JobOperation
- JobProgressSummary
- JobReport
- JobTimers
- KeyNameConstraint
- LambdaInvokeOperation
- LifecycleConfiguration
- LifecycleExpiration
- LifecycleRule
- LifecycleRuleAndOperator
- LifecycleRuleFilter
- ListAccessGrantEntry
- ListAccessGrantsInstanceEntry

- ListAccessGrantsLocationsEntry
- ListCallerAccessGrantsEntry
- ListStorageLensConfigurationEntry
- ListStorageLensGroupEntry
- MatchObjectAge
- MatchObjectSize
- Metrics
- MultiRegionAccessPointPolicyDocument
- MultiRegionAccessPointRegionalResponse
- MultiRegionAccessPointReport
- MultiRegionAccessPointRoute
- MultiRegionAccessPointsAsyncResponse
- NoncurrentVersionExpiration
- NoncurrentVersionTransition
- ObjectLambdaAccessPoint
- ObjectLambdaAccessPointAlias
- ObjectLambdaConfiguration
- ObjectLambdaContentTransformation
- ObjectLambdaTransformationConfiguration
- PolicyStatus
- PrefixLevel
- PrefixLevelStorageMetrics
- ProposedMultiRegionAccessPointPolicy
- PublicAccessBlockConfiguration
- PutMultiRegionAccessPointPolicyInput
- Region
- RegionalBucket
- RegionReport
- ReplicaModifications
- ReplicationConfiguration

- ReplicationRule
- ReplicationRuleAndOperator
- ReplicationRuleFilter
- ReplicationTime
- ReplicationTimeValue
- S3AccessControlList
- S3AccessControlPolicy
- S3BucketDestination
- S3ComputeObjectChecksumOperation
- S3CopyObjectOperation
- S3DeleteObjectTaggingOperation
- S3GeneratedManifestDescriptor
- S3Grant
- S3Grantee
- S3InitiateRestoreObjectOperation
- S3JobManifestGenerator
- S3ManifestOutputLocation
- S3ObjectLockLegalHold
- S3ObjectMetadata
- S3ObjectOwner
- S3ReplicateObjectOperation
- S3Retention
- S3SetObjectAclOperation
- S3SetObjectLegalHoldOperation
- S3SetObjectRetentionOperation
- S3SetObjectTaggingOperation
- S3Tag
- Scope
- SelectionCriteria
- SourceSelectionCriteria

- SSEKMS
- SseKmsEncryptedObjects
- SSEKMSEncryption
- SSES3
- SSES3Encryption
- StorageLensAwsOrg
- StorageLensConfiguration
- StorageLensDataExport
- StorageLensDataExportEncryption
- StorageLensGroup
- StorageLensGroupAndOperator
- StorageLensGroupFilter
- StorageLensGroupLevel
- StorageLensGroupLevelSelectionCriteria
- StorageLensGroupOrOperator
- StorageLensTag
- Tag
- Tagging
- Transition
- VersioningConfiguration
- VpcConfiguration

The following data types are supported by Amazon S3 on Outposts:

- Endpoint
- FailedReason
- NetworkInterface
- Outpost

The following data types are supported by Amazon S3 Tables:

- EncryptionConfiguration

- IcebergCompactionSettings
- IcebergMetadata
- IcebergSchema
- IcebergSnapshotManagementSettings
- IcebergUnreferencedFileRemovalSettings
- NamespaceSummary
- SchemaField
- TableBucketMaintenanceConfigurationValue
- TableBucketMaintenanceSettings
- TableBucketSummary
- TableMaintenanceConfigurationValue
- TableMaintenanceJobStatusValue
- TableMaintenanceSettings
- TableMetadata
- TableSummary

The following data types are supported by Amazon S3 Vectors:

- EncryptionConfiguration
- GetOutputVector
- Index
- IndexSummary
- ListOutputVector
- MetadataConfiguration
- PutInputVector
- QueryOutputVector
- ValidationExceptionField
- VectorBucket
- VectorBucketSummary
- VectorData

Amazon S3

The following data types are supported by Amazon S3:

- AbortIncompleteMultipartUpload
- AccelerateConfiguration
- AccessControlPolicy
- AccessControlTranslation
- AnalyticsAndOperator
- AnalyticsConfiguration
- AnalyticsExportDestination
- AnalyticsFilter
- AnalyticsS3BucketDestination
- Bucket
- BucketInfo
- BucketLifecycleConfiguration
- BucketLoggingStatus
- Checksum
- CloudFunctionConfiguration
- CommonPrefix
- CompletedMultipartUpload
- CompletedPart
- Condition
- ContinuationEvent
- CopyObjectResult
- CopyPartResult
- CORSConfiguration
- CORSRule
- CreateBucketConfiguration
- CSVInput
- CSVOutput

- DefaultRetention
- Delete
- DeletedObject
- DeleteMarkerEntry
- DeleteMarkerReplication
- Destination
- DestinationResult
- Encryption
- EncryptionConfiguration
- EndEvent
- Error
- ErrorDetails
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- EventBridgeConfiguration
- ExistingObjectReplication
- FilterRule
- GetBucketMetadataConfigurationResult
- GetBucketMetadataTableConfigurationResult
- GetObjectAttributesParts
- GlacierJobParameters
- Grant
- Grantee
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- IntelligentTieringAndOperator
- IntelligentTieringConfiguration
- IntelligentTieringFilter
- InventoryConfiguration
- InventoryDestination

- InventoryEncryption
- InventoryFilter
- InventoryS3BucketDestination
- InventorySchedule
- InventoryTableConfiguration
- InventoryTableConfigurationResult
- InventoryTableConfigurationUpdates
- JournalTableConfiguration
- JournalTableConfigurationResult
- JournalTableConfigurationUpdates
- JSONInput
- JSONOutput
- LambdaFunctionConfiguration
- LifecycleConfiguration
- LifecycleExpiration
- LifecycleRule
- LifecycleRuleAndOperator
- LifecycleRuleFilter
- LocationInfo
- LoggingEnabled
- MetadataConfiguration
- MetadataConfigurationResult
- MetadataEntry
- MetadataTableConfiguration
- MetadataTableConfigurationResult
- MetadataTableEncryptionConfiguration
- Metrics
- MetricsAndOperator
- MetricsConfiguration
- MetricsFilter

- MultipartUpload
- NoncurrentVersionExpiration
- NoncurrentVersionTransition
- NotificationConfiguration
- NotificationConfigurationDeprecated
- NotificationConfigurationFilter
- Object
- ObjectIdentifier
- ObjectLockConfiguration
- ObjectLockLegalHold
- ObjectLockRetention
- ObjectLockRule
- ObjectPart
- ObjectVersion
- OutputLocation
- OutputSerialization
- Owner
- OwnershipControls
- OwnershipControlsRule
- ParquetInput
- Part
- PartitionedPrefix
- PolicyStatus
- Progress
- ProgressEvent
- PublicAccessBlockConfiguration
- QueueConfiguration
- QueueConfigurationDeprecated
- RecordExpiration
- RecordsEvent

- Redirect
- RedirectAllRequestsTo
- ReplicaModifications
- ReplicationConfiguration
- ReplicationRule
- ReplicationRuleAndOperator
- ReplicationRuleFilter
- ReplicationTime
- ReplicationTimeValue
- RequestPaymentConfiguration
- RequestProgress
- RestoreRequest
- RestoreStatus
- RoutingRule
- Rule
- S3KeyFilter
- S3Location
- S3TablesDestination
- S3TablesDestinationResult
- ScanRange
- SelectObjectContentEventStream
- SelectParameters
- ServerSideEncryptionByDefault
- ServerSideEncryptionConfiguration
- ServerSideEncryptionRule
- SessionCredentials
- SimplePrefix
- SourceSelectionCriteria
- SSEKMS
- SseKmsEncryptedObjects

- SSES3
- Stats
- StatsEvent
- StorageClassAnalysis
- StorageClassAnalysisDataExport
- Tag
- Tagging
- TargetGrant
- TargetObjectKeyFormat
- Tiering
- TopicConfiguration
- TopicConfigurationDeprecated
- Transition
- VersioningConfiguration
- WebsiteConfiguration

AbortIncompleteMultipartUpload

Service: Amazon S3

Specifies the days since the initiation of an incomplete multipart upload that Amazon S3 will wait before permanently removing all parts of the upload. For more information, see Aborting Incomplete Multipart Uploads Using a Bucket Lifecycle Configuration in the *Amazon S3 User Guide*.

Contents

DaysAfterInitiation

Specifies the number of days after which Amazon S3 aborts an incomplete multipart upload.

Type: Integer

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AccelerateConfiguration

Service: Amazon S3

Configures the transfer acceleration state for an Amazon S3 bucket. For more information, see Amazon S3 Transfer Acceleration in the *Amazon S3 User Guide*.

Contents

Status

Specifies the transfer acceleration status of the bucket.

Type: String

Valid Values: `Enabled` | `Suspended`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AccessControlPolicy

Service: Amazon S3

Contains the elements that set the ACL permissions for an object per grantee.

Contents

Grants

A list of grants.

Type: Array of Grant data types

Required: No

Owner

Container for the bucket owner's display name and ID.

Type: Owner data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AccessControlTranslation

Service: Amazon S3

A container for information about access control for replicas.

Contents

Owner

Specifies the replica ownership. For default and valid values, see PUT bucket replication in the *Amazon S3 API Reference*.

Type: String

Valid Values: `Destination`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AnalyticsAndOperator

Service: Amazon S3

A conjunction (logical AND) of predicates, which is used in evaluating a metrics filter. The operator must have at least two predicates in any combination, and an object must match all of the predicates for the filter to apply.

Contents

Prefix

The prefix to use when evaluating an AND predicate: The prefix that an object must have to be included in the metrics results.

Type: String

Required: No

Tags

The list of tags to use when evaluating an AND predicate.

Type: Array of Tag data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AnalyticsConfiguration

Service: Amazon S3

Specifies the configuration and any analyses for the analytics filter of an Amazon S3 bucket.

Contents

Id

The ID that identifies the analytics configuration.

Type: String

Required: Yes

StorageClassAnalysis

Contains data related to access patterns to be collected and made available to analyze the tradeoffs between different storage classes.

Type: StorageClassAnalysis data type

Required: Yes

Filter

The filter used to describe a set of objects for analyses. A filter must have exactly one prefix, one tag, or one conjunction (AnalyticsAndOperator). If no filter is provided, all objects will be considered in any analysis.

Type: AnalyticsFilter data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AnalyticsExportDestination

Service: Amazon S3

Where to publish the analytics results.

Contents

S3BucketDestination

A destination signifying output to an S3 bucket.

Type: AnalyticsS3BucketDestination data type

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AnalyticsFilter

Service: Amazon S3

The filter used to describe a set of objects for analyses. A filter must have exactly one prefix, one tag, or one conjunction (AnalyticsAndOperator). If no filter is provided, all objects will be considered in any analysis.

Contents

And

A conjunction (logical AND) of predicates, which is used in evaluating an analytics filter. The operator must have at least two predicates.

Type: AnalyticsAndOperator data type

Required: No

Prefix

The prefix to use when evaluating an analytics filter.

Type: String

Required: No

Tag

The tag to use when evaluating an analytics filter.

Type: Tag data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AnalyticsS3BucketDestination

Service: Amazon S3

Contains information about where to publish the analytics results.

Contents

Bucket

The Amazon Resource Name (ARN) of the bucket to which data is exported.

Type: String

Required: Yes

Format

Specifies the file format used when exporting data to Amazon S3.

Type: String

Valid Values: `CSV`

Required: Yes

BucketAccountId

The account ID that owns the destination S3 bucket. If no account ID is provided, the owner is not validated before exporting data.

> **Note**
>
> Although this value is optional, we strongly recommend that you set it to help prevent problems if the destination bucket ownership changes.

Type: String

Required: No

Prefix

The prefix to use when exporting data. The prefix is prepended to all results.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Bucket

Service: Amazon S3

In terms of implementation, a Bucket is a resource.

Contents

BucketArn

The Amazon Resource Name (ARN) of the S3 bucket. ARNs uniquely identify AWS resources across all of AWS.

> **Note**
>
> This parameter is only supported for S3 directory buckets. For more information, see Using tags with directory buckets.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 128.

Pattern: `arn:[^:]+:(s3|s3express):.*`

Required: No

BucketRegion

`BucketRegion` indicates the AWS region where the bucket is located. If the request contains at least one valid parameter, it is included in the response.

Type: String

Required: No

CreationDate

Date the bucket was created. This date can change when making changes to your bucket, such as editing its bucket policy.

Type: Timestamp

Required: No

Name

The name of the bucket.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

BucketInfo

Service: Amazon S3

Specifies the information about the bucket that will be created. For more information about directory buckets, see Directory buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is only supported by directory buckets.

Contents

DataRedundancy

The number of Zone (Availability Zone or Local Zone) that's used for redundancy for the bucket.

Type: String

Valid Values: `SingleAvailabilityZone | SingleLocalZone`

Required: No

Type

The type of bucket.

Type: String

Valid Values: `Directory`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

BucketLifecycleConfiguration

Service: Amazon S3

Specifies the lifecycle configuration for objects in an Amazon S3 bucket. For more information, see Object Lifecycle Management in the *Amazon S3 User Guide*.

Contents

Rules

A lifecycle rule for individual objects in an Amazon S3 bucket.

Type: Array of LifecycleRule data types

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

BucketLoggingStatus

Service: Amazon S3

Container for logging status information.

Contents

LoggingEnabled

Describes where logs are stored and the prefix that Amazon S3 assigns to all log object keys for a bucket. For more information, see PUT Bucket logging in the *Amazon S3 API Reference*.

Type: LoggingEnabled data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Checksum

Service: Amazon S3

Contains all the possible checksum or digest values for an object.

Contents

ChecksumCRC32

The Base64 encoded, 32-bit `CRC32 checksum` of the object. This checksum is only be present if the checksum was uploaded with the object. When you use an API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumCRC32C

The Base64 encoded, 32-bit `CRC32C` checksum of the object. This checksum is only present if the checksum was uploaded with the object. When you use an API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumCRC64NVME

The Base64 encoded, 64-bit `CRC64NVME` checksum of the object. This checksum is present if the object was uploaded with the `CRC64NVME` checksum algorithm, or if the object was uploaded without a checksum (and Amazon S3 added the default checksum, `CRC64NVME`, to the uploaded object). For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumSHA1

The Base64 encoded, 160-bit SHA1 digest of the object. This will only be present if the object was uploaded with the object. When you use the API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumSHA256

The Base64 encoded, 256-bit SHA256 digest of the object. This will only be present if the object was uploaded with the object. When you use an API operation on an object that was uploaded using multipart uploads, this value may not be a direct checksum value of the full object. Instead, it's a calculation based on the checksum values of each individual part. For more information about how checksums are calculated with multipart uploads, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumType

The checksum type that is used to calculate the object's checksum value. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Valid Values: `COMPOSITE | FULL_OBJECT`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

CloudFunctionConfiguration

Service: Amazon S3

Container for specifying the AWS Lambda notification configuration.

Contents

CloudFunction

Lambda cloud function ARN that Amazon S3 can invoke when it detects events of the specified type.

Type: String

Required: No

Event

This member has been deprecated.

The bucket event for which to send notifications.

Type: String

Valid Values: `s3:ReducedRedundancyLostObject | s3:ObjectCreated:* | s3:ObjectCreated:Put | s3:ObjectCreated:Post | s3:ObjectCreated:Copy | s3:ObjectCreated:CompleteMultipartUpload | s3:ObjectRemoved:* | s3:ObjectRemoved:Delete | s3:ObjectRemoved:DeleteMarkerCreated | s3:ObjectRestore:* | s3:ObjectRestore:Post | s3:ObjectRestore:Completed | s3:Replication:* | s3:Replication:OperationFailedReplication | s3:Replication:OperationNotTracked | s3:Replication:OperationMissedThreshold | s3:Replication:OperationReplicatedAfterThreshold | s3:ObjectRestore:Delete | s3:LifecycleTransition | s3:IntelligentTiering | s3:ObjectAcl:Put | s3:LifecycleExpiration:* | s3:LifecycleExpiration:Delete | s3:LifecycleExpiration:DeleteMarkerCreated | s3:ObjectTagging:* | s3:ObjectTagging:Put | s3:ObjectTagging:Delete`

Required: No

Events

Bucket events for which to send notifications.

Type: Array of strings

Valid Values: `s3:ReducedRedundancyLostObject | s3:ObjectCreated:* | s3:ObjectCreated:Put | s3:ObjectCreated:Post | s3:ObjectCreated:Copy | s3:ObjectCreated:CompleteMultipartUpload | s3:ObjectRemoved:* | s3:ObjectRemoved:Delete | s3:ObjectRemoved:DeleteMarkerCreated | s3:ObjectRestore:* | s3:ObjectRestore:Post | s3:ObjectRestore:Completed | s3:Replication:* | s3:Replication:OperationFailedReplication | s3:Replication:OperationNotTracked | s3:Replication:OperationMissedThreshold | s3:Replication:OperationReplicatedAfterThreshold | s3:ObjectRestore:Delete | s3:LifecycleTransition | s3:IntelligentTiering | s3:ObjectAcl:Put | s3:LifecycleExpiration:* | s3:LifecycleExpiration:Delete | s3:LifecycleExpiration:DeleteMarkerCreated | s3:ObjectTagging:* | s3:ObjectTagging:Put | s3:ObjectTagging:Delete`

Required: No

Id

An optional unique identifier for configurations in a notification configuration. If you don't provide one, Amazon S3 will assign an ID.

Type: String

Required: No

InvocationRole

The role supporting the invocation of the Lambda function

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

CommonPrefix

Service: Amazon S3

Container for all (if there are any) keys between Prefix and the next occurrence of the string specified by a delimiter. CommonPrefixes lists keys that act like subdirectories in the directory specified by Prefix. For example, if the prefix is notes/ and the delimiter is a slash (/) as in notes/summer/july, the common prefix is notes/summer/.

Contents

Prefix

Container for the specified common prefix.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

CompletedMultipartUpload

Service: Amazon S3

The container for the completed multipart upload details.

Contents

Parts

Array of CompletedPart data types.

If you do not supply a valid `Part` with your request, the service sends back an HTTP 400 response.

Type: Array of CompletedPart data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

CompletedPart

Service: Amazon S3

Details of the parts that were uploaded.

Contents

ChecksumCRC32

The Base64 encoded, 32-bit `CRC32` checksum of the part. This checksum is present if the multipart upload request was created with the `CRC32` checksum algorithm. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumCRC32C

The Base64 encoded, 32-bit `CRC32C` checksum of the part. This checksum is present if the multipart upload request was created with the `CRC32C` checksum algorithm. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumCRC64NVME

The Base64 encoded, 64-bit `CRC64NVME` checksum of the part. This checksum is present if the multipart upload request was created with the `CRC64NVME` checksum algorithm to the uploaded object). For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumSHA1

The Base64 encoded, 160-bit `SHA1` checksum of the part. This checksum is present if the multipart upload request was created with the `SHA1` checksum algorithm. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumSHA256

The Base64 encoded, 256-bit SHA256 checksum of the part. This checksum is present if the multipart upload request was created with the SHA256 checksum algorithm. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ETag

Entity tag returned when the part was uploaded.

Type: String

Required: No

PartNumber

Part number that identifies the part. This is a positive integer between 1 and 10,000.

> **Note**
>
> - **General purpose buckets** - In `CompleteMultipartUpload`, when a additional checksum (including `x-amz-checksum-crc32`, `x-amz-checksum-crc32c`, `x-amz-checksum-sha1`, or `x-amz-checksum-sha256`) is applied to each part, the `PartNumber` must start at 1 and the part numbers must be consecutive. Otherwise, Amazon S3 generates an HTTP `400 Bad Request` status code and an `InvalidPartOrder` error code.
> - **Directory buckets** - In `CompleteMultipartUpload`, the `PartNumber` must start at 1 and the part numbers must be consecutive.

Type: Integer

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Condition

Service: Amazon S3

A container for describing a condition that must be met for the specified redirect to apply. For example, 1. If request is for pages in the `/docs` folder, redirect to the `/documents` folder. 2. If request results in HTTP error 4xx, redirect request to another host where you might process the error.

Contents

HttpErrorCodeReturnedEquals

The HTTP error code when the redirect is applied. In the event of an error, if the error code equals this value, then the specified redirect is applied. Required when parent element `Condition` is specified and sibling `KeyPrefixEquals` is not specified. If both are specified, then both must be true for the redirect to be applied.

Type: String

Required: No

KeyPrefixEquals

The object key name prefix when the redirect is applied. For example, to redirect requests for `ExamplePage.html`, the key prefix will be `ExamplePage.html`. To redirect request for all pages with the prefix `docs/`, the key prefix will be `/docs`, which identifies all objects in the `docs/` folder. Required when the parent element `Condition` is specified and sibling `HttpErrorCodeReturnedEquals` is not specified. If both conditions are specified, both must be true for the redirect to be applied.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ContinuationEvent

Service: Amazon S3

Contents

The members of this exception structure are context-dependent.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

CopyObjectResult

Service: Amazon S3

Container for all response elements.

Contents

ChecksumCRC32

The Base64 encoded, 32-bit `CRC32` checksum of the object. This checksum is only present if the object was uploaded with the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumCRC32C

The Base64 encoded, 32-bit `CRC32C` checksum of the object. This will only be present if the object was uploaded with the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumCRC64NVME

The Base64 encoded, 64-bit `CRC64NVME` checksum of the object. This checksum is present if the object being copied was uploaded with the `CRC64NVME` checksum algorithm, or if the object was uploaded without a checksum (and Amazon S3 added the default checksum, `CRC64NVME`, to the uploaded object). For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumSHA1

The Base64 encoded, 160-bit `SHA1` digest of the object. This will only be present if the object was uploaded with the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumSHA256

The Base64 encoded, 256-bit SHA256 digest of the object. This will only be present if the object was uploaded with the object. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumType

The checksum type that is used to calculate the object's checksum value. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Valid Values: `COMPOSITE | FULL_OBJECT`

Required: No

ETag

Returns the ETag of the new object. The ETag reflects only changes to the contents of an object, not its metadata.

Type: String

Required: No

LastModified

Creation date of the object.

Type: Timestamp

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

CopyPartResult

Service: Amazon S3

Container for all response elements.

Contents

ChecksumCRC32

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 32-bit `CRC32` checksum of the part. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumCRC32C

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 32-bit `CRC32C` checksum of the part. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumCRC64NVME

The Base64 encoded, 64-bit `CRC64NVME` checksum of the part. This checksum is present if the multipart upload request was created with the `CRC64NVME` checksum algorithm to the uploaded object). For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumSHA1

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 160-bit `SHA1` checksum of the part. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumSHA256

This header can be used as a data integrity check to verify that the data received is the same data that was originally sent. This header specifies the Base64 encoded, 256-bit SHA256 checksum of the part. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ETag

Entity tag of the object.

Type: String

Required: No

LastModified

Date and time at which the object was uploaded.

Type: Timestamp

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

CORSConfiguration

Service: Amazon S3

Describes the cross-origin access configuration for objects in an Amazon S3 bucket. For more information, see Enabling Cross-Origin Resource Sharing in the *Amazon S3 User Guide*.

Contents

CORSRules

A set of origins and methods (cross-origin access that you want to allow). You can add up to 100 rules to the configuration.

Type: Array of CORSRule data types

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

CORSRule

Service: Amazon S3

Specifies a cross-origin access rule for an Amazon S3 bucket.

Contents

AllowedMethods

An HTTP method that you allow the origin to execute. Valid values are `GET`, `PUT`, `HEAD`, `POST`, and `DELETE`.

Type: Array of strings

Required: Yes

AllowedOrigins

One or more origins you want customers to be able to access the bucket from.

Type: Array of strings

Required: Yes

AllowedHeaders

Headers that are specified in the `Access-Control-Request-Headers` header. These headers are allowed in a preflight OPTIONS request. In response to any preflight OPTIONS request, Amazon S3 returns any requested headers that are allowed.

Type: Array of strings

Required: No

ExposeHeaders

One or more headers in the response that you want customers to be able to access from their applications (for example, from a JavaScript `XMLHttpRequest` object).

Type: Array of strings

Required: No

ID

Unique identifier for the rule. The value cannot be longer than 255 characters.

Type: String

Required: No

MaxAgeSeconds

The time in seconds that your browser is to cache the preflight response for the specified resource.

Type: Integer

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

CreateBucketConfiguration

Service: Amazon S3

The configuration information for the bucket.

Contents

Bucket

Specifies the information about the bucket that will be created.

> **Note**
>
> This functionality is only supported by directory buckets.

Type: BucketInfo data type

Required: No

Location

Specifies the location where the bucket will be created.

Directory buckets - The location type is Availability Zone or Local Zone. To use the Local Zone location type, your account must be enabled for Local Zones. Otherwise, you get an HTTP `403 Forbidden` error with the error code `AccessDenied`. To learn more, see Enable accounts for Local Zones in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is only supported by directory buckets.

Type: LocationInfo data type

Required: No

LocationConstraint

Specifies the Region where the bucket will be created. You might choose a Region to optimize latency, minimize costs, or address regulatory requirements. For example, if you reside in Europe, you will probably find it advantageous to create buckets in the Europe (Ireland) Region.

If you don't specify a Region, the bucket is created in the US East (N. Virginia) Region (us-east-1) by default. Configurations using the value EU will create a bucket in `eu-west-1`.

For a list of the valid values for all of the AWS Regions, see Regions and Endpoints.

> **Note**
>
> This functionality is not supported for directory buckets.

Type: String

Valid Values: `af-south-1 | ap-east-1 | ap-northeast-1 | ap-northeast-2 | ap-northeast-3 | ap-south-1 | ap-south-2 | ap-southeast-1 | ap-southeast-2 | ap-southeast-3 | ap-southeast-4 | ap-southeast-5 | ca-central-1 | cn-north-1 | cn-northwest-1 | EU | eu-central-1 | eu-central-2 | eu-north-1 | eu-south-1 | eu-south-2 | eu-west-1 | eu-west-2 | eu-west-3 | il-central-1 | me-central-1 | me-south-1 | sa-east-1 | us-east-2 | us-gov-east-1 | us-gov-west-1 | us-west-1 | us-west-2`

Required: No

Tags

An array of tags that you can apply to the bucket that you're creating. Tags are key-value pairs of metadata used to categorize and organize your buckets, track costs, and control access.

> **Note**
>
> - This parameter is only supported for S3 directory buckets. For more information, see Using tags with directory buckets.
> - You must have the `s3express:TagResource` permission to create a directory bucket with tags.

Type: Array of Tag data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

CSVInput

Service: Amazon S3

Describes how an uncompressed comma-separated values (CSV)-formatted input object is formatted.

Contents

AllowQuotedRecordDelimiter

Specifies that CSV field values may contain quoted record delimiters and such records should be allowed. Default value is FALSE. Setting this value to TRUE may lower performance.

Type: Boolean

Required: No

Comments

A single character used to indicate that a row should be ignored when the character is present at the start of that row. You can specify any character to indicate a comment line. The default character is #.

Default: #

Type: String

Required: No

FieldDelimiter

A single character used to separate individual fields in a record. You can specify an arbitrary delimiter.

Type: String

Required: No

FileHeaderInfo

Describes the first line of input. Valid values are:

- `NONE`: First line is not a header.

- `IGNORE`: First line is a header, but you can't use the header values to indicate the column in an expression. You can use column position (such as _1, _2, …) to indicate the column (`SELECT s._1 FROM OBJECT s`).
- `Use`: First line is a header, and you can use the header value to identify a column in an expression (`SELECT "name" FROM OBJECT`).

Type: String

Valid Values: `USE | IGNORE | NONE`

Required: No

QuoteCharacter

A single character used for escaping when the field delimiter is part of the value. For example, if the value is `a, b`, Amazon S3 wraps this field value in quotation marks, as follows: `" a , b "`.

Type: String

Default: `"`

Ancestors: `CSV`

Type: String

Required: No

QuoteEscapeCharacter

A single character used for escaping the quotation mark character inside an already escaped value. For example, the value `""" a , b """` is parsed as `" a , b "`.

Type: String

Required: No

RecordDelimiter

A single character used to separate individual records in the input. Instead of the default value, you can specify an arbitrary delimiter.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

CSVOutput

Service: Amazon S3

Describes how uncompressed comma-separated values (CSV)-formatted results are formatted.

Contents

FieldDelimiter

The value used to separate individual fields in a record. You can specify an arbitrary delimiter.

Type: String

Required: No

QuoteCharacter

A single character used for escaping when the field delimiter is part of the value. For example, if the value is `a, b`, Amazon S3 wraps this field value in quotation marks, as follows: `" a , b "`.

Type: String

Required: No

QuoteEscapeCharacter

The single character used for escaping the quote character inside an already escaped value.

Type: String

Required: No

QuoteFields

Indicates whether to use quotation marks around output fields.

- `ALWAYS`: Always use quotation marks for output fields.
- `ASNEEDED`: Use quotation marks for output fields when needed.

Type: String

Valid Values: `ALWAYS | ASNEEDED`

Required: No

RecordDelimiter

A single character used to separate individual records in the output. Instead of the default value, you can specify an arbitrary delimiter.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

DefaultRetention

Service: Amazon S3

The container element for optionally specifying the default Object Lock retention settings for new objects placed in the specified bucket.

> **Note**
>
> - The `DefaultRetention` settings require both a mode and a period.
> - The `DefaultRetention` period can be either `Days` or `Years` but you must select one. You cannot specify `Days` and `Years` at the same time.

Contents

Days

The number of days that you want to specify for the default retention period. Must be used with `Mode`.

Type: Integer

Required: No

Mode

The default Object Lock retention mode you want to apply to new objects placed in the specified bucket. Must be used with either `Days` or `Years`.

Type: String

Valid Values: `GOVERNANCE | COMPLIANCE`

Required: No

Years

The number of years that you want to specify for the default retention period. Must be used with `Mode`.

Type: Integer

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Delete

Service: Amazon S3

Container for the objects to delete.

Contents

Objects

The object to delete.

> **Note**
>
> **Directory buckets** - For directory buckets, an object that's composed entirely of whitespace characters is not supported by the `DeleteObjects` API operation. The request will receive a `400 Bad Request` error and none of the objects in the request will be deleted.

Type: Array of ObjectIdentifier data types

Required: Yes

Quiet

Element to enable quiet mode for the request. When you add this element, you must set its value to `true`.

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

DeletedObject

Service: Amazon S3

Information about the deleted object.

Contents

DeleteMarker

Indicates whether the specified object version that was permanently deleted was (true) or was not (false) a delete marker before deletion. In a simple DELETE, this header indicates whether (true) or not (false) the current version of the object is a delete marker. To learn more about delete markers, see Working with delete markers.

> **Note**
> This functionality is not supported for directory buckets.

Type: Boolean

Required: No

DeleteMarkerVersionId

The version ID of the delete marker created as a result of the DELETE operation. If you delete a specific object version, the value returned by this header is the version ID of the object version deleted.

> **Note**
> This functionality is not supported for directory buckets.

Type: String

Required: No

Key

The name of the deleted object.

Type: String

Length Constraints: Minimum length of 1.

Required: No

VersionId

The version ID of the deleted object.

> **Note**
>
> This functionality is not supported for directory buckets.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

DeleteMarkerEntry

Service: Amazon S3

Information about the delete marker.

Contents

IsLatest

Specifies whether the object is (true) or is not (false) the latest version of an object.

Type: Boolean

Required: No

Key

The object key.

Type: String

Length Constraints: Minimum length of 1.

Required: No

LastModified

Date and time when the object was last modified.

Type: Timestamp

Required: No

Owner

The account that created the delete marker.

Type: Owner data type

Required: No

VersionId

Version ID of an object.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

DeleteMarkerReplication

Service: Amazon S3

Specifies whether Amazon S3 replicates delete markers. If you specify a `Filter` in your replication configuration, you must also include a `DeleteMarkerReplication` element. If your `Filter` includes a `Tag` element, the `DeleteMarkerReplication` `Status` must be set to Disabled, because Amazon S3 does not support replicating delete markers for tag-based rules. For an example configuration, see Basic Rule Configuration.

For more information about delete marker replication, see Basic Rule Configuration.

> **Note**
>
> If you are using an earlier version of the replication configuration, Amazon S3 handles replication of delete markers differently. For more information, see Backward Compatibility.

Contents

Status

Indicates whether to replicate delete markers.

> **Note**
>
> Indicates whether to replicate delete markers.

Type: String

Valid Values: `Enabled | Disabled`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Destination

Service: Amazon S3

Specifies information about where to publish analysis or configuration results for an Amazon S3 bucket and S3 Replication Time Control (S3 RTC).

Contents

Bucket

The Amazon Resource Name (ARN) of the bucket where you want Amazon S3 to store the results.

Type: String

Required: Yes

AccessControlTranslation

Specify this only in a cross-account scenario (where source and destination bucket owners are not the same), and you want to change replica ownership to the AWS account that owns the destination bucket. If this is not specified in the replication configuration, the replicas are owned by same AWS account that owns the source object.

Type: AccessControlTranslation data type

Required: No

Account

Destination bucket owner account ID. In a cross-account scenario, if you direct Amazon S3 to change replica ownership to the AWS account that owns the destination bucket by specifying the `AccessControlTranslation` property, this is the account ID of the destination bucket owner. For more information, see Replication Additional Configuration: Changing the Replica Owner in the *Amazon S3 User Guide*.

Type: String

Required: No

EncryptionConfiguration

A container that provides information about encryption. If `SourceSelectionCriteria` is specified, you must specify this element.

Type: EncryptionConfiguration data type

Required: No

Metrics

A container specifying replication metrics-related settings enabling replication metrics and events.

Type: Metrics data type

Required: No

ReplicationTime

A container specifying S3 Replication Time Control (S3 RTC), including whether S3 RTC is enabled and the time when all objects and operations on objects must be replicated. Must be specified together with a `Metrics` block.

Type: ReplicationTime data type

Required: No

StorageClass

The storage class to use when replicating objects, such as S3 Standard or reduced redundancy. By default, Amazon S3 uses the storage class of the source object to create the object replica.

For valid values, see the `StorageClass` element of the PUT Bucket replication action in the *Amazon S3 API Reference*.

`FSX_OPENZFS` is not an accepted value when replicating objects.

Type: String

Valid Values: `STANDARD | REDUCED_REDUNDANCY | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | GLACIER | DEEP_ARCHIVE | OUTPOSTS | GLACIER_IR | SNOW | EXPRESS_ONEZONE | FSX_OPENZFS`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

DestinationResult

Service: Amazon S3

The destination information for the S3 Metadata configuration.

Contents

TableBucketArn

The Amazon Resource Name (ARN) of the table bucket where the metadata configuration is stored.

Type: String

Required: No

TableBucketType

The type of the table bucket where the metadata configuration is stored. The `aws` value indicates an AWS managed table bucket, and the `customer` value indicates a customer-managed table bucket. V2 metadata configurations are stored in AWS managed table buckets, and V1 metadata configurations are stored in customer-managed table buckets.

Type: String

Valid Values: `aws | customer`

Required: No

TableNamespace

The namespace in the table bucket where the metadata tables for a metadata configuration are stored.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Encryption

Service: Amazon S3

Contains the type of server-side encryption used.

Contents

EncryptionType

The server-side encryption algorithm used when storing job results in Amazon S3 (for example, AES256, `aws:kms`).

Type: String

Valid Values: `AES256 | aws:fsx | aws:kms | aws:kms:dsse`

Required: Yes

KMSContext

If the encryption type is `aws:kms`, this optional value can be used to specify the encryption context for the restore results.

Type: String

Required: No

KMSKeyId

If the encryption type is `aws:kms`, this optional value specifies the ID of the symmetric encryption customer managed key to use for encryption of job results. Amazon S3 only supports symmetric encryption KMS keys. For more information, see Asymmetric keys in AWS KMS in the *AWS Key Management Service Developer Guide*.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

EncryptionConfiguration

Service: Amazon S3

Specifies encryption-related information for an Amazon S3 bucket that is a destination for replicated objects.

> **Note**
>
> If you're specifying a customer managed KMS key, we recommend using a fully qualified KMS key ARN. If you use a KMS key alias instead, then AWS KMS resolves the key within the requester's account. This behavior can result in data that's encrypted with a KMS key that belongs to the requester, and not the bucket owner.

Contents

ReplicaKmsKeyID

Specifies the ID (Key ARN or Alias ARN) of the customer managed AWS KMS key stored in AWS Key Management Service (KMS) for the destination bucket. Amazon S3 uses this key to encrypt replica objects. Amazon S3 only supports symmetric encryption KMS keys. For more information, see Asymmetric keys in AWS KMS in the *AWS Key Management Service Developer Guide*.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

EndEvent

Service: Amazon S3

A message that indicates the request is complete and no more messages will be sent. You should not assume that the request is complete until the client receives an `EndEvent`.

Contents

The members of this exception structure are context-dependent.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Error

Service: Amazon S3

Container for all error elements.

Contents

Code

The error code is a string that uniquely identifies an error condition. It is meant to be read and understood by programs that detect and handle errors by type. The following is a list of Amazon S3 error codes. For more information, see Error responses.

- - *Code:* AccessDenied
  - *Description:* Access Denied
  - *HTTP Status Code:* 403 Forbidden
  - *SOAP Fault Code Prefix:* Client
- - *Code:* AccountProblem
  - *Description:* There is a problem with your AWS account that prevents the action from completing successfully. Contact AWS Support for further assistance.
  - *HTTP Status Code:* 403 Forbidden
  - *SOAP Fault Code Prefix:* Client
- - *Code:* AllAccessDisabled
  - *Description:* All access to this Amazon S3 resource has been disabled. Contact AWS Support for further assistance.
  - *HTTP Status Code:* 403 Forbidden
  - *SOAP Fault Code Prefix:* Client
- - *Code:* AmbiguousGrantByEmailAddress
  - *Description:* The email address you provided is associated with more than one account.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* AuthorizationHeaderMalformed
  - *Description:* The authorization header you provided is invalid.
  - *HTTP Status Code:* 400 Bad Request
  - *HTTP Status Code:* N/A

- - *Code:* BadDigest
  - *Description:* The Content-MD5 you specified did not match what we received.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* BucketAlreadyExists
  - *Description:* The requested bucket name is not available. The bucket namespace is shared by all users of the system. Please select a different name and try again.
  - *HTTP Status Code:* 409 Conflict
  - *SOAP Fault Code Prefix:* Client
- - *Code:* BucketAlreadyOwnedByYou
  - *Description:* The bucket you tried to create already exists, and you own it. Amazon S3 returns this error in all AWS Regions except in the North Virginia Region. For legacy compatibility, if you re-create an existing bucket that you already own in the North Virginia Region, Amazon S3 returns 200 OK and resets the bucket access control lists (ACLs).
  - *Code:* 409 Conflict (in all Regions except the North Virginia Region)
  - *SOAP Fault Code Prefix:* Client
- - *Code:* BucketNotEmpty
  - *Description:* The bucket you tried to delete is not empty.
  - *HTTP Status Code:* 409 Conflict
  - *SOAP Fault Code Prefix:* Client
- - *Code:* CredentialsNotSupported
  - *Description:* This request does not support credentials.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* CrossLocationLoggingProhibited
  - *Description:* Cross-location logging not allowed. Buckets in one geographic location cannot log information to a bucket in another location.
  - *HTTP Status Code:* 403 Forbidden
  - *SOAP Fault Code Prefix:* Client
- - *Code:* EntityTooSmall
  - *Description:* Your proposed upload is smaller than the minimum allowed object size.

  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* EntityTooLarge
  - *Description:* Your proposed upload exceeds the maximum allowed object size.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* ExpiredToken
  - *Description:* The provided token has expired.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* IllegalVersioningConfigurationException
  - *Description:* Indicates that the versioning configuration specified in the request is invalid.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* IncompleteBody
  - *Description:* You did not provide the number of bytes specified by the Content-Length HTTP header
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* IncorrectNumberOfFilesInPostRequest
  - *Description:* POST requires exactly one file upload per request.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* InlineDataTooLarge
  - *Description:* Inline data exceeds the maximum allowed size.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* InternalError
  - *Description:* We encountered an internal error. Please try again.

  - *HTTP Status Code:* 500 Internal Server Error

  - *SOAP Fault Code Prefix:* Server
- - *Code:* InvalidAccessKeyId
  - *Description:* The AWS access key ID you provided does not exist in our records.
  - *HTTP Status Code:* 403 Forbidden
  - *SOAP Fault Code Prefix:* Client
- - *Code:* InvalidAddressingHeader
  - *Description:* You must specify the Anonymous role.
  - *HTTP Status Code:* N/A
  - *SOAP Fault Code Prefix:* Client
- - *Code:* InvalidArgument
  - *Description:* Invalid Argument
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* InvalidBucketName
  - *Description:* The specified bucket is not valid.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* InvalidBucketState
  - *Description:* The request is not valid with the current state of the bucket.
  - *HTTP Status Code:* 409 Conflict
  - *SOAP Fault Code Prefix:* Client
- - *Code:* InvalidDigest
  - *Description:* The Content-MD5 you specified is not valid.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* InvalidEncryptionAlgorithmError
  - *Description:* The encryption request you specified is not valid. The valid value is AES256.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client

- - *Code:* InvalidLocationConstraint

- *Description:* The specified location constraint is not valid. For more information about Regions, see How to Select a Region for Your Buckets.
- *HTTP Status Code:* 400 Bad Request
- *SOAP Fault Code Prefix:* Client

- *Code:* InvalidObjectState
- *Description:* The action is not valid for the current state of the object.
- *HTTP Status Code:* 403 Forbidden
- *SOAP Fault Code Prefix:* Client

- *Code:* InvalidPart
- *Description:* One or more of the specified parts could not be found. The part might not have been uploaded, or the specified entity tag might not have matched the part's entity tag.
- *HTTP Status Code:* 400 Bad Request
- *SOAP Fault Code Prefix:* Client

- *Code:* InvalidPartOrder
- *Description:* The list of parts was not in ascending order. Parts list must be specified in order by part number.
- *HTTP Status Code:* 400 Bad Request
- *SOAP Fault Code Prefix:* Client

- *Code:* InvalidPayer
- *Description:* All access to this object has been disabled. Please contact AWS Support for further assistance.
- *HTTP Status Code:* 403 Forbidden
- *SOAP Fault Code Prefix:* Client

- *Code:* InvalidPolicyDocument
- *Description:* The content of the form does not meet the conditions specified in the policy document.
- *HTTP Status Code:* 400 Bad Request
- *SOAP Fault Code Prefix:* Client

- *Code:* InvalidRange
- *Description:* The requested range cannot be satisfied.

  - *HTTP Status Code:* 416 Requested Range Not Satisfiable
  - *SOAP Fault Code Prefix:* Client
- - *Code:* InvalidRequest
  - *Description:* Please use `AWS4-HMAC-SHA256`.
  - *HTTP Status Code:* 400 Bad Request
  - *Code:* N/A
- - *Code:* InvalidRequest
  - *Description:* SOAP requests must be made over an HTTPS connection.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* InvalidRequest
  - *Description:* Amazon S3 Transfer Acceleration is not supported for buckets with non-DNS compliant names.
  - *HTTP Status Code:* 400 Bad Request
  - *Code:* N/A
- - *Code:* InvalidRequest
  - *Description:* Amazon S3 Transfer Acceleration is not supported for buckets with periods (.) in their names.
  - *HTTP Status Code:* 400 Bad Request
  - *Code:* N/A
- - *Code:* InvalidRequest
  - *Description:* Amazon S3 Transfer Accelerate endpoint only supports virtual style requests.
  - *HTTP Status Code:* 400 Bad Request
  - *Code:* N/A
- - *Code:* InvalidRequest
  - *Description:* Amazon S3 Transfer Accelerate is not configured on this bucket.
  - *HTTP Status Code:* 400 Bad Request
  - *Code:* N/A
- - *Code:* InvalidRequest
  - *Description:* Amazon S3 Transfer Accelerate is disabled on this bucket.
  - *HTTP Status Code:* 400 Bad Request

  - *Code:* N/A
- - *Code:* InvalidRequest
  - *Description:* Amazon S3 Transfer Acceleration is not supported on this bucket. Contact AWS Support for more information.
  - *HTTP Status Code:* 400 Bad Request
  - *Code:* N/A
- - *Code:* InvalidRequest
  - *Description:* Amazon S3 Transfer Acceleration cannot be enabled on this bucket. Contact AWS Support for more information.
  - *HTTP Status Code:* 400 Bad Request
  - *Code:* N/A
- - *Code:* InvalidSecurity
  - *Description:* The provided security credentials are not valid.
  - *HTTP Status Code:* 403 Forbidden
  - *SOAP Fault Code Prefix:* Client
- - *Code:* InvalidSOAPRequest
  - *Description:* The SOAP request body is invalid.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* InvalidStorageClass
  - *Description:* The storage class you specified is not valid.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* InvalidTargetBucketForLogging
  - *Description:* The target bucket for logging does not exist, is not owned by you, or does not have the appropriate grants for the log-delivery group.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* InvalidToken
  - *Description:* The provided token is malformed or otherwise invalid.
  - *HTTP Status Code:* 400 Bad Request

  - *SOAP Fault Code Prefix:* Client
- - *Code:* InvalidURI
  - *Description:* Couldn't parse the specified URI.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* KeyTooLongError
  - *Description:* Your key is too long.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* MalformedACLError
  - *Description:* The XML you provided was not well-formed or did not validate against our published schema.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* MalformedPOSTRequest
  - *Description:* The body of your POST request is not well-formed multipart/form-data.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* MalformedXML
  - *Description:* This happens when the user sends malformed XML (XML that doesn't conform to the published XSD) for the configuration. The error message is, "The XML you provided was not well-formed or did not validate against our published schema."
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* MaxMessageLengthExceeded
  - *Description:* Your request was too big.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* MaxPostPreDataLengthExceededError
  - *Description:* Your POST request fields preceding the upload file were too large.
  - *HTTP Status Code:* 400 Bad Request

- *SOAP Fault Code Prefix:* Client
- • *Code:* MetadataTooLarge
  - *Description:* Your metadata headers exceed the maximum allowed metadata size.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- • *Code:* MethodNotAllowed
  - *Description:* The specified method is not allowed against this resource.
  - *HTTP Status Code:* 405 Method Not Allowed
  - *SOAP Fault Code Prefix:* Client
- • *Code:* MissingAttachment
  - *Description:* A SOAP attachment was expected, but none were found.
  - *HTTP Status Code:* N/A
  - *SOAP Fault Code Prefix:* Client
- • *Code:* MissingContentLength
  - *Description:* You must provide the Content-Length HTTP header.
  - *HTTP Status Code:* 411 Length Required
  - *SOAP Fault Code Prefix:* Client
- • *Code:* MissingRequestBodyError
  - *Description:* This happens when the user sends an empty XML document as a request. The error message is, "Request body is empty."
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- • *Code:* MissingSecurityElement
  - *Description:* The SOAP 1.1 request is missing a security element.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- • *Code:* MissingSecurityHeader
  - *Description:* Your request is missing a required header.
  - *HTTP Status Code:* 400 Bad Request

- *SOAP Fault Code Prefix:* Client

- - *Code:* NoLoggingStatusForKey
  - *Description:* There is no such thing as a logging status subresource for a key.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- - *Code:* NoSuchBucket
  - *Description:* The specified bucket does not exist.
  - *HTTP Status Code:* 404 Not Found
  - *SOAP Fault Code Prefix:* Client
- - *Code:* NoSuchBucketPolicy
  - *Description:* The specified bucket does not have a bucket policy.
  - *HTTP Status Code:* 404 Not Found
  - *SOAP Fault Code Prefix:* Client
- - *Code:* NoSuchKey
  - *Description:* The specified key does not exist.
  - *HTTP Status Code:* 404 Not Found
  - *SOAP Fault Code Prefix:* Client
- - *Code:* NoSuchLifecycleConfiguration
  - *Description:* The lifecycle configuration does not exist.
  - *HTTP Status Code:* 404 Not Found
  - *SOAP Fault Code Prefix:* Client
- - *Code:* NoSuchUpload
  - *Description:* The specified multipart upload does not exist. The upload ID might be invalid, or the multipart upload might have been aborted or completed.
  - *HTTP Status Code:* 404 Not Found
  - *SOAP Fault Code Prefix:* Client
- - *Code:* NoSuchVersion
  - *Description:* Indicates that the version ID specified in the request does not match an existing version.
  - *HTTP Status Code:* 404 Not Found
  - *SOAP Fault Code Prefix:* Client
- - *Code:* NotImplemented

- *Description:* A header you provided implies functionality that is not implemented.
- *HTTP Status Code:* 501 Not Implemented
- *SOAP Fault Code Prefix:* Server
- • *Code:* NotSignedUp
  - *Description:* Your account is not signed up for the Amazon S3 service. You must sign up before you can use Amazon S3. You can sign up at the following URL: Amazon S3
  - *HTTP Status Code:* 403 Forbidden
  - *SOAP Fault Code Prefix:* Client
- • *Code:* OperationAborted
  - *Description:* A conflicting conditional action is currently in progress against this resource. Try again.
  - *HTTP Status Code:* 409 Conflict
  - *SOAP Fault Code Prefix:* Client
- • *Code:* PermanentRedirect
  - *Description:* The bucket you are attempting to access must be addressed using the specified endpoint. Send all future requests to this endpoint.
  - *HTTP Status Code:* 301 Moved Permanently
  - *SOAP Fault Code Prefix:* Client
- • *Code:* PreconditionFailed
  - *Description:* At least one of the preconditions you specified did not hold.
  - *HTTP Status Code:* 412 Precondition Failed
  - *SOAP Fault Code Prefix:* Client
- • *Code:* Redirect
  - *Description:* Temporary redirect.
  - *HTTP Status Code:* 307 Moved Temporarily
  - *SOAP Fault Code Prefix:* Client
- • *Code:* RestoreAlreadyInProgress
  - *Description:* Object restore is already in progress.
  - *HTTP Status Code:* 409 Conflict
  - *SOAP Fault Code Prefix:* Client
- • *Code:* RequestIsNotMultiPartContent

- *Description:* Bucket POST must be of the enclosure-type multipart/form-data.
- *HTTP Status Code:* 400 Bad Request
- *SOAP Fault Code Prefix:* Client
- • *Code:* RequestTimeout
  - *Description:* Your socket connection to the server was not read from or written to within the timeout period.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- • *Code:* RequestTimeTooSkewed
  - *Description:* The difference between the request time and the server's time is too large.
  - *HTTP Status Code:* 403 Forbidden
  - *SOAP Fault Code Prefix:* Client
- • *Code:* RequestTorrentOfBucketError
  - *Description:* Requesting the torrent file of a bucket is not permitted.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- • *Code:* SignatureDoesNotMatch
  - *Description:* The request signature we calculated does not match the signature you provided. Check your AWS secret access key and signing method. For more information, see REST Authentication and SOAP Authentication for details.
  - *HTTP Status Code:* 403 Forbidden
  - *SOAP Fault Code Prefix:* Client
- • *Code:* ServiceUnavailable
  - *Description:* Service is unable to handle request.
  - *HTTP Status Code:* 503 Service Unavailable
  - *SOAP Fault Code Prefix:* Server
- • *Code:* SlowDown
  - *Description:* Reduce your request rate.
  - *HTTP Status Code:* 503 Slow Down
  - *SOAP Fault Code Prefix:* Server
- • *Code:* TemporaryRedirect

- *Description:* You are being redirected to the bucket while DNS updates.
- *HTTP Status Code:* 307 Moved Temporarily
- *SOAP Fault Code Prefix:* Client
- • *Code:* TokenRefreshRequired
  - *Description:* The provided token must be refreshed.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- • *Code:* TooManyBuckets
  - *Description:* You have attempted to create more buckets than allowed.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- • *Code:* UnexpectedContent
  - *Description:* This request does not support content.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- • *Code:* UnresolvableGrantByEmailAddress
  - *Description:* The email address you provided does not match any account on record.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client
- • *Code:* UserKeyMustBeSpecified
  - *Description:* The bucket POST must contain the specified field name. If it is specified, check the order of the fields.
  - *HTTP Status Code:* 400 Bad Request
  - *SOAP Fault Code Prefix:* Client

Type: String

Required: No

Key

The error key.

Type: String

Length Constraints: Minimum length of 1.

Required: No

Message

The error message contains a generic description of the error condition in English. It is intended for a human audience. Simple programs display the message directly to the end user if they encounter an error condition they don't know how or don't care to handle. Sophisticated programs with more exhaustive error handling and proper internationalization are more likely to ignore the error message.

Type: String

Required: No

VersionId

The version ID of the error.

> **Note**
>
> This functionality is not supported for directory buckets.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ErrorDetails

Service: Amazon S3

If an S3 Metadata V1 `CreateBucketMetadataTableConfiguration` or V2 `CreateBucketMetadataConfiguration` request succeeds, but S3 Metadata was unable to create the table, this structure contains the error code and error message.

> **Note**
>
> If you created your S3 Metadata configuration before July 15, 2025, we recommend that you delete and re-create your configuration by using CreateBucketMetadataConfiguration so that you can expire journal table records and create a live inventory table.

Contents

ErrorCode

If the V1 `CreateBucketMetadataTableConfiguration` request succeeds, but S3 Metadata was unable to create the table, this structure contains the error code. The possible error codes and error messages are as follows:

- `AccessDeniedCreatingResources` - You don't have sufficient permissions to create the required resources. Make sure that you have `s3tables:CreateNamespace`, `s3tables:CreateTable`, `s3tables:GetTable` and `s3tables:PutTablePolicy` permissions, and then try again. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `AccessDeniedWritingToTable` - Unable to write to the metadata table because of missing resource permissions. To fix the resource policy, Amazon S3 needs to create a new metadata table. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `DestinationTableNotFound` - The destination table doesn't exist. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `ServerInternalError` - An internal error has occurred. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.

- `TableAlreadyExists` - The table that you specified already exists in the table bucket's namespace. Specify a different table name. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `TableBucketNotFound` - The table bucket that you specified doesn't exist in this AWS Region and account. Create or choose a different table bucket. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.

If the V2 `CreateBucketMetadataConfiguration` request succeeds, but S3 Metadata was unable to create the table, this structure contains the error code. The possible error codes and error messages are as follows:

- `AccessDeniedCreatingResources` - You don't have sufficient permissions to create the required resources. Make sure that you have `s3tables:CreateTableBucket`, `s3tables:CreateNamespace`, `s3tables:CreateTable`, `s3tables:GetTable`, `s3tables:PutTablePolicy`, `kms:DescribeKey`, and `s3tables:PutTableEncryption` permissions. Additionally, ensure that the KMS key used to encrypt the table still exists, is active and has a resource policy granting access to the S3 service principals '`maintenance.s3tables.amazonaws.com`' and '`metadata.s3.amazonaws.com`'. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `AccessDeniedWritingToTable` - Unable to write to the metadata table because of missing resource permissions. To fix the resource policy, Amazon S3 needs to create a new metadata table. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `DestinationTableNotFound` - The destination table doesn't exist. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `ServerInternalError` - An internal error has occurred. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `JournalTableAlreadyExists` - A journal table already exists in the AWS managed table bucket's namespace. Delete the journal table, and then try again. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.

- `InventoryTableAlreadyExists` - An inventory table already exists in the AWS managed table bucket's namespace. Delete the inventory table, and then try again. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `JournalTableNotAvailable` - The journal table that the inventory table relies on has a `FAILED` status. An inventory table requires a journal table with an `ACTIVE` status. To create a new journal or inventory table, you must delete the metadata configuration for this bucket, along with any journal or inventory tables, and then create a new metadata configuration.
- `NoSuchBucket` - The specified general purpose bucket does not exist.

Type: String

Required: No

ErrorMessage

If the V1 `CreateBucketMetadataTableConfiguration` request succeeds, but S3 Metadata was unable to create the table, this structure contains the error message. The possible error codes and error messages are as follows:

- `AccessDeniedCreatingResources` - You don't have sufficient permissions to create the required resources. Make sure that you have `s3tables:CreateNamespace`, `s3tables:CreateTable`, `s3tables:GetTable` and `s3tables:PutTablePolicy` permissions, and then try again. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `AccessDeniedWritingToTable` - Unable to write to the metadata table because of missing resource permissions. To fix the resource policy, Amazon S3 needs to create a new metadata table. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `DestinationTableNotFound` - The destination table doesn't exist. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `ServerInternalError` - An internal error has occurred. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `TableAlreadyExists` - The table that you specified already exists in the table bucket's namespace. Specify a different table name. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.

- `TableBucketNotFound` - The table bucket that you specified doesn't exist in this AWS Region and account. Create or choose a different table bucket. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.

If the V2 `CreateBucketMetadataConfiguration` request succeeds, but S3 Metadata was unable to create the table, this structure contains the error code. The possible error codes and error messages are as follows:

- `AccessDeniedCreatingResources` - You don't have sufficient permissions to create the required resources. Make sure that you have `s3tables:CreateTableBucket`, `s3tables:CreateNamespace`, `s3tables:CreateTable`, `s3tables:GetTable`, `s3tables:PutTablePolicy`, `kms:DescribeKey`, and `s3tables:PutTableEncryption` permissions. Additionally, ensure that the KMS key used to encrypt the table still exists, is active and has a resource policy granting access to the S3 service principals '`maintenance.s3tables.amazonaws.com`' and '`metadata.s3.amazonaws.com`'. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `AccessDeniedWritingToTable` - Unable to write to the metadata table because of missing resource permissions. To fix the resource policy, Amazon S3 needs to create a new metadata table. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `DestinationTableNotFound` - The destination table doesn't exist. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `ServerInternalError` - An internal error has occurred. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `JournalTableAlreadyExists` - A journal table already exists in the AWS managed table bucket's namespace. Delete the journal table, and then try again. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.
- `InventoryTableAlreadyExists` - An inventory table already exists in the AWS managed table bucket's namespace. Delete the inventory table, and then try again. To create a new metadata table, you must delete the metadata configuration for this bucket, and then create a new metadata configuration.

- `JournalTableNotAvailable` - The journal table that the inventory table relies on has a `FAILED` status. An inventory table requires a journal table with an `ACTIVE` status. To create a new journal or inventory table, you must delete the metadata configuration for this bucket, along with any journal or inventory tables, and then create a new metadata configuration.
- `NoSuchBucket` - The specified general purpose bucket does not exist.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ErrorDocument

Service: Amazon S3

The error information.

Contents

Key

The object key name to use when a 4XX class error occurs.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

Type: String

Length Constraints: Minimum length of 1.

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

EventBridgeConfiguration

Service: Amazon S3

A container for specifying the configuration for Amazon EventBridge.

Contents

The members of this exception structure are context-dependent.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ExistingObjectReplication

Service: Amazon S3

Optional configuration to replicate existing source bucket objects.

> **Note**
>
> This parameter is no longer supported. To replicate existing objects, see Replicating existing objects with S3 Batch Replication in the *Amazon S3 User Guide*.

Contents

Status

Specifies whether Amazon S3 replicates existing source bucket objects.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

FilterRule

Service: Amazon S3

Specifies the Amazon S3 object key name to filter on. An object key name is the name assigned to an object in your Amazon S3 bucket. You specify whether to filter on the suffix or prefix of the object key name. A prefix is a specific string of characters at the beginning of an object key name, which you can use to organize objects. For example, you can start the key names of related objects with a prefix, such as `2023-` or `engineering/`. Then, you can use `FilterRule` to find objects in a bucket with key names that have the same prefix. A suffix is similar to a prefix, but it is at the end of the object key name instead of at the beginning.

Contents

Name

The object key name prefix or suffix identifying one or more objects to which the filtering rule applies. The maximum length is 1,024 characters. Overlapping prefixes and suffixes are not supported. For more information, see Configuring Event Notifications in the *Amazon S3 User Guide*.

Type: String

Valid Values: `prefix | suffix`

Required: No

Value

The value that the filter searches for in object key names.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2

- AWS SDK for Ruby V3

GetBucketMetadataConfigurationResult

Service: Amazon S3

The S3 Metadata configuration for a general purpose bucket.

Contents

MetadataConfigurationResult

The metadata configuration for a general purpose bucket.

Type: MetadataConfigurationResult data type

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

GetBucketMetadataTableConfigurationResult

Service: Amazon S3

The V1 S3 Metadata configuration for a general purpose bucket.

> **Note**
>
> If you created your S3 Metadata configuration before July 15, 2025, we recommend that you delete and re-create your configuration by using CreateBucketMetadataConfiguration so that you can expire journal table records and create a live inventory table.

Contents

MetadataTableConfigurationResult

The V1 S3 Metadata configuration for a general purpose bucket.

Type: MetadataTableConfigurationResult data type

Required: Yes

Status

The status of the metadata table. The status values are:

- `CREATING` - The metadata table is in the process of being created in the specified table bucket.
- `ACTIVE` - The metadata table has been created successfully, and records are being delivered to the table.
- `FAILED` - Amazon S3 is unable to create the metadata table, or Amazon S3 is unable to deliver records. See `ErrorDetails` for details.

Type: String

Required: Yes

Error

If the `CreateBucketMetadataTableConfiguration` request succeeds, but S3 Metadata was unable to create the table, this structure contains the error code and error message.

Type: ErrorDetails data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

GetObjectAttributesParts

Service: Amazon S3

A collection of parts associated with a multipart upload.

Contents

IsTruncated

Indicates whether the returned list of parts is truncated. A value of `true` indicates that the list was truncated. A list can be truncated if the number of parts exceeds the limit returned in the `MaxParts` element.

Type: Boolean

Required: No

MaxParts

The maximum number of parts allowed in the response.

Type: Integer

Required: No

NextPartNumberMarker

When a list is truncated, this element specifies the last part in the list, as well as the value to use for the `PartNumberMarker` request parameter in a subsequent request.

Type: Integer

Required: No

PartNumberMarker

The marker for the current part.

Type: Integer

Required: No

Parts

A container for elements related to a particular part. A response can contain zero or more `Parts` elements.

> **Note**
>
> - **General purpose buckets** - For `GetObjectAttributes`, if an additional checksum (including `x-amz-checksum-crc32`, `x-amz-checksum-crc32c`, `x-amz-checksum-sha1`, or `x-amz-checksum-sha256`) isn't applied to the object specified in the request, the response doesn't return the `Part` element.
> - **Directory buckets** - For `GetObjectAttributes`, regardless of whether an additional checksum is applied to the object specified in the request, the response returns the `Part` element.

Type: Array of ObjectPart data types

Required: No

TotalPartsCount

The total number of parts.

Type: Integer

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

GlacierJobParameters

Service: Amazon S3

Container for S3 Glacier job parameters.

Contents

Tier

Retrieval tier at which the restore will be processed.

Type: String

Valid Values: `Standard | Bulk | Expedited`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Grant

Service: Amazon S3

Container for grant information.

Contents

Grantee

The person being granted permissions.

Type: Grantee data type

Required: No

Permission

Specifies the permission given to the grantee.

Type: String

Valid Values: `FULL_CONTROL | WRITE | WRITE_ACP | READ | READ_ACP`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Grantee

Service: Amazon S3

> **Important**
>
> End of support notice: Beginning November 21, 2025, Amazon S3 will stop returning `DisplayName`. Update your applications to use canonical IDs (unique identifier for AWS accounts), AWS account ID (12 digit identifier) or IAM ARNs (full resource naming) as a direct replacement of `DisplayName`.
>
> Between July 15, 2025 and November 21, 2025, you will begin to see an increasing rate of missing `DisplayName` in the Owner object.
>
> This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

Container for the person being granted permissions.

Contents

Type

Type of grantee

Type: String

Valid Values: `CanonicalUser | AmazonCustomerByEmail | Group`

Required: Yes

DisplayName

Screen name of the grantee.

Type: String

Required: No

EmailAddress

Email address of the grantee.

> **Note**
>
> Using email addresses to specify a grantee is only supported in the following AWS Regions:
>
> - US East (N. Virginia)
> - US West (N. California)
> - US West (Oregon)
> - Asia Pacific (Singapore)
> - Asia Pacific (Sydney)
> - Asia Pacific (Tokyo)
> - Europe (Ireland)
> - South America (São Paulo)
>
> For a list of all the Amazon S3 supported Regions and endpoints, see Regions and Endpoints in the AWS General Reference.

Type: String

Required: No

ID

The canonical user ID of the grantee.

Type: String

Required: No

URI

URI of the grantee group.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

IndexDocument

Service: Amazon S3

Container for the `Suffix` element.

Contents

Suffix

A suffix that is appended to a request that is for a directory on the website endpoint. (For example, if the suffix is `index.html` and you make a request to `samplebucket/images/`, the data that is returned will be for the object with the key name `images/index.html`.) The suffix must not be empty and must not include a slash character.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

Type: String

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Initiator

Service: Amazon S3

Container element that identifies who initiated the multipart upload.

Contents

DisplayName

Name of the Principal.

> **Note**
>
> This functionality is not supported for directory buckets.

Type: String

Required: No

ID

If the principal is an AWS account, it provides the Canonical User ID. If the principal is an IAM User, it provides a user ARN value.

> **Note**
>
> **Directory buckets** - If the principal is an AWS account, it provides the AWS account ID. If the principal is an IAM User, it provides a user ARN value.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++

- AWS SDK for Java V2
- AWS SDK for Ruby V3

InputSerialization

Service: Amazon S3

Describes the serialization format of the object.

Contents

CompressionType

Specifies object's compression format. Valid values: NONE, GZIP, BZIP2. Default Value: NONE.

Type: String

Valid Values: `NONE | GZIP | BZIP2`

Required: No

CSV

Describes the serialization of a CSV-encoded object.

Type: CSVInput data type

Required: No

JSON

Specifies JSON as object's input serialization format.

Type: JSONInput data type

Required: No

Parquet

Specifies Parquet as object's input serialization format.

Type: ParquetInput data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

IntelligentTieringAndOperator

Service: Amazon S3

A container for specifying S3 Intelligent-Tiering filters. The filters determine the subset of objects to which the rule applies.

Contents

Prefix

An object key name prefix that identifies the subset of objects to which the configuration applies.

Type: String

Required: No

Tags

All of these tags must exist in the object's tag set in order for the configuration to apply.

Type: Array of Tag data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

IntelligentTieringConfiguration

Service: Amazon S3

Specifies the S3 Intelligent-Tiering configuration for an Amazon S3 bucket.

For information about the S3 Intelligent-Tiering storage class, see Storage class for automatically optimizing frequently and infrequently accessed objects.

Contents

Id

The ID used to identify the S3 Intelligent-Tiering configuration.

Type: String

Required: Yes

Status

Specifies the status of the configuration.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

Tierings

Specifies the S3 Intelligent-Tiering storage class tier of the configuration.

Type: Array of Tiering data types

Required: Yes

Filter

Specifies a bucket filter. The configuration only includes objects that meet the filter's criteria.

Type: IntelligentTieringFilter data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

IntelligentTieringFilter

Service: Amazon S3

The `Filter` is used to identify objects that the S3 Intelligent-Tiering configuration applies to.

Contents

And

A conjunction (logical AND) of predicates, which is used in evaluating a metrics filter. The operator must have at least two predicates, and an object must match all of the predicates in order for the filter to apply.

Type: IntelligentTieringAndOperator data type

Required: No

Prefix

An object key name prefix that identifies the subset of objects to which the rule applies.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

Type: String

Required: No

Tag

A container of a key value name pair.

Type: Tag data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

InventoryConfiguration

Service: Amazon S3

Specifies the S3 Inventory configuration for an Amazon S3 bucket. For more information, see GET Bucket inventory in the *Amazon S3 API Reference*.

Contents

Destination

Contains information about where to publish the inventory results.

Type: InventoryDestination data type

Required: Yes

Id

The ID used to identify the inventory configuration.

Type: String

Required: Yes

IncludedObjectVersions

Object versions to include in the inventory list. If set to `All`, the list includes all the object versions, which adds the version-related fields `VersionId`, `IsLatest`, and `DeleteMarker` to the list. If set to `Current`, the list does not contain these version-related fields.

Type: String

Valid Values: `All | Current`

Required: Yes

IsEnabled

Specifies whether the inventory is enabled or disabled. If set to `True`, an inventory list is generated. If set to `False`, no inventory list is generated.

Type: Boolean

Required: Yes

Schedule

Specifies the schedule for generating inventory results.

Type: InventorySchedule data type

Required: Yes

Filter

Specifies an inventory filter. The inventory only includes objects that meet the filter's criteria.

Type: InventoryFilter data type

Required: No

OptionalFields

Contains the optional fields that are included in the inventory results.

Type: Array of strings

Valid Values: `Size | LastModifiedDate | StorageClass | ETag | IsMultipartUploaded | ReplicationStatus | EncryptionStatus | ObjectLockRetainUntilDate | ObjectLockMode | ObjectLockLegalHoldStatus | IntelligentTieringAccessTier | BucketKeyStatus | ChecksumAlgorithm | ObjectAccessControlList | ObjectOwner`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

InventoryDestination

Service: Amazon S3

Specifies the S3 Inventory configuration for an Amazon S3 bucket.

Contents

S3BucketDestination

Contains the bucket name, file format, bucket owner (optional), and prefix (optional) where inventory results are published.

Type: InventoryS3BucketDestination data type

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

InventoryEncryption

Service: Amazon S3

Contains the type of server-side encryption used to encrypt the S3 Inventory results.

Contents

SSEKMS

Specifies the use of SSE-KMS to encrypt delivered inventory reports.

Type: SSEKMS data type

Required: No

SSES3

Specifies the use of SSE-S3 to encrypt delivered inventory reports.

Type: SSES3 data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

InventoryFilter

Service: Amazon S3

Specifies an S3 Inventory filter. The inventory only includes objects that meet the filter's criteria.

Contents

Prefix

The prefix that an object must have to be included in the inventory results.

Type: String

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

InventoryS3BucketDestination

Service: Amazon S3

Contains the bucket name, file format, bucket owner (optional), and prefix (optional) where S3 Inventory results are published.

Contents

Bucket

The Amazon Resource Name (ARN) of the bucket where inventory results will be published.

Type: String

Required: Yes

Format

Specifies the output format of the inventory results.

Type: String

Valid Values: `CSV | ORC | Parquet`

Required: Yes

AccountId

The account ID that owns the destination S3 bucket. If no account ID is provided, the owner is not validated before exporting data.

> **Note**
> Although this value is optional, we strongly recommend that you set it to help prevent problems if the destination bucket ownership changes.

Type: String

Required: No

Encryption

Contains the type of server-side encryption used to encrypt the inventory results.

Type: InventoryEncryption data type

Required: No

Prefix

The prefix that is prepended to all inventory results.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

InventorySchedule

Service: Amazon S3

Specifies the schedule for generating S3 Inventory results.

Contents

Frequency

Specifies how frequently inventory results are produced.

Type: String

Valid Values: `Daily | Weekly`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

InventoryTableConfiguration

Service: Amazon S3

The inventory table configuration for an S3 Metadata configuration.

Contents

ConfigurationState

The configuration state of the inventory table, indicating whether the inventory table is enabled or disabled.

Type: String

Valid Values: `ENABLED | DISABLED`

Required: Yes

EncryptionConfiguration

The encryption configuration for the inventory table.

Type: MetadataTableEncryptionConfiguration data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

InventoryTableConfigurationResult

Service: Amazon S3

The inventory table configuration for an S3 Metadata configuration.

Contents

ConfigurationState

The configuration state of the inventory table, indicating whether the inventory table is enabled or disabled.

Type: String

Valid Values: `ENABLED | DISABLED`

Required: Yes

Error

If an S3 Metadata V1 `CreateBucketMetadataTableConfiguration` or V2 `CreateBucketMetadataConfiguration` request succeeds, but S3 Metadata was unable to create the table, this structure contains the error code and error message.

> **Note**
>
> If you created your S3 Metadata configuration before July 15, 2025, we recommend that you delete and re-create your configuration by using CreateBucketMetadataConfiguration so that you can expire journal table records and create a live inventory table.

Type: ErrorDetails data type

Required: No

TableArn

The Amazon Resource Name (ARN) for the inventory table.

Type: String

Required: No

TableName

The name of the inventory table.

Type: String

Required: No

TableStatus

The status of the inventory table. The status values are:

- `CREATING` - The inventory table is in the process of being created in the specified AWS managed table bucket.
- `BACKFILLING` - The inventory table is in the process of being backfilled. When you enable the inventory table for your metadata configuration, the table goes through a process known as backfilling, during which Amazon S3 scans your general purpose bucket to retrieve the initial metadata for all objects in the bucket. Depending on the number of objects in your bucket, this process can take several hours. When the backfilling process is finished, the status of your inventory table changes from `BACKFILLING` to `ACTIVE`. After backfilling is completed, updates to your objects are reflected in the inventory table within one hour.
- `ACTIVE` - The inventory table has been created successfully, and records are being delivered to the table.
- `FAILED` - Amazon S3 is unable to create the inventory table, or Amazon S3 is unable to deliver records.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

InventoryTableConfigurationUpdates

Service: Amazon S3

The specified updates to the S3 Metadata inventory table configuration.

Contents

ConfigurationState

The configuration state of the inventory table, indicating whether the inventory table is enabled or disabled.

Type: String

Valid Values: `ENABLED | DISABLED`

Required: Yes

EncryptionConfiguration

The encryption configuration for the inventory table.

Type: MetadataTableEncryptionConfiguration data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JournalTableConfiguration

Service: Amazon S3

The journal table configuration for an S3 Metadata configuration.

Contents

RecordExpiration

The journal table record expiration settings for the journal table.

Type: RecordExpiration data type

Required: Yes

EncryptionConfiguration

The encryption configuration for the journal table.

Type: MetadataTableEncryptionConfiguration data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JournalTableConfigurationResult

Service: Amazon S3

The journal table configuration for the S3 Metadata configuration.

Contents

RecordExpiration

The journal table record expiration settings for the journal table.

Type: RecordExpiration data type

Required: Yes

TableName

The name of the journal table.

Type: String

Required: Yes

TableStatus

The status of the journal table. The status values are:

- `CREATING` - The journal table is in the process of being created in the specified table bucket.
- `ACTIVE` - The journal table has been created successfully, and records are being delivered to the table.
- `FAILED` - Amazon S3 is unable to create the journal table, or Amazon S3 is unable to deliver records.

Type: String

Required: Yes

Error

If an S3 Metadata V1 `CreateBucketMetadataTableConfiguration` or V2 `CreateBucketMetadataConfiguration` request succeeds, but S3 Metadata was unable to create the table, this structure contains the error code and error message.

> **Note**
>
> If you created your S3 Metadata configuration before July 15, 2025, we recommend that you delete and re-create your configuration by using CreateBucketMetadataConfiguration so that you can expire journal table records and create a live inventory table.

Type: ErrorDetails data type

Required: No

TableArn

The Amazon Resource Name (ARN) for the journal table.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JournalTableConfigurationUpdates

Service: Amazon S3

The specified updates to the S3 Metadata journal table configuration.

Contents

RecordExpiration

The journal table record expiration settings for the journal table.

Type: RecordExpiration data type

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JSONInput

Service: Amazon S3

Specifies JSON as object's input serialization format.

Contents

Type

The type of JSON. Valid values: Document, Lines.

Type: String

Valid Values: `DOCUMENT | LINES`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JSONOutput

Service: Amazon S3

Specifies JSON as request's output serialization format.

Contents

RecordDelimiter

The value used to separate individual records in the output. If no value is specified, Amazon S3 uses a newline character ('\n').

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

LambdaFunctionConfiguration

Service: Amazon S3

A container for specifying the configuration for AWS Lambda notifications.

Contents

Events

The Amazon S3 bucket event for which to invoke the AWS Lambda function. For more information, see Supported Event Types in the *Amazon S3 User Guide*.

Type: Array of strings

Valid Values: `s3:ReducedRedundancyLostObject | s3:ObjectCreated:* | s3:ObjectCreated:Put | s3:ObjectCreated:Post | s3:ObjectCreated:Copy | s3:ObjectCreated:CompleteMultipartUpload | s3:ObjectRemoved:* | s3:ObjectRemoved:Delete | s3:ObjectRemoved:DeleteMarkerCreated | s3:ObjectRestore:* | s3:ObjectRestore:Post | s3:ObjectRestore:Completed | s3:Replication:* | s3:Replication:OperationFailedReplication | s3:Replication:OperationNotTracked | s3:Replication:OperationMissedThreshold | s3:Replication:OperationReplicatedAfterThreshold | s3:ObjectRestore:Delete | s3:LifecycleTransition | s3:IntelligentTiering | s3:ObjectAcl:Put | s3:LifecycleExpiration:* | s3:LifecycleExpiration:Delete | s3:LifecycleExpiration:DeleteMarkerCreated | s3:ObjectTagging:* | s3:ObjectTagging:Put | s3:ObjectTagging:Delete`

Required: Yes

LambdaFunctionArn

The Amazon Resource Name (ARN) of the AWS Lambda function that Amazon S3 invokes when the specified event type occurs.

Type: String

Required: Yes

Filter

Specifies object key name filtering rules. For information about key name filtering, see Configuring event notifications using object key name filtering in the *Amazon S3 User Guide*.

Type: NotificationConfigurationFilter data type

Required: No

Id

An optional unique identifier for configurations in a notification configuration. If you don't provide one, Amazon S3 will assign an ID.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

LifecycleConfiguration

Service: Amazon S3

Container for lifecycle rules. You can add as many as 1000 rules.

For more information see, Managing your storage lifecycle in the *Amazon S3 User Guide*.

Contents

Rules

Specifies lifecycle configuration rules for an Amazon S3 bucket.

Type: Array of Rule data types

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

LifecycleExpiration

Service: Amazon S3

Container for the expiration for the lifecycle of the object.

For more information see, Managing your storage lifecycle in the *Amazon S3 User Guide*.

Contents

Date

Indicates at what date the object is to be moved or deleted. The date value must conform to the ISO 8601 format. The time is always midnight UTC.

> **Note**
>
> This parameter applies to general purpose buckets only. It is not supported for directory bucket lifecycle configurations.

Type: Timestamp

Required: No

Days

Indicates the lifetime, in days, of the objects that are subject to the rule. The value must be a non-zero positive integer.

Type: Integer

Required: No

ExpiredObjectDeleteMarker

Indicates whether Amazon S3 will remove a delete marker with no noncurrent versions. If set to true, the delete marker will be expired; if set to false the policy takes no action. This cannot be specified with Days or Date in a Lifecycle Expiration Policy.

> **Note**
>
> This parameter applies to general purpose buckets only. It is not supported for directory bucket lifecycle configurations.

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

LifecycleRule

Service: Amazon S3

A lifecycle rule for individual objects in an Amazon S3 bucket.

For more information see, Managing your storage lifecycle in the *Amazon S3 User Guide*.

Contents

Status

If 'Enabled', the rule is currently being applied. If 'Disabled', the rule is not currently being applied.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

AbortIncompleteMultipartUpload

Specifies the days since the initiation of an incomplete multipart upload that Amazon S3 will wait before permanently removing all parts of the upload. For more information, see Aborting Incomplete Multipart Uploads Using a Bucket Lifecycle Configuration in the *Amazon S3 User Guide*.

Type: AbortIncompleteMultipartUpload data type

Required: No

Expiration

Specifies the expiration for the lifecycle of the object in the form of date, days and, whether the object has a delete marker.

Type: LifecycleExpiration data type

Required: No

Filter

The `Filter` is used to identify objects that a Lifecycle Rule applies to. A `Filter` must have exactly one of `Prefix`, `Tag`, `ObjectSizeGreaterThan`, `ObjectSizeLessThan`, or `And` specified. `Filter` is required if the `LifecycleRule` does not contain a `Prefix` element.

For more information about Tag filters, see Adding filters to Lifecycle rules in the *Amazon S3 User Guide*.

> **Note**
>
> Tag filters are not supported for directory buckets.

Type: LifecycleRuleFilter data type

Required: No

ID

Unique identifier for the rule. The value cannot be longer than 255 characters.

Type: String

Required: No

NoncurrentVersionExpiration

Specifies when noncurrent object versions expire. Upon expiration, Amazon S3 permanently deletes the noncurrent object versions. You set this lifecycle configuration action on a bucket that has versioning enabled (or suspended) to request that Amazon S3 delete noncurrent object versions at a specific period in the object's lifetime.

> **Note**
>
> This parameter applies to general purpose buckets only. It is not supported for directory bucket lifecycle configurations.

Type: NoncurrentVersionExpiration data type

Required: No

NoncurrentVersionTransitions

Specifies the transition rule for the lifecycle rule that describes when noncurrent objects transition to a specific storage class. If your bucket is versioning-enabled (or versioning is suspended), you can set this action to request that Amazon S3 transition noncurrent object versions to a specific storage class at a set period in the object's lifetime.

> **Note**
>
> This parameter applies to general purpose buckets only. It is not supported for directory bucket lifecycle configurations.

Type: Array of NoncurrentVersionTransition data types

Required: No

Prefix

This member has been deprecated.

Prefix identifying one or more objects to which the rule applies. This is no longer used; use `Filter` instead.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

Type: String

Required: No

Transitions

Specifies when an Amazon S3 object transitions to a specified storage class.

> **Note**
>
> This parameter applies to general purpose buckets only. It is not supported for directory bucket lifecycle configurations.

Type: Array of Transition data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

LifecycleRuleAndOperator

Service: Amazon S3

This is used in a Lifecycle Rule Filter to apply a logical AND to two or more predicates. The Lifecycle Rule will apply to any object matching all of the predicates configured inside the And operator.

Contents

ObjectSizeGreaterThan

Minimum object size to which the rule applies.

Type: Long

Required: No

ObjectSizeLessThan

Maximum object size to which the rule applies.

Type: Long

Required: No

Prefix

Prefix identifying one or more objects to which the rule applies.

Type: String

Required: No

Tags

All of these tags must exist in the object's tag set in order for the rule to apply.

Type: Array of Tag data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

LifecycleRuleFilter

Service: Amazon S3

The `Filter` is used to identify objects that a Lifecycle Rule applies to. A `Filter` can have exactly one of `Prefix`, `Tag`, `ObjectSizeGreaterThan`, `ObjectSizeLessThan`, or `And` specified. If the `Filter` element is left empty, the Lifecycle Rule applies to all objects in the bucket.

Contents

And

This is used in a Lifecycle Rule Filter to apply a logical AND to two or more predicates. The Lifecycle Rule will apply to any object matching all of the predicates configured inside the And operator.

Type: LifecycleRuleAndOperator data type

Required: No

ObjectSizeGreaterThan

Minimum object size to which the rule applies.

Type: Long

Required: No

ObjectSizeLessThan

Maximum object size to which the rule applies.

Type: Long

Required: No

Prefix

Prefix identifying one or more objects to which the rule applies.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

Type: String

Required: No

Tag

This tag must exist in the object's tag set in order for the rule to apply.

> **Note**
>
> This parameter applies to general purpose buckets only. It is not supported for directory bucket lifecycle configurations.

Type: Tag data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

LocationInfo

Service: Amazon S3

Specifies the location where the bucket will be created.

For directory buckets, the location type is Availability Zone or Local Zone. For more information about directory buckets, see Working with directory buckets in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is only supported by directory buckets.

Contents

Name

The name of the location where the bucket will be created.

For directory buckets, the name of the location is the Zone ID of the Availability Zone (AZ) or Local Zone (LZ) where the bucket will be created. An example AZ ID value is `usw2-az1`.

Type: String

Required: No

Type

The type of location where the bucket will be created.

Type: String

Valid Values: `AvailabilityZone | LocalZone`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++

- AWS SDK for Java V2
- AWS SDK for Ruby V3

LoggingEnabled

Service: Amazon S3

Describes where logs are stored and the prefix that Amazon S3 assigns to all log object keys for a bucket. For more information, see PUT Bucket logging in the *Amazon S3 API Reference*.

Contents

TargetBucket

Specifies the bucket where you want Amazon S3 to store server access logs. You can have your logs delivered to any bucket that you own, including the same bucket that is being logged. You can also configure multiple buckets to deliver their logs to the same target bucket. In this case, you should choose a different `TargetPrefix` for each source bucket so that the delivered log files can be distinguished by key.

Type: String

Required: Yes

TargetPrefix

A prefix for all log object keys. If you store log files from multiple Amazon S3 buckets in a single bucket, you can use a prefix to distinguish which log files came from which bucket.

Type: String

Required: Yes

TargetGrants

Container for granting information.

Buckets that use the bucket owner enforced setting for Object Ownership don't support target grants. For more information, see Permissions for server access log delivery in the *Amazon S3 User Guide*.

Type: Array of TargetGrant data types

Required: No

TargetObjectKeyFormat

Amazon S3 key format for log objects.

Type: TargetObjectKeyFormat data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MetadataConfiguration

Service: Amazon S3

The S3 Metadata configuration for a general purpose bucket.

Contents

JournalTableConfiguration

The journal table configuration for a metadata configuration.

Type: JournalTableConfiguration data type

Required: Yes

InventoryTableConfiguration

The inventory table configuration for a metadata configuration.

Type: InventoryTableConfiguration data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MetadataConfigurationResult

Service: Amazon S3

The S3 Metadata configuration for a general purpose bucket.

Contents

DestinationResult

The destination settings for a metadata configuration.

Type: DestinationResult data type

Required: Yes

InventoryTableConfigurationResult

The inventory table configuration for a metadata configuration.

Type: InventoryTableConfigurationResult data type

Required: No

JournalTableConfigurationResult

The journal table configuration for a metadata configuration.

Type: JournalTableConfigurationResult data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MetadataEntry

Service: Amazon S3

A metadata key-value pair to store with an object.

Contents

Name

Name of the object.

Type: String

Required: No

Value

Value of the object.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MetadataTableConfiguration

Service: Amazon S3

The V1 S3 Metadata configuration for a general purpose bucket.

> **Note**
>
> If you created your S3 Metadata configuration before July 15, 2025, we recommend that you delete and re-create your configuration by using CreateBucketMetadataConfiguration so that you can expire journal table records and create a live inventory table.

Contents

S3TablesDestination

The destination information for the metadata table configuration. The destination table bucket must be in the same Region and AWS account as the general purpose bucket. The specified metadata table name must be unique within the `aws_s3_metadata` namespace in the destination table bucket.

Type: S3TablesDestination data type

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MetadataTableConfigurationResult

Service: Amazon S3

The V1 S3 Metadata configuration for a general purpose bucket. The destination table bucket must be in the same Region and AWS account as the general purpose bucket. The specified metadata table name must be unique within the `aws_s3_metadata` namespace in the destination table bucket.

> **Note**
>
> If you created your S3 Metadata configuration before July 15, 2025, we recommend that you delete and re-create your configuration by using CreateBucketMetadataConfiguration so that you can expire journal table records and create a live inventory table.

Contents

S3TablesDestinationResult

The destination information for the metadata table configuration. The destination table bucket must be in the same Region and AWS account as the general purpose bucket. The specified metadata table name must be unique within the `aws_s3_metadata` namespace in the destination table bucket.

Type: S3TablesDestinationResult data type

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MetadataTableEncryptionConfiguration

Service: Amazon S3

The encryption settings for an S3 Metadata journal table or inventory table configuration.

Contents

SseAlgorithm

The encryption type specified for a metadata table. To specify server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS), use the `aws:kms` value. To specify server-side encryption with Amazon S3 managed keys (SSE-S3), use the `AES256` value.

Type: String

Valid Values: `aws:kms` | `AES256`

Required: Yes

KmsKeyArn

If server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS) is specified, you must also specify the KMS key Amazon Resource Name (ARN). You must specify a customer-managed KMS key that's located in the same Region as the general purpose bucket that corresponds to the metadata table configuration.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Metrics

Service: Amazon S3

A container specifying replication metrics-related settings enabling replication metrics and events.

Contents

Status

Specifies whether the replication metrics are enabled.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

EventThreshold

A container specifying the time threshold for emitting the `s3:Replication:OperationMissedThreshold` event.

Type: ReplicationTimeValue data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MetricsAndOperator

Service: Amazon S3

A conjunction (logical AND) of predicates, which is used in evaluating a metrics filter. The operator must have at least two predicates, and an object must match all of the predicates in order for the filter to apply.

Contents

AccessPointArn

The access point ARN used when evaluating an AND predicate.

Type: String

Required: No

Prefix

The prefix used when evaluating an AND predicate.

Type: String

Required: No

Tags

The list of tags used when evaluating an AND predicate.

Type: Array of Tag data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MetricsConfiguration

Service: Amazon S3

Specifies a metrics configuration for the CloudWatch request metrics (specified by the metrics configuration ID) from an Amazon S3 bucket. If you're updating an existing metrics configuration, note that this is a full replacement of the existing metrics configuration. If you don't include the elements you want to keep, they are erased. For more information, see PutBucketMetricsConfiguration.

Contents

Id

The ID used to identify the metrics configuration. The ID has a 64 character limit and can only contain letters, numbers, periods, dashes, and underscores.

Type: String

Required: Yes

Filter

Specifies a metrics configuration filter. The metrics configuration will only include objects that meet the filter's criteria. A filter must be a prefix, an object tag, an access point ARN, or a conjunction (MetricsAndOperator).

Type: MetricsFilter data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MetricsFilter

Service: Amazon S3

Specifies a metrics configuration filter. The metrics configuration only includes objects that meet the filter's criteria. A filter must be a prefix, an object tag, an access point ARN, or a conjunction (MetricsAndOperator). For more information, see PutBucketMetricsConfiguration.

Contents

AccessPointArn

The access point ARN used when evaluating a metrics filter.

Type: String

Required: No

And

A conjunction (logical AND) of predicates, which is used in evaluating a metrics filter. The operator must have at least two predicates, and an object must match all of the predicates in order for the filter to apply.

Type: MetricsAndOperator data type

Required: No

Prefix

The prefix used when evaluating a metrics filter.

Type: String

Required: No

Tag

The tag used when evaluating a metrics filter.

Type: Tag data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MultipartUpload

Service: Amazon S3

Container for the `MultipartUpload` for the Amazon S3 object.

Contents

ChecksumAlgorithm

The algorithm that was used to create a checksum of the object.

Type: String

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Required: No

ChecksumType

The checksum type that is used to calculate the object's checksum value. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Valid Values: `COMPOSITE | FULL_OBJECT`

Required: No

Initiated

Date and time at which the multipart upload was initiated.

Type: Timestamp

Required: No

Initiator

Identifies who initiated the multipart upload.

Type: Initiator data type

Required: No

Key

Key of the object for which the multipart upload was initiated.

Type: String

Length Constraints: Minimum length of 1.

Required: No

Owner

Specifies the owner of the object that is part of the multipart upload.

> **Note**
>
> **Directory buckets** - The bucket owner is returned as the object owner for all the objects.

Type: Owner data type

Required: No

StorageClass

The class of storage used to store the object.

> **Note**
>
> **Directory buckets** - Directory buckets only support `EXPRESS_ONEZONE` (the S3 Express One Zone storage class) in Availability Zones and `ONEZONE_IA` (the S3 One Zone-Infrequent Access storage class) in Dedicated Local Zones.

Type: String

Valid Values: `STANDARD | REDUCED_REDUNDANCY | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | GLACIER | DEEP_ARCHIVE | OUTPOSTS | GLACIER_IR | SNOW | EXPRESS_ONEZONE | FSX_OPENZFS`

Required: No

UploadId

Upload ID that identifies the multipart upload.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

NoncurrentVersionExpiration

Service: Amazon S3

Specifies when noncurrent object versions expire. Upon expiration, Amazon S3 permanently deletes the noncurrent object versions. You set this lifecycle configuration action on a bucket that has versioning enabled (or suspended) to request that Amazon S3 delete noncurrent object versions at a specific period in the object's lifetime.

> **Note**
>
> This parameter applies to general purpose buckets only. It is not supported for directory bucket lifecycle configurations.

Contents

NewerNoncurrentVersions

Specifies how many noncurrent versions Amazon S3 will retain. You can specify up to 100 noncurrent versions to retain. Amazon S3 will permanently delete any additional noncurrent versions beyond the specified number to retain. For more information about noncurrent versions, see Lifecycle configuration elements in the *Amazon S3 User Guide*.

> **Note**
>
> This parameter applies to general purpose buckets only. It is not supported for directory bucket lifecycle configurations.

Type: Integer

Required: No

NoncurrentDays

Specifies the number of days an object is noncurrent before Amazon S3 can perform the associated action. The value must be a non-zero positive integer. For information about the noncurrent days calculations, see How Amazon S3 Calculates When an Object Became Noncurrent in the *Amazon S3 User Guide*.

> **Note**
>
> This parameter applies to general purpose buckets only. It is not supported for directory bucket lifecycle configurations.

Type: Integer

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

NoncurrentVersionTransition

Service: Amazon S3

Container for the transition rule that describes when noncurrent objects transition to the `STANDARD_IA`, `ONEZONE_IA`, `INTELLIGENT_TIERING`, `GLACIER_IR`, `GLACIER`, or `DEEP_ARCHIVE` storage class. If your bucket is versioning-enabled (or versioning is suspended), you can set this action to request that Amazon S3 transition noncurrent object versions to the `STANDARD_IA`, `ONEZONE_IA`, `INTELLIGENT_TIERING`, `GLACIER_IR`, `GLACIER`, or `DEEP_ARCHIVE` storage class at a specific period in the object's lifetime.

Contents

NewerNoncurrentVersions

Specifies how many noncurrent versions Amazon S3 will retain in the same storage class before transitioning objects. You can specify up to 100 noncurrent versions to retain. Amazon S3 will transition any additional noncurrent versions beyond the specified number to retain. For more information about noncurrent versions, see Lifecycle configuration elements in the *Amazon S3 User Guide*.

Type: Integer

Required: No

NoncurrentDays

Specifies the number of days an object is noncurrent before Amazon S3 can perform the associated action. For information about the noncurrent days calculations, see How Amazon S3 Calculates How Long an Object Has Been Noncurrent in the *Amazon S3 User Guide*.

Type: Integer

Required: No

StorageClass

The class of storage used to store the object.

Type: String

Valid Values: `GLACIER | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | DEEP_ARCHIVE | GLACIER_IR`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

NotificationConfiguration

Service: Amazon S3

A container for specifying the notification configuration of the bucket. If this element is empty, notifications are turned off for the bucket.

Contents

EventBridgeConfiguration

Enables delivery of events to Amazon EventBridge.

Type: EventBridgeConfiguration data type

Required: No

LambdaFunctionConfigurations

Describes the AWS Lambda functions to invoke and the events for which to invoke them.

Type: Array of LambdaFunctionConfiguration data types

Required: No

QueueConfigurations

The Amazon Simple Queue Service queues to publish messages to and the events for which to publish messages.

Type: Array of QueueConfiguration data types

Required: No

TopicConfigurations

The topic to which notifications are sent and the events for which notifications are generated.

Type: Array of TopicConfiguration data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

NotificationConfigurationDeprecated

Service: Amazon S3

Contents

CloudFunctionConfiguration

Container for specifying the AWS Lambda notification configuration.

Type: CloudFunctionConfiguration data type

Required: No

QueueConfiguration

This data type is deprecated. This data type specifies the configuration for publishing messages to an Amazon Simple Queue Service (Amazon SQS) queue when Amazon S3 detects specified events.

Type: QueueConfigurationDeprecated data type

Required: No

TopicConfiguration

This data type is deprecated. A container for specifying the configuration for publication of messages to an Amazon Simple Notification Service (Amazon SNS) topic when Amazon S3 detects specified events.

Type: TopicConfigurationDeprecated data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

NotificationConfigurationFilter

Service: Amazon S3

Specifies object key name filtering rules. For information about key name filtering, see Configuring event notifications using object key name filtering in the *Amazon S3 User Guide*.

Contents

Key

A container for object key name prefix and suffix filtering rules.

Type: S3KeyFilter data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Object

Service: Amazon S3

An object consists of data and its descriptive metadata.

Contents

ChecksumAlgorithm

The algorithm that was used to create a checksum of the object.

Type: Array of strings

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Required: No

ChecksumType

The checksum type that is used to calculate the object's checksum value. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Valid Values: `COMPOSITE | FULL_OBJECT`

Required: No

ETag

The entity tag is a hash of the object. The ETag reflects changes only to the contents of an object, not its metadata. The ETag may or may not be an MD5 digest of the object data. Whether or not it is depends on how the object was created and how it is encrypted as described below:

- Objects created by the PUT Object, POST Object, or Copy operation, or through the AWS Management Console, and are encrypted by SSE-S3 or plaintext, have ETags that are an MD5 digest of their object data.
- Objects created by the PUT Object, POST Object, or Copy operation, or through the AWS Management Console, and are encrypted by SSE-C or SSE-KMS, have ETags that are not an MD5 digest of their object data.
- If an object is created by either the Multipart Upload or Part Copy operation, the ETag is not an MD5 digest, regardless of the method of encryption. If an object is larger than 16 MB,

the AWS Management Console will upload or copy that object as a Multipart Upload, and therefore the ETag will not be an MD5 digest.

> **Note**
>
> **Directory buckets** - MD5 is not supported by directory buckets.

Type: String

Required: No

Key

The name that you assign to an object. You use the object key to retrieve the object.

Type: String

Length Constraints: Minimum length of 1.

Required: No

LastModified

Creation date of the object.

Type: Timestamp

Required: No

Owner

The owner of the object

> **Note**
>
> **Directory buckets** - The bucket owner is returned as the object owner.

Type: Owner data type

Required: No

RestoreStatus

Specifies the restoration status of an object. Objects in certain storage classes must be restored before they can be retrieved. For more information about these storage classes and how to work with archived objects, see Working with archived objects in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets. Directory buckets only support `EXPRESS_ONEZONE` (the S3 Express One Zone storage class) in Availability Zones and `ONEZONE_IA` (the S3 One Zone-Infrequent Access storage class) in Dedicated Local Zones.

Type: RestoreStatus data type

Required: No

Size

Size in bytes of the object

Type: Long

Required: No

StorageClass

The class of storage used to store the object.

> **Note**
>
> **Directory buckets** - Directory buckets only support `EXPRESS_ONEZONE` (the S3 Express One Zone storage class) in Availability Zones and `ONEZONE_IA` (the S3 One Zone-Infrequent Access storage class) in Dedicated Local Zones.

Type: String

Valid Values: `STANDARD | REDUCED_REDUNDANCY | GLACIER | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | DEEP_ARCHIVE | OUTPOSTS | GLACIER_IR | SNOW | EXPRESS_ONEZONE | FSX_OPENZFS`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ObjectIdentifier

Service: Amazon S3

Object Identifier is unique value to identify objects.

Contents

Key

Key name of the object.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

Type: String

Length Constraints: Minimum length of 1.

Required: Yes

ETag

An entity tag (ETag) is an identifier assigned by a web server to a specific version of a resource found at a URL. This header field makes the request method conditional on `ETags`.

> **Note**
>
> Entity tags (ETags) for S3 Express One Zone are random alphanumeric strings unique to the object.

Type: String

Required: No

LastModifiedTime

If present, the objects are deleted only if its modification times matches the provided `Timestamp`.

> **Note**
> This functionality is only supported for directory buckets.

Type: Timestamp

Required: No

Size

If present, the objects are deleted only if its size matches the provided size in bytes.

> **Note**
> This functionality is only supported for directory buckets.

Type: Long

Required: No

VersionId

Version ID for the specific version of the object to delete.

> **Note**
> This functionality is not supported for directory buckets.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++

- AWS SDK for Java V2
- AWS SDK for Ruby V3

ObjectLockConfiguration

Service: Amazon S3

The container element for Object Lock configuration parameters.

Contents

ObjectLockEnabled

Indicates whether this bucket has an Object Lock configuration enabled. Enable `ObjectLockEnabled` when you apply `ObjectLockConfiguration` to a bucket.

Type: String

Valid Values: `Enabled`

Required: No

Rule

Specifies the Object Lock rule for the specified object. Enable the this rule when you apply `ObjectLockConfiguration` to a bucket. Bucket settings require both a mode and a period. The period can be either `Days` or `Years` but you must select one. You cannot specify `Days` and `Years` at the same time.

Type: ObjectLockRule data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ObjectLockLegalHold

Service: Amazon S3

A legal hold configuration for an object.

Contents

Status

Indicates whether the specified object has a legal hold in place.

Type: String

Valid Values: `ON` | `OFF`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ObjectLockRetention

Service: Amazon S3

A Retention configuration for an object.

Contents

Mode

Indicates the Retention mode for the specified object.

Type: String

Valid Values: `GOVERNANCE | COMPLIANCE`

Required: No

RetainUntilDate

The date on which this Object Lock Retention will expire.

Type: Timestamp

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ObjectLockRule

Service: Amazon S3

The container element for an Object Lock rule.

Contents

DefaultRetention

The default Object Lock retention mode and period that you want to apply to new objects placed in the specified bucket. Bucket settings require both a mode and a period. The period can be either `Days` or `Years` but you must select one. You cannot specify `Days` and `Years` at the same time.

Type: DefaultRetention data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ObjectPart

Service: Amazon S3

A container for elements related to an individual part.

Contents

ChecksumCRC32

The Base64 encoded, 32-bit `CRC32` checksum of the part. This checksum is present if the multipart upload request was created with the `CRC32` checksum algorithm. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumCRC32C

The Base64 encoded, 32-bit `CRC32C` checksum of the part. This checksum is present if the multipart upload request was created with the `CRC32C` checksum algorithm. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumCRC64NVME

The Base64 encoded, 64-bit `CRC64NVME` checksum of the part. This checksum is present if the multipart upload request was created with the `CRC64NVME` checksum algorithm, or if the object was uploaded without a checksum (and Amazon S3 added the default checksum, `CRC64NVME`, to the uploaded object). For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumSHA1

The Base64 encoded, 160-bit `SHA1` checksum of the part. This checksum is present if the multipart upload request was created with the `SHA1` checksum algorithm. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumSHA256

The Base64 encoded, 256-bit SHA256 checksum of the part. This checksum is present if the multipart upload request was created with the SHA256 checksum algorithm. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

PartNumber

The part number identifying the part. This value is a positive integer between 1 and 10,000.

Type: Integer

Required: No

Size

The size of the uploaded part in bytes.

Type: Long

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ObjectVersion

Service: Amazon S3

The version of an object.

Contents

ChecksumAlgorithm

The algorithm that was used to create a checksum of the object.

Type: Array of strings

Valid Values: `CRC32 | CRC32C | SHA1 | SHA256 | CRC64NVME`

Required: No

ChecksumType

The checksum type that is used to calculate the object's checksum value. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Valid Values: `COMPOSITE | FULL_OBJECT`

Required: No

ETag

The entity tag is an MD5 hash of that version of the object.

Type: String

Required: No

IsLatest

Specifies whether the object is (true) or is not (false) the latest version of an object.

Type: Boolean

Required: No

Key

The object key.

Type: String

Length Constraints: Minimum length of 1.

Required: No

LastModified

Date and time when the object was last modified.

Type: Timestamp

Required: No

Owner

Specifies the owner of the object.

Type: Owner data type

Required: No

RestoreStatus

Specifies the restoration status of an object. Objects in certain storage classes must be restored before they can be retrieved. For more information about these storage classes and how to work with archived objects, see Working with archived objects in the *Amazon S3 User Guide*.

Type: RestoreStatus data type

Required: No

Size

Size in bytes of the object.

Type: Long

Required: No

StorageClass

The class of storage used to store the object.

Type: String

Valid Values: STANDARD

Required: No

VersionId

Version ID of an object.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

OutputLocation

Service: Amazon S3

Describes the location where the restore job's output is stored.

Contents

S3

Describes an S3 location that will receive the results of the restore request.

Type: S3Location data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

OutputSerialization

Service: Amazon S3

Describes how results of the Select job are serialized.

Contents

CSV

Describes the serialization of CSV-encoded Select results.

Type: CSVOutput data type

Required: No

JSON

Specifies JSON as request's output serialization format.

Type: JSONOutput data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Owner

Service: Amazon S3

> **Important**
>
> End of support notice: Beginning November 21, 2025, Amazon S3 will stop returning `DisplayName`. Update your applications to use canonical IDs (unique identifier for AWS accounts), AWS account ID (12 digit identifier) or IAM ARNs (full resource naming) as a direct replacement of `DisplayName`.
>
> Between July 15, 2025 and November 21, 2025, you will begin to see an increasing rate of missing `DisplayName` in the Owner object.
>
> This change affects the following AWS Regions: US East (N. Virginia) Region, US West (N. California) Region, US West (Oregon) Region, Asia Pacific (Singapore) Region, Asia Pacific (Sydney) Region, Asia Pacific (Tokyo) Region, Europe (Ireland) Region, and South America (São Paulo) Region.

Container for the owner's display name and ID.

Contents

DisplayName

Container for the display name of the owner. This value is only supported in the following AWS Regions:

- US East (N. Virginia)
- US West (N. California)
- US West (Oregon)
- Asia Pacific (Singapore)
- Asia Pacific (Sydney)
- Asia Pacific (Tokyo)
- Europe (Ireland)
- South America (São Paulo)

> **Note**
>
> This functionality is not supported for directory buckets.

Type: String

Required: No

ID

Container for the ID of the owner.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

OwnershipControls

Service: Amazon S3

The container element for a bucket's ownership controls.

Contents

Rules

The container element for an ownership control rule.

Type: Array of OwnershipControlsRule data types

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

OwnershipControlsRule

Service: Amazon S3

The container element for an ownership control rule.

Contents

ObjectOwnership

The container element for object ownership for a bucket's ownership controls.

`BucketOwnerPreferred` - Objects uploaded to the bucket change ownership to the bucket owner if the objects are uploaded with the `bucket-owner-full-control` canned ACL.

`ObjectWriter` - The uploading account will own the object if the object is uploaded with the `bucket-owner-full-control` canned ACL.

`BucketOwnerEnforced` - Access control lists (ACLs) are disabled and no longer affect permissions. The bucket owner automatically owns and has full control over every object in the bucket. The bucket only accepts PUT requests that don't specify an ACL or specify bucket owner full control ACLs (such as the predefined `bucket-owner-full-control` canned ACL or a custom ACL in XML format that grants the same permissions).

By default, `ObjectOwnership` is set to `BucketOwnerEnforced` and ACLs are disabled. We recommend keeping ACLs disabled, except in uncommon use cases where you must control access for each object individually. For more information about S3 Object Ownership, see Controlling ownership of objects and disabling ACLs for your bucket in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets. Directory buckets use the bucket owner enforced setting for S3 Object Ownership.

Type: String

Valid Values: `BucketOwnerPreferred | ObjectWriter | BucketOwnerEnforced`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ParquetInput

Service: Amazon S3

Container for Parquet.

Contents

The members of this exception structure are context-dependent.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Part

Service: Amazon S3

Container for elements related to a part.

Contents

ChecksumCRC32

The Base64 encoded, 32-bit `CRC32` checksum of the part. This checksum is present if the object was uploaded with the `CRC32` checksum algorithm. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumCRC32C

The Base64 encoded, 32-bit `CRC32C` checksum of the part. This checksum is present if the object was uploaded with the `CRC32C` checksum algorithm. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumCRC64NVME

The Base64 encoded, 64-bit `CRC64NVME` checksum of the part. This checksum is present if the multipart upload request was created with the `CRC64NVME` checksum algorithm, or if the object was uploaded without a checksum (and Amazon S3 added the default checksum, `CRC64NVME`, to the uploaded object). For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumSHA1

The Base64 encoded, 160-bit `SHA1` checksum of the part. This checksum is present if the object was uploaded with the `SHA1` checksum algorithm. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ChecksumSHA256

The Base64 encoded, 256-bit SHA256 checksum of the part. This checksum is present if the object was uploaded with the SHA256 checksum algorithm. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Required: No

ETag

Entity tag returned when the part was uploaded.

Type: String

Required: No

LastModified

Date and time at which the part was uploaded.

Type: Timestamp

Required: No

PartNumber

Part number identifying the part. This is a positive integer between 1 and 10,000.

Type: Integer

Required: No

Size

Size in bytes of the uploaded part data.

Type: Long

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

PartitionedPrefix

Service: Amazon S3

Amazon S3 keys for log objects are partitioned in the following format:

`[DestinationPrefix][SourceAccountId]/[SourceRegion]/[SourceBucket]/[YYYY]/[MM]/[DD]/[YYYY]-[MM]-[DD]-[hh]-[mm]-[ss]-[UniqueString]`

PartitionedPrefix defaults to EventTime delivery when server access logs are delivered.

Contents

PartitionDateSource

Specifies the partition date source for the partitioned prefix. `PartitionDateSource` can be `EventTime` or `DeliveryTime`.

For `DeliveryTime`, the time in the log file names corresponds to the delivery time for the log files.

For `EventTime`, The logs delivered are for a specific day only. The year, month, and day correspond to the day on which the event occurred, and the hour, minutes and seconds are set to 00 in the key.

Type: String

Valid Values: `EventTime | DeliveryTime`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

PolicyStatus

Service: Amazon S3

The container element for a bucket's policy status.

Contents

IsPublic

The policy status for this bucket. TRUE indicates that this bucket is public. FALSE indicates that the bucket is not public.

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Progress

Service: Amazon S3

This data type contains information about progress of an operation.

Contents

BytesProcessed

The current number of uncompressed object bytes processed.

Type: Long

Required: No

BytesReturned

The current number of bytes of records payload data returned.

Type: Long

Required: No

BytesScanned

The current number of object bytes scanned.

Type: Long

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ProgressEvent

Service: Amazon S3

This data type contains information about the progress event of an operation.

Contents

Details

The Progress event details.

Type: Progress data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

PublicAccessBlockConfiguration

Service: Amazon S3

The PublicAccessBlock configuration that you want to apply to this Amazon S3 bucket. You can enable the configuration options in any combination. For more information about when Amazon S3 considers a bucket or object public, see The Meaning of "Public" in the *Amazon S3 User Guide*.

Contents

BlockPublicAcls

Specifies whether Amazon S3 should block public access control lists (ACLs) for this bucket and objects in this bucket. Setting this element to TRUE causes the following behavior:

- PUT Bucket ACL and PUT Object ACL calls fail if the specified ACL is public.
- PUT Object calls fail if the request includes a public ACL.
- PUT Bucket calls fail if the request includes a public ACL.

Enabling this setting doesn't affect existing policies or ACLs.

Type: Boolean

Required: No

BlockPublicPolicy

Specifies whether Amazon S3 should block public bucket policies for this bucket. Setting this element to TRUE causes Amazon S3 to reject calls to PUT Bucket policy if the specified bucket policy allows public access.

Enabling this setting doesn't affect existing bucket policies.

Type: Boolean

Required: No

IgnorePublicAcls

Specifies whether Amazon S3 should ignore public ACLs for this bucket and objects in this bucket. Setting this element to TRUE causes Amazon S3 to ignore all public ACLs on this bucket and objects in this bucket.

Enabling this setting doesn't affect the persistence of any existing ACLs and doesn't prevent new public ACLs from being set.

Type: Boolean

Required: No

RestrictPublicBuckets

Specifies whether Amazon S3 should restrict public bucket policies for this bucket. Setting this element to TRUE restricts access to this bucket to only AWS service principals and authorized users within this account if the bucket has a public policy.

Enabling this setting doesn't affect previously stored bucket policies, except that public and cross-account access within any public bucket policy, including non-public delegation to specific accounts, is blocked.

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

QueueConfiguration

Service: Amazon S3

Specifies the configuration for publishing messages to an Amazon Simple Queue Service (Amazon SQS) queue when Amazon S3 detects specified events.

Contents

Events

A collection of bucket events for which to send notifications

Type: Array of strings

Valid Values: `s3:ReducedRedundancyLostObject | s3:ObjectCreated:* | s3:ObjectCreated:Put | s3:ObjectCreated:Post | s3:ObjectCreated:Copy | s3:ObjectCreated:CompleteMultipartUpload | s3:ObjectRemoved:* | s3:ObjectRemoved:Delete | s3:ObjectRemoved:DeleteMarkerCreated | s3:ObjectRestore:* | s3:ObjectRestore:Post | s3:ObjectRestore:Completed | s3:Replication:* | s3:Replication:OperationFailedReplication | s3:Replication:OperationNotTracked | s3:Replication:OperationMissedThreshold | s3:Replication:OperationReplicatedAfterThreshold | s3:ObjectRestore:Delete | s3:LifecycleTransition | s3:IntelligentTiering | s3:ObjectAcl:Put | s3:LifecycleExpiration:* | s3:LifecycleExpiration:Delete | s3:LifecycleExpiration:DeleteMarkerCreated | s3:ObjectTagging:* | s3:ObjectTagging:Put | s3:ObjectTagging:Delete`

Required: Yes

QueueArn

The Amazon Resource Name (ARN) of the Amazon SQS queue to which Amazon S3 publishes a message when it detects events of the specified type.

Type: String

Required: Yes

Filter

Specifies object key name filtering rules. For information about key name filtering, see Configuring event notifications using object key name filtering in the *Amazon S3 User Guide*.

Type: NotificationConfigurationFilter data type

Required: No

Id

An optional unique identifier for configurations in a notification configuration. If you don't provide one, Amazon S3 will assign an ID.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

QueueConfigurationDeprecated

Service: Amazon S3

This data type is deprecated. Use QueueConfiguration for the same purposes. This data type specifies the configuration for publishing messages to an Amazon Simple Queue Service (Amazon SQS) queue when Amazon S3 detects specified events.

Contents

Event

This member has been deprecated.

The bucket event for which to send notifications.

Type: String

Valid Values: `s3:ReducedRedundancyLostObject | s3:ObjectCreated:* | s3:ObjectCreated:Put | s3:ObjectCreated:Post | s3:ObjectCreated:Copy | s3:ObjectCreated:CompleteMultipartUpload | s3:ObjectRemoved:* | s3:ObjectRemoved:Delete | s3:ObjectRemoved:DeleteMarkerCreated | s3:ObjectRestore:* | s3:ObjectRestore:Post | s3:ObjectRestore:Completed | s3:Replication:* | s3:Replication:OperationFailedReplication | s3:Replication:OperationNotTracked | s3:Replication:OperationMissedThreshold | s3:Replication:OperationReplicatedAfterThreshold | s3:ObjectRestore:Delete | s3:LifecycleTransition | s3:IntelligentTiering | s3:ObjectAcl:Put | s3:LifecycleExpiration:* | s3:LifecycleExpiration:Delete | s3:LifecycleExpiration:DeleteMarkerCreated | s3:ObjectTagging:* | s3:ObjectTagging:Put | s3:ObjectTagging:Delete`

Required: No

Events

A collection of bucket events for which to send notifications.

Type: Array of strings

Valid Values: `s3:ReducedRedundancyLostObject | s3:ObjectCreated:* | s3:ObjectCreated:Put | s3:ObjectCreated:Post | s3:ObjectCreated:Copy`

```
| s3:ObjectCreated:CompleteMultipartUpload | s3:ObjectRemoved:* |
s3:ObjectRemoved:Delete | s3:ObjectRemoved:DeleteMarkerCreated |
s3:ObjectRestore:* | s3:ObjectRestore:Post | s3:ObjectRestore:Completed
| s3:Replication:* | s3:Replication:OperationFailedReplication |
s3:Replication:OperationNotTracked |
s3:Replication:OperationMissedThreshold |
s3:Replication:OperationReplicatedAfterThreshold |
s3:ObjectRestore:Delete | s3:LifecycleTransition |
s3:IntelligentTiering | s3:ObjectAcl:Put | s3:LifecycleExpiration:* |
s3:LifecycleExpiration:Delete |
s3:LifecycleExpiration:DeleteMarkerCreated | s3:ObjectTagging:* |
s3:ObjectTagging:Put | s3:ObjectTagging:Delete
```

Required: No

Id

An optional unique identifier for configurations in a notification configuration. If you don't provide one, Amazon S3 will assign an ID.

Type: String

Required: No

Queue

The Amazon Resource Name (ARN) of the Amazon SQS queue to which Amazon S3 publishes a message when it detects events of the specified type.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

RecordExpiration

Service: Amazon S3

The journal table record expiration settings for a journal table in an S3 Metadata configuration.

Contents

Expiration

Specifies whether journal table record expiration is enabled or disabled.

Type: String

Valid Values: `ENABLED | DISABLED`

Required: Yes

Days

If you enable journal table record expiration, you can set the number of days to retain your journal table records. Journal table records must be retained for a minimum of 7 days. To set this value, specify any whole number from 7 to 2147483647. For example, to retain your journal table records for one year, set this value to 365.

Type: Integer

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

RecordsEvent

Service: Amazon S3

The container for the records event.

Contents

Payload

The byte array of partial, one or more result records. S3 Select doesn't guarantee that a record will be self-contained in one record frame. To ensure continuous streaming of data, S3 Select might split the same record across multiple record frames instead of aggregating the results in memory. Some S3 clients (for example, the AWS SDK for Java) handle this behavior by creating a `ByteStream` out of the response by default. Other clients might not handle this behavior by default. In those cases, you must aggregate the results on the client side and parse the response.

Type: Base64-encoded binary data object

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Redirect

Service: Amazon S3

Specifies how requests are redirected. In the event of an error, you can specify a different error code to return.

Contents

HostName

The host name to use in the redirect request.

Type: String

Required: No

HttpRedirectCode

The HTTP redirect code to use on the response. Not required if one of the siblings is present.

Type: String

Required: No

Protocol

Protocol to use when redirecting requests. The default is the protocol that is used in the original request.

Type: String

Valid Values: `http | https`

Required: No

ReplaceKeyPrefixWith

The object key prefix to use in the redirect request. For example, to redirect requests for all pages with prefix `docs/` (objects in the `docs/` folder) to `documents/`, you can set a condition block with `KeyPrefixEquals` set to `docs/` and in the Redirect set `ReplaceKeyPrefixWith` to `/documents`. Not required if one of the siblings is present. Can be present only if `ReplaceKeyWith` is not provided.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

Type: String

Required: No

ReplaceKeyWith

The specific object key to use in the redirect request. For example, redirect request to `error.html`. Not required if one of the siblings is present. Can be present only if `ReplaceKeyPrefixWith` is not provided.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

RedirectAllRequestsTo

Service: Amazon S3

Specifies the redirect behavior of all requests to a website endpoint of an Amazon S3 bucket.

Contents

HostName

Name of the host where requests are redirected.

Type: String

Required: Yes

Protocol

Protocol to use when redirecting requests. The default is the protocol that is used in the original request.

Type: String

Valid Values: `http | https`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ReplicaModifications

Service: Amazon S3

A filter that you can specify for selection for modifications on replicas. Amazon S3 doesn't replicate replica modifications by default. In the latest version of replication configuration (when `Filter` is specified), you can specify this element and set the status to `Enabled` to replicate modifications on replicas.

> **Note**
>
> If you don't specify the `Filter` element, Amazon S3 assumes that the replication configuration is the earlier version, V1. In the earlier version, this element is not allowed.

Contents

Status

Specifies whether Amazon S3 replicates modifications on replicas.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ReplicationConfiguration

Service: Amazon S3

A container for replication rules. You can add up to 1,000 rules. The maximum size of a replication configuration is 2 MB.

Contents

Role

The Amazon Resource Name (ARN) of the AWS Identity and Access Management (IAM) role that Amazon S3 assumes when replicating objects. For more information, see How to Set Up Replication in the *Amazon S3 User Guide*.

Type: String

Required: Yes

Rules

A container for one or more replication rules. A replication configuration must have at least one rule and can contain a maximum of 1,000 rules.

Type: Array of ReplicationRule data types

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ReplicationRule

Service: Amazon S3

Specifies which Amazon S3 objects to replicate and where to store the replicas.

Contents

Destination

A container for information about the replication destination and its configurations including enabling the S3 Replication Time Control (S3 RTC).

Type: Destination data type

Required: Yes

Status

Specifies whether the rule is enabled.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

DeleteMarkerReplication

Specifies whether Amazon S3 replicates delete markers. If you specify a `Filter` in your replication configuration, you must also include a `DeleteMarkerReplication` element. If your `Filter` includes a `Tag` element, the `DeleteMarkerReplication` `Status` must be set to Disabled, because Amazon S3 does not support replicating delete markers for tag-based rules. For an example configuration, see Basic Rule Configuration.

For more information about delete marker replication, see Basic Rule Configuration.

> **Note**
>
> If you are using an earlier version of the replication configuration, Amazon S3 handles replication of delete markers differently. For more information, see Backward Compatibility.

Type: DeleteMarkerReplication data type

Required: No

ExistingObjectReplication

Optional configuration to replicate existing source bucket objects.

> **Note**
>
> This parameter is no longer supported. To replicate existing objects, see Replicating existing objects with S3 Batch Replication in the *Amazon S3 User Guide*.

Type: ExistingObjectReplication data type

Required: No

Filter

A filter that identifies the subset of objects to which the replication rule applies. A `Filter` must specify exactly one `Prefix`, `Tag`, or an `And` child element.

Type: ReplicationRuleFilter data type

Required: No

ID

A unique identifier for the rule. The maximum value is 255 characters.

Type: String

Required: No

Prefix

This member has been deprecated.

An object key name prefix that identifies the object or objects to which the rule applies. The maximum prefix length is 1,024 characters. To include all objects in a bucket, specify an empty string.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

Type: String

Required: No

Priority

The priority indicates which rule has precedence whenever two or more replication rules conflict. Amazon S3 will attempt to replicate objects according to all replication rules. However, if there are two or more rules with the same destination bucket, then objects will be replicated according to the rule with the highest priority. The higher the number, the higher the priority.

For more information, see Replication in the *Amazon S3 User Guide*.

Type: Integer

Required: No

SourceSelectionCriteria

A container that describes additional filters for identifying the source objects that you want to replicate. You can choose to enable or disable the replication of these objects. Currently, Amazon S3 supports only the filter that you can specify for objects created with server-side encryption using a customer managed key stored in AWS Key Management Service (SSE-KMS).

Type: SourceSelectionCriteria data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++

- AWS SDK for Java V2
- AWS SDK for Ruby V3

ReplicationRuleAndOperator

Service: Amazon S3

A container for specifying rule filters. The filters determine the subset of objects to which the rule applies. This element is required only if you specify more than one filter.

For example:

- If you specify both a `Prefix` and a `Tag` filter, wrap these filters in an And tag.
- If you specify a filter based on multiple tags, wrap the `Tag` elements in an And tag.

Contents

Prefix

An object key name prefix that identifies the subset of objects to which the rule applies.

Type: String

Required: No

Tags

An array of tags containing key and value pairs.

Type: Array of Tag data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ReplicationRuleFilter

Service: Amazon S3

A filter that identifies the subset of objects to which the replication rule applies. A `Filter` must specify exactly one `Prefix`, `Tag`, or an `And` child element.

Contents

And

A container for specifying rule filters. The filters determine the subset of objects to which the rule applies. This element is required only if you specify more than one filter. For example:

- If you specify both a `Prefix` and a `Tag` filter, wrap these filters in an `And` tag.
- If you specify a filter based on multiple tags, wrap the `Tag` elements in an `And` tag.

Type: ReplicationRuleAndOperator data type

Required: No

Prefix

An object key name prefix that identifies the subset of objects to which the rule applies.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

Type: String

Required: No

Tag

A container for specifying a tag key and value.

The rule applies only to objects that have the tag in their tag set.

Type: Tag data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ReplicationTime

Service: Amazon S3

A container specifying S3 Replication Time Control (S3 RTC) related information, including whether S3 RTC is enabled and the time when all objects and operations on objects must be replicated. Must be specified together with a `Metrics` block.

Contents

Status

Specifies whether the replication time is enabled.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

Time

A container specifying the time by which replication should be complete for all objects and operations on objects.

Type: ReplicationTimeValue data type

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ReplicationTimeValue

Service: Amazon S3

A container specifying the time value for S3 Replication Time Control (S3 RTC) and replication metrics `EventThreshold`.

Contents

Minutes

Contains an integer specifying time in minutes.

Valid value: 15

Type: Integer

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

RequestPaymentConfiguration

Service: Amazon S3

Container for Payer.

Contents

Payer

Specifies who pays for the download and request fees.

Type: String

Valid Values: `Requester | BucketOwner`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

RequestProgress

Service: Amazon S3

Container for specifying if periodic `QueryProgress` messages should be sent.

Contents

Enabled

Specifies whether periodic QueryProgress frames should be sent. Valid values: TRUE, FALSE. Default value: FALSE.

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

RestoreRequest

Service: Amazon S3

Container for restore job parameters.

Contents

Days

Lifetime of the active copy in days. Do not use with restores that specify `OutputLocation`.

The Days element is required for regular restores, and must not be provided for select requests.

Type: Integer

Required: No

Description

The optional description for the job.

Type: String

Required: No

GlacierJobParameters

S3 Glacier related parameters pertaining to this job. Do not use with restores that specify `OutputLocation`.

Type: GlacierJobParameters data type

Required: No

OutputLocation

Describes the location where the restore job's output is stored.

Type: OutputLocation data type

Required: No

SelectParameters

> **Important**
>
> Amazon S3 Select is no longer available to new customers. Existing customers of Amazon S3 Select can continue to use the feature as usual. Learn more

Describes the parameters for Select job types.

Type: SelectParameters data type

Required: No

Tier

Retrieval tier at which the restore will be processed.

Type: String

Valid Values: `Standard | Bulk | Expedited`

Required: No

Type

> **Important**
>
> Amazon S3 Select is no longer available to new customers. Existing customers of Amazon S3 Select can continue to use the feature as usual. Learn more

Type of restore request.

Type: String

Valid Values: `SELECT`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

RestoreStatus

Service: Amazon S3

Specifies the restoration status of an object. Objects in certain storage classes must be restored before they can be retrieved. For more information about these storage classes and how to work with archived objects, see Working with archived objects in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported for directory buckets. Directory buckets only support `EXPRESS_ONEZONE` (the S3 Express One Zone storage class) in Availability Zones and `ONEZONE_IA` (the S3 One Zone-Infrequent Access storage class) in Dedicated Local Zones.

Contents

IsRestoreInProgress

Specifies whether the object is currently being restored. If the object restoration is in progress, the header returns the value `TRUE`. For example:

```
x-amz-optional-object-attributes: IsRestoreInProgress="true"
```

If the object restoration has completed, the header returns the value `FALSE`. For example:

```
x-amz-optional-object-attributes: IsRestoreInProgress="false",
RestoreExpiryDate="2012-12-21T00:00:00.000Z"
```

If the object hasn't been restored, there is no header response.

Type: Boolean

Required: No

RestoreExpiryDate

Indicates when the restored copy will expire. This value is populated only if the object has already been restored. For example:

```
x-amz-optional-object-attributes: IsRestoreInProgress="false",
RestoreExpiryDate="2012-12-21T00:00:00.000Z"
```

Type: Timestamp

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

RoutingRule

Service: Amazon S3

Specifies the redirect behavior and when a redirect is applied. For more information about routing rules, see Configuring advanced conditional redirects in the *Amazon S3 User Guide*.

Contents

Redirect

Container for redirect information. You can redirect requests to another host, to another page, or with another protocol. In the event of an error, you can specify a different error code to return.

Type: Redirect data type

Required: Yes

Condition

A container for describing a condition that must be met for the specified redirect to apply. For example, 1. If request is for pages in the `/docs` folder, redirect to the `/documents` folder. 2. If request results in HTTP error 4xx, redirect request to another host where you might process the error.

Type: Condition data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Rule

Service: Amazon S3

Specifies lifecycle rules for an Amazon S3 bucket. For more information, see Put Bucket Lifecycle Configuration in the *Amazon S3 API Reference*. For examples, see Put Bucket Lifecycle Configuration Examples.

Contents

Prefix

Object key prefix that identifies one or more objects to which this rule applies.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

Type: String

Required: Yes

Status

If `Enabled`, the rule is currently being applied. If `Disabled`, the rule is not currently being applied.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

AbortIncompleteMultipartUpload

Specifies the days since the initiation of an incomplete multipart upload that Amazon S3 will wait before permanently removing all parts of the upload. For more information, see Aborting Incomplete Multipart Uploads Using a Bucket Lifecycle Configuration in the *Amazon S3 User Guide*.

Type: AbortIncompleteMultipartUpload data type

Required: No

Expiration

Specifies the expiration for the lifecycle of the object.

Type: LifecycleExpiration data type

Required: No

ID

Unique identifier for the rule. The value can't be longer than 255 characters.

Type: String

Required: No

NoncurrentVersionExpiration

Specifies when noncurrent object versions expire. Upon expiration, Amazon S3 permanently deletes the noncurrent object versions. You set this lifecycle configuration action on a bucket that has versioning enabled (or suspended) to request that Amazon S3 delete noncurrent object versions at a specific period in the object's lifetime.

> **Note**
>
> This parameter applies to general purpose buckets only. It is not supported for directory bucket lifecycle configurations.

Type: NoncurrentVersionExpiration data type

Required: No

NoncurrentVersionTransition

Container for the transition rule that describes when noncurrent objects transition to the `STANDARD_IA`, `ONEZONE_IA`, `INTELLIGENT_TIERING`, `GLACIER_IR`, `GLACIER`, or `DEEP_ARCHIVE` storage class. If your bucket is versioning-enabled (or versioning is suspended), you can set this action to request that Amazon S3 transition noncurrent object versions to the `STANDARD_IA`, `ONEZONE_IA`, `INTELLIGENT_TIERING`, `GLACIER_IR`, `GLACIER`, or `DEEP_ARCHIVE` storage class at a specific period in the object's lifetime.

Type: NoncurrentVersionTransition data type

Required: No

Transition

Specifies when an object transitions to a specified storage class. For more information about Amazon S3 lifecycle configuration rules, see Transitioning Objects Using Amazon S3 Lifecycle in the *Amazon S3 User Guide*.

Type: Transition data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3KeyFilter

Service: Amazon S3

A container for object key name prefix and suffix filtering rules.

Contents

FilterRules

A list of containers for the key-value pair that defines the criteria for the filter rule.

Type: Array of FilterRule data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3Location

Service: Amazon S3

Describes an Amazon S3 location that will receive the results of the restore request.

Contents

BucketName

The name of the bucket where the restore results will be placed.

Type: String

Required: Yes

Prefix

The prefix that is prepended to the restore results for this request.

Type: String

Required: Yes

AccessControlList

A list of grants that control access to the staged results.

Type: Array of Grant data types

Required: No

CannedACL

The canned ACL to apply to the restore results.

Type: String

Valid Values: `private | public-read | public-read-write | authenticated-read | aws-exec-read | bucket-owner-read | bucket-owner-full-control`

Required: No

Encryption

Contains the type of server-side encryption used.

Type: Encryption data type

Required: No

StorageClass

The class of storage used to store the restore results.

Type: String

Valid Values: `STANDARD | REDUCED_REDUNDANCY | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | GLACIER | DEEP_ARCHIVE | OUTPOSTS | GLACIER_IR | SNOW | EXPRESS_ONEZONE | FSX_OPENZFS`

Required: No

Tagging

The tag-set that is applied to the restore results.

Type: Tagging data type

Required: No

UserMetadata

A list of metadata to store with the restore results in S3.

Type: Array of MetadataEntry data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3TablesDestination

Service: Amazon S3

The destination information for a V1 S3 Metadata configuration. The destination table bucket must be in the same Region and AWS account as the general purpose bucket. The specified metadata table name must be unique within the `aws_s3_metadata` namespace in the destination table bucket.

> **Note**
>
> If you created your S3 Metadata configuration before July 15, 2025, we recommend that you delete and re-create your configuration by using CreateBucketMetadataConfiguration so that you can expire journal table records and create a live inventory table.

Contents

TableBucketArn

The Amazon Resource Name (ARN) for the table bucket that's specified as the destination in the metadata table configuration. The destination table bucket must be in the same Region and AWS account as the general purpose bucket.

Type: String

Required: Yes

TableName

The name for the metadata table in your metadata table configuration. The specified metadata table name must be unique within the `aws_s3_metadata` namespace in the destination table bucket.

Type: String

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3TablesDestinationResult

Service: Amazon S3

The destination information for a V1 S3 Metadata configuration. The destination table bucket must be in the same Region and AWS account as the general purpose bucket. The specified metadata table name must be unique within the `aws_s3_metadata` namespace in the destination table bucket.

> **Note**
>
> If you created your S3 Metadata configuration before July 15, 2025, we recommend that you delete and re-create your configuration by using CreateBucketMetadataConfiguration so that you can expire journal table records and create a live inventory table.

Contents

TableArn

The Amazon Resource Name (ARN) for the metadata table in the metadata table configuration. The specified metadata table name must be unique within the `aws_s3_metadata` namespace in the destination table bucket.

Type: String

Required: Yes

TableBucketArn

The Amazon Resource Name (ARN) for the table bucket that's specified as the destination in the metadata table configuration. The destination table bucket must be in the same Region and AWS account as the general purpose bucket.

Type: String

Required: Yes

TableName

The name for the metadata table in your metadata table configuration. The specified metadata table name must be unique within the `aws_s3_metadata` namespace in the destination table bucket.

Type: String

Required: Yes

TableNamespace

The table bucket namespace for the metadata table in your metadata table configuration. This value is always `aws_s3_metadata`.

Type: String

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ScanRange

Service: Amazon S3

Specifies the byte range of the object to get the records from. A record is processed when its first byte is contained by the range. This parameter is optional, but when specified, it must not be empty. See RFC 2616, Section 14.35.1 about how to specify the start and end of the range.

Contents

End

Specifies the end of the byte range. This parameter is optional. Valid values: non-negative integers. The default value is one less than the size of the object being queried. If only the End parameter is supplied, it is interpreted to mean scan the last N bytes of the file. For example, `<scanrange><end>50</end></scanrange>` means scan the last 50 bytes.

Type: Long

Required: No

Start

Specifies the start of the byte range. This parameter is optional. Valid values: non-negative integers. The default value is 0. If only `start` is supplied, it means scan from that point to the end of the file. For example, `<scanrange><start>50</start></scanrange>` means scan from byte 50 until the end of the file.

Type: Long

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

SelectObjectContentEventStream

Service: Amazon S3

The container for selecting objects from a content event stream.

Contents

Cont

The Continuation Event.

Type: ContinuationEvent data type

Required: No

End

The End Event.

Type: EndEvent data type

Required: No

Progress

The Progress Event.

Type: ProgressEvent data type

Required: No

Records

The Records Event.

Type: RecordsEvent data type

Required: No

Stats

The Stats Event.

Type: StatsEvent data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

SelectParameters

Service: Amazon S3

> **Important**
>
> Amazon S3 Select is no longer available to new customers. Existing customers of Amazon S3 Select can continue to use the feature as usual. Learn more

Describes the parameters for Select job types.

Learn How to optimize querying your data in Amazon S3 using Amazon Athena, S3 Object Lambda, or client-side filtering.

Contents

Expression

> **Important**
>
> Amazon S3 Select is no longer available to new customers. Existing customers of Amazon S3 Select can continue to use the feature as usual. Learn more

The expression that is used to query the object.

Type: String

Required: Yes

ExpressionType

The type of the provided expression (for example, SQL).

Type: String

Valid Values: SQL

Required: Yes

InputSerialization

Describes the serialization format of the object.

Type: InputSerialization data type

Required: Yes

OutputSerialization

Describes how the results of the Select job are serialized.

Type: OutputSerialization data type

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ServerSideEncryptionByDefault

Service: Amazon S3

Describes the default server-side encryption to apply to new objects in the bucket. If a PUT Object request doesn't specify any server-side encryption, this default encryption will be applied. For more information, see PutBucketEncryption.

> **Note**
>
> - **General purpose buckets** - If you don't specify a customer managed key at configuration, Amazon S3 automatically creates an AWS KMS key (`aws/s3`) in your AWS account the first time that you add an object encrypted with SSE-KMS to a bucket. By default, Amazon S3 uses this KMS key for SSE-KMS.
> - **Directory buckets** - Your SSE-KMS configuration can only support 1 customer managed key per directory bucket's lifetime. The AWS managed key (`aws/s3`) isn't supported.
> - **Directory buckets** - For directory buckets, there are only two supported options for server-side encryption: SSE-S3 and SSE-KMS.

Contents

SSEAlgorithm

Server-side encryption algorithm to use for the default encryption.

> **Note**
>
> For directory buckets, there are only two supported values for server-side encryption: `AES256` and `aws:kms`.

Type: String

Valid Values: `AES256` | `aws:fsx` | `aws:kms` | `aws:kms:dsse`

Required: Yes

KMSMasterKeyID

AWS Key Management Service (KMS) customer managed key ID to use for the default encryption.

> **Note**
>
> - **General purpose buckets** - This parameter is allowed if and only if `SSEAlgorithm` is set to `aws:kms` or `aws:kms:dsse`.
> - **Directory buckets** - This parameter is allowed if and only if `SSEAlgorithm` is set to `aws:kms`.

You can specify the key ID, key alias, or the Amazon Resource Name (ARN) of the KMS key.

- Key ID: `1234abcd-12ab-34cd-56ef-1234567890ab`
- Key ARN: `arn:aws:kms:us-east-2:111122223333:key/1234abcd-12ab-34cd-56ef-1234567890ab`
- Key Alias: `alias/alias-name`

If you are using encryption with cross-account or AWS service operations, you must use a fully qualified KMS key ARN. For more information, see Using encryption for cross-account operations.

> **Note**
>
> - **General purpose buckets** - If you're specifying a customer managed KMS key, we recommend using a fully qualified KMS key ARN. If you use a KMS key alias instead, then AWS KMS resolves the key within the requester's account. This behavior can result in data that's encrypted with a KMS key that belongs to the requester, and not the bucket owner. Also, if you use a key ID, you can run into a LogDestination undeliverable error when creating a VPC flow log.
> - **Directory buckets** - When you specify an AWS KMS customer managed key for encryption in your directory bucket, only use the key ID or key ARN. The key alias format of the KMS key isn't supported.

> **Important**
>
> Amazon S3 only supports symmetric encryption KMS keys. For more information, see Asymmetric keys in AWS KMS in the *AWS Key Management Service Developer Guide*.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ServerSideEncryptionConfiguration

Service: Amazon S3

Specifies the default server-side-encryption configuration.

Contents

Rules

Container for information about a particular server-side encryption configuration rule.

Type: Array of ServerSideEncryptionRule data types

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ServerSideEncryptionRule

Service: Amazon S3

Specifies the default server-side encryption configuration.

> **Note**
>
> - **General purpose buckets** - If you're specifying a customer managed KMS key, we recommend using a fully qualified KMS key ARN. If you use a KMS key alias instead, then AWS KMS resolves the key within the requester's account. This behavior can result in data that's encrypted with a KMS key that belongs to the requester, and not the bucket owner.
> - **Directory buckets** - When you specify an AWS KMS customer managed key for encryption in your directory bucket, only use the key ID or key ARN. The key alias format of the KMS key isn't supported.

Contents

ApplyServerSideEncryptionByDefault

Specifies the default server-side encryption to apply to new objects in the bucket. If a PUT Object request doesn't specify any server-side encryption, this default encryption will be applied.

Type: ServerSideEncryptionByDefault data type

Required: No

BucketKeyEnabled

Specifies whether Amazon S3 should use an S3 Bucket Key with server-side encryption using KMS (SSE-KMS) for new objects in the bucket. Existing objects are not affected. Setting the `BucketKeyEnabled` element to `true` causes Amazon S3 to use an S3 Bucket Key.

> **Note**
>
> - **General purpose buckets** - By default, S3 Bucket Key is not enabled. For more information, see Amazon S3 Bucket Keys in the *Amazon S3 User Guide*.
> - **Directory buckets** - S3 Bucket Keys are always enabled for `GET` and `PUT` operations in a directory bucket and can't be disabled. S3 Bucket Keys aren't supported, when you

copy SSE-KMS encrypted objects from general purpose buckets to directory buckets, from directory buckets to general purpose buckets, or between directory buckets, through CopyObject, UploadPartCopy, the Copy operation in Batch Operations, or the import jobs. In this case, Amazon S3 makes a call to AWS KMS every time a copy request is made for a KMS-encrypted object.

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

SessionCredentials

Service: Amazon S3

The established temporary security credentials of the session.

> **Note**
>
> **Directory buckets** - These session credentials are only supported for the authentication and authorization of Zonal endpoint API operations on directory buckets.

Contents

AccessKeyId

A unique identifier that's associated with a secret access key. The access key ID and the secret access key are used together to sign programmatic AWS requests cryptographically.

Type: String

Required: Yes

Expiration

Temporary security credentials expire after a specified interval. After temporary credentials expire, any calls that you make with those credentials will fail. So you must generate a new set of temporary credentials. Temporary credentials cannot be extended or refreshed beyond the original specified interval.

Type: Timestamp

Required: Yes

SecretAccessKey

A key that's used with the access key ID to cryptographically sign programmatic AWS requests. Signing a request identifies the sender and prevents the request from being altered.

Type: String

Required: Yes

SessionToken

A part of the temporary security credentials. The session token is used to validate the temporary security credentials.

Type: String

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

SimplePrefix

Service: Amazon S3

To use simple format for S3 keys for log objects, set SimplePrefix to an empty object.

`[DestinationPrefix][YYYY]-[MM]-[DD]-[hh]-[mm]-[ss]-[UniqueString]`

Contents

The members of this exception structure are context-dependent.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

SourceSelectionCriteria

Service: Amazon S3

A container that describes additional filters for identifying the source objects that you want to replicate. You can choose to enable or disable the replication of these objects. Currently, Amazon S3 supports only the filter that you can specify for objects created with server-side encryption using a customer managed key stored in AWS Key Management Service (SSE-KMS).

Contents

ReplicaModifications

A filter that you can specify for selections for modifications on replicas. Amazon S3 doesn't replicate replica modifications by default. In the latest version of replication configuration (when `Filter` is specified), you can specify this element and set the status to `Enabled` to replicate modifications on replicas.

> **Note**
>
> If you don't specify the `Filter` element, Amazon S3 assumes that the replication configuration is the earlier version, V1. In the earlier version, this element is not allowed

Type: ReplicaModifications data type

Required: No

SseKmsEncryptedObjects

A container for filter information for the selection of Amazon S3 objects encrypted with AWS KMS. If you include `SourceSelectionCriteria` in the replication configuration, this element is required.

Type: SseKmsEncryptedObjects data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

SSEKMS

Service: Amazon S3

Specifies the use of SSE-KMS to encrypt delivered inventory reports.

Contents

KeyId

Specifies the ID of the AWS Key Management Service (AWS KMS) symmetric encryption customer managed key to use for encrypting inventory reports.

Type: String

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

SseKmsEncryptedObjects

Service: Amazon S3

A container for filter information for the selection of S3 objects encrypted with AWS KMS.

Contents

Status

Specifies whether Amazon S3 replicates objects created with server-side encryption using an AWS KMS key stored in AWS Key Management Service.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

SSES3

Service: Amazon S3

Specifies the use of SSE-S3 to encrypt delivered inventory reports.

Contents

The members of this exception structure are context-dependent.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Stats

Service: Amazon S3

Container for the stats details.

Contents

BytesProcessed

The total number of uncompressed object bytes processed.

Type: Long

Required: No

BytesReturned

The total number of bytes of records payload data returned.

Type: Long

Required: No

BytesScanned

The total number of object bytes scanned.

Type: Long

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

StatsEvent

Service: Amazon S3

Container for the Stats Event.

Contents

Details

The Stats event details.

Type: Stats data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

StorageClassAnalysis

Service: Amazon S3

Specifies data related to access patterns to be collected and made available to analyze the tradeoffs between different storage classes for an Amazon S3 bucket.

Contents

DataExport

Specifies how data related to the storage class analysis for an Amazon S3 bucket should be exported.

Type: StorageClassAnalysisDataExport data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

StorageClassAnalysisDataExport

Service: Amazon S3

Container for data related to the storage class analysis for an Amazon S3 bucket for export.

Contents

Destination

The place to store the data for an analysis.

Type: AnalyticsExportDestination data type

Required: Yes

OutputSchemaVersion

The version of the output schema to use when exporting data. Must be V_1.

Type: String

Valid Values: V_1

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Tag

Service: Amazon S3

A container of a key value name pair.

Contents

Key

Name of the object key.

Type: String

Length Constraints: Minimum length of 1.

Required: Yes

Value

Value of the tag.

Type: String

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Tagging

Service: Amazon S3

Container for `TagSet` elements.

Contents

TagSet

A collection for a set of tags

Type: Array of Tag data types

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

TargetGrant

Service: Amazon S3

Container for granting information.

Buckets that use the bucket owner enforced setting for Object Ownership don't support target grants. For more information, see Permissions server access log delivery in the *Amazon S3 User Guide*.

Contents

Grantee

Container for the person being granted permissions.

Type: Grantee data type

Required: No

Permission

Logging permissions assigned to the grantee for the bucket.

Type: String

Valid Values: `FULL_CONTROL | READ | WRITE`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

TargetObjectKeyFormat

Service: Amazon S3

Amazon S3 key format for log objects. Only one format, PartitionedPrefix or SimplePrefix, is allowed.

Contents

PartitionedPrefix

Partitioned S3 key for log objects.

Type: PartitionedPrefix data type

Required: No

SimplePrefix

To use the simple format for S3 keys for log objects. To specify SimplePrefix format, set SimplePrefix to {}.

Type: SimplePrefix data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Tiering

Service: Amazon S3

The S3 Intelligent-Tiering storage class is designed to optimize storage costs by automatically moving data to the most cost-effective storage access tier, without additional operational overhead.

Contents

AccessTier

S3 Intelligent-Tiering access tier. See Storage class for automatically optimizing frequently and infrequently accessed objects for a list of access tiers in the S3 Intelligent-Tiering storage class.

Type: String

Valid Values: `ARCHIVE_ACCESS | DEEP_ARCHIVE_ACCESS`

Required: Yes

Days

The number of consecutive days of no access after which an object will be eligible to be transitioned to the corresponding tier. The minimum number of days specified for Archive Access tier must be at least 90 days and Deep Archive Access tier must be at least 180 days. The maximum can be up to 2 years (730 days).

Type: Integer

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

TopicConfiguration

Service: Amazon S3

A container for specifying the configuration for publication of messages to an Amazon Simple Notification Service (Amazon SNS) topic when Amazon S3 detects specified events.

Contents

Events

The Amazon S3 bucket event about which to send notifications. For more information, see Supported Event Types in the *Amazon S3 User Guide*.

Type: Array of strings

Valid Values: `s3:ReducedRedundancyLostObject | s3:ObjectCreated:* | s3:ObjectCreated:Put | s3:ObjectCreated:Post | s3:ObjectCreated:Copy | s3:ObjectCreated:CompleteMultipartUpload | s3:ObjectRemoved:* | s3:ObjectRemoved:Delete | s3:ObjectRemoved:DeleteMarkerCreated | s3:ObjectRestore:* | s3:ObjectRestore:Post | s3:ObjectRestore:Completed | s3:Replication:* | s3:Replication:OperationFailedReplication | s3:Replication:OperationNotTracked | s3:Replication:OperationMissedThreshold | s3:Replication:OperationReplicatedAfterThreshold | s3:ObjectRestore:Delete | s3:LifecycleTransition | s3:IntelligentTiering | s3:ObjectAcl:Put | s3:LifecycleExpiration:* | s3:LifecycleExpiration:Delete | s3:LifecycleExpiration:DeleteMarkerCreated | s3:ObjectTagging:* | s3:ObjectTagging:Put | s3:ObjectTagging:Delete`

Required: Yes

TopicArn

The Amazon Resource Name (ARN) of the Amazon SNS topic to which Amazon S3 publishes a message when it detects events of the specified type.

Type: String

Required: Yes

Filter

Specifies object key name filtering rules. For information about key name filtering, see Configuring event notifications using object key name filtering in the *Amazon S3 User Guide*.

Type: NotificationConfigurationFilter data type

Required: No

Id

An optional unique identifier for configurations in a notification configuration. If you don't provide one, Amazon S3 will assign an ID.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

TopicConfigurationDeprecated

Service: Amazon S3

A container for specifying the configuration for publication of messages to an Amazon Simple Notification Service (Amazon SNS) topic when Amazon S3 detects specified events. This data type is deprecated. Use TopicConfiguration instead.

Contents

Event

This member has been deprecated.

Bucket event for which to send notifications.

Type: String

Valid Values: `s3:ReducedRedundancyLostObject | s3:ObjectCreated:* | s3:ObjectCreated:Put | s3:ObjectCreated:Post | s3:ObjectCreated:Copy | s3:ObjectCreated:CompleteMultipartUpload | s3:ObjectRemoved:* | s3:ObjectRemoved:Delete | s3:ObjectRemoved:DeleteMarkerCreated | s3:ObjectRestore:* | s3:ObjectRestore:Post | s3:ObjectRestore:Completed | s3:Replication:* | s3:Replication:OperationFailedReplication | s3:Replication:OperationNotTracked | s3:Replication:OperationMissedThreshold | s3:Replication:OperationReplicatedAfterThreshold | s3:ObjectRestore:Delete | s3:LifecycleTransition | s3:IntelligentTiering | s3:ObjectAcl:Put | s3:LifecycleExpiration:* | s3:LifecycleExpiration:Delete | s3:LifecycleExpiration:DeleteMarkerCreated | s3:ObjectTagging:* | s3:ObjectTagging:Put | s3:ObjectTagging:Delete`

Required: No

Events

A collection of events related to objects

Type: Array of strings

Valid Values: `s3:ReducedRedundancyLostObject | s3:ObjectCreated:* | s3:ObjectCreated:Put | s3:ObjectCreated:Post | s3:ObjectCreated:Copy`

```
| s3:ObjectCreated:CompleteMultipartUpload | s3:ObjectRemoved:* |
s3:ObjectRemoved:Delete | s3:ObjectRemoved:DeleteMarkerCreated |
s3:ObjectRestore:* | s3:ObjectRestore:Post | s3:ObjectRestore:Completed
| s3:Replication:* | s3:Replication:OperationFailedReplication |
s3:Replication:OperationNotTracked |
s3:Replication:OperationMissedThreshold |
s3:Replication:OperationReplicatedAfterThreshold |
s3:ObjectRestore:Delete | s3:LifecycleTransition |
s3:IntelligentTiering | s3:ObjectAcl:Put | s3:LifecycleExpiration:* |
s3:LifecycleExpiration:Delete |
s3:LifecycleExpiration:DeleteMarkerCreated | s3:ObjectTagging:* |
s3:ObjectTagging:Put | s3:ObjectTagging:Delete
```

Required: No

Id

An optional unique identifier for configurations in a notification configuration. If you don't provide one, Amazon S3 will assign an ID.

Type: String

Required: No

Topic

Amazon SNS topic to which Amazon S3 will publish a message to report the specified events for the bucket.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Transition

Service: Amazon S3

Specifies when an object transitions to a specified storage class. For more information about Amazon S3 lifecycle configuration rules, see Transitioning Objects Using Amazon S3 Lifecycle in the *Amazon S3 User Guide*.

Contents

Date

Indicates when objects are transitioned to the specified storage class. The date value must be in ISO 8601 format. The time is always midnight UTC.

Type: Timestamp

Required: No

Days

Indicates the number of days after creation when objects are transitioned to the specified storage class. If the specified storage class is `INTELLIGENT_TIERING`, `GLACIER_IR`, `GLACIER`, or `DEEP_ARCHIVE`, valid values are `0` or positive integers. If the specified storage class is `STANDARD_IA` or `ONEZONE_IA`, valid values are positive integers greater than `30`. Be aware that some storage classes have a minimum storage duration and that you're charged for transitioning objects before their minimum storage duration. For more information, see Constraints and considerations for transitions in the *Amazon S3 User Guide*.

Type: Integer

Required: No

StorageClass

The storage class to which you want the object to transition.

Type: String

Valid Values: `GLACIER | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | DEEP_ARCHIVE | GLACIER_IR`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

VersioningConfiguration

Service: Amazon S3

Describes the versioning state of an Amazon S3 bucket. For more information, see PUT Bucket versioning in the *Amazon S3 API Reference*.

Contents

MFADelete

Specifies whether MFA delete is enabled in the bucket versioning configuration. This element is only returned if the bucket has been configured with MFA delete. If the bucket has never been so configured, this element is not returned.

Type: String

Valid Values: `Enabled | Disabled`

Required: No

Status

The versioning state of the bucket.

Type: String

Valid Values: `Enabled | Suspended`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

WebsiteConfiguration

Service: Amazon S3

Specifies website configuration parameters for an Amazon S3 bucket.

Contents

ErrorDocument

The name of the error document for the website.

Type: ErrorDocument data type

Required: No

IndexDocument

The name of the index document for the website.

Type: IndexDocument data type

Required: No

RedirectAllRequestsTo

The redirect behavior for every request to this bucket's website endpoint.

> **Important**
>
> If you specify this property, you can't specify any other property.

Type: RedirectAllRequestsTo data type

Required: No

RoutingRules

Rules that define when a redirect is applied and the redirect behavior.

Type: Array of RoutingRule data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Amazon S3 Control

The following data types are supported by Amazon S3 Control:

- AbortIncompleteMultipartUpload
- AccessControlTranslation
- AccessGrantsLocationConfiguration
- AccessPoint
- AccountLevel
- ActivityMetrics
- AdvancedCostOptimizationMetrics
- AdvancedDataProtectionMetrics
- AsyncErrorDetails
- AsyncOperation
- AsyncRequestParameters
- AsyncResponseDetails
- AwsLambdaTransformation
- BucketLevel
- CloudWatchMetrics
- CreateBucketConfiguration
- CreateMultiRegionAccessPointInput
- Credentials
- DeleteMarkerReplication
- DeleteMultiRegionAccessPointInput

- Destination
- DetailedStatusCodesMetrics
- EncryptionConfiguration
- EstablishedMultiRegionAccessPointPolicy
- Exclude
- ExistingObjectReplication
- GeneratedManifestEncryption
- Grantee
- Include
- JobDescriptor
- JobFailure
- JobListDescriptor
- JobManifest
- JobManifestGenerator
- JobManifestGeneratorFilter
- JobManifestLocation
- JobManifestSpec
- JobOperation
- JobProgressSummary
- JobReport
- JobTimers
- KeyNameConstraint
- LambdaInvokeOperation
- LifecycleConfiguration
- LifecycleExpiration
- LifecycleRule
- LifecycleRuleAndOperator
- LifecycleRuleFilter
- ListAccessGrantEntry
- ListAccessGrantsInstanceEntry

- ListAccessGrantsLocationsEntry
- ListCallerAccessGrantsEntry
- ListStorageLensConfigurationEntry
- ListStorageLensGroupEntry
- MatchObjectAge
- MatchObjectSize
- Metrics
- MultiRegionAccessPointPolicyDocument
- MultiRegionAccessPointRegionalResponse
- MultiRegionAccessPointReport
- MultiRegionAccessPointRoute
- MultiRegionAccessPointsAsyncResponse
- NoncurrentVersionExpiration
- NoncurrentVersionTransition
- ObjectLambdaAccessPoint
- ObjectLambdaAccessPointAlias
- ObjectLambdaConfiguration
- ObjectLambdaContentTransformation
- ObjectLambdaTransformationConfiguration
- PolicyStatus
- PrefixLevel
- PrefixLevelStorageMetrics
- ProposedMultiRegionAccessPointPolicy
- PublicAccessBlockConfiguration
- PutMultiRegionAccessPointPolicyInput
- Region
- RegionalBucket
- RegionReport
- ReplicaModifications
- ReplicationConfiguration

- ReplicationRule
- ReplicationRuleAndOperator
- ReplicationRuleFilter
- ReplicationTime
- ReplicationTimeValue
- S3AccessControlList
- S3AccessControlPolicy
- S3BucketDestination
- S3ComputeObjectChecksumOperation
- S3CopyObjectOperation
- S3DeleteObjectTaggingOperation
- S3GeneratedManifestDescriptor
- S3Grant
- S3Grantee
- S3InitiateRestoreObjectOperation
- S3JobManifestGenerator
- S3ManifestOutputLocation
- S3ObjectLockLegalHold
- S3ObjectMetadata
- S3ObjectOwner
- S3ReplicateObjectOperation
- S3Retention
- S3SetObjectAclOperation
- S3SetObjectLegalHoldOperation
- S3SetObjectRetentionOperation
- S3SetObjectTaggingOperation
- S3Tag
- Scope
- SelectionCriteria
- SourceSelectionCriteria

- SSEKMS
- SseKmsEncryptedObjects
- SSEKMSEncryption
- SSES3
- SSES3Encryption
- StorageLensAwsOrg
- StorageLensConfiguration
- StorageLensDataExport
- StorageLensDataExportEncryption
- StorageLensGroup
- StorageLensGroupAndOperator
- StorageLensGroupFilter
- StorageLensGroupLevel
- StorageLensGroupLevelSelectionCriteria
- StorageLensGroupOrOperator
- StorageLensTag
- Tag
- Tagging
- Transition
- VersioningConfiguration
- VpcConfiguration

AbortIncompleteMultipartUpload

Service: Amazon S3 Control

The container for abort incomplete multipart upload

Contents

DaysAfterInitiation

Specifies the number of days after which Amazon S3 aborts an incomplete multipart upload to the Outposts bucket.

Type: Integer

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AccessControlTranslation

Service: Amazon S3 Control

A container for information about access control for replicas.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Contents

Owner

Specifies the replica ownership.

Type: String

Valid Values: `Destination`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AccessGrantsLocationConfiguration

Service: Amazon S3 Control

The configuration options of the S3 Access Grants location. It contains the `S3SubPrefix` field. The grant scope, the data to which you are granting access, is the result of appending the `Subprefix` field to the scope of the registered location.

Contents

S3SubPrefix

The `S3SubPrefix` is appended to the location scope creating the grant scope. Use this field to narrow the scope of the grant to a subset of the location scope. This field is required if the location scope is the default location `s3://` because you cannot create a grant for all of your S3 data in the Region and must narrow the scope. For example, if the location scope is the default location `s3://`, the `S3SubPrefx` can be a <bucket-name>/*, so the full grant scope path would be `s3://<bucket-name>/*`. Or the `S3SubPrefx` can be `<bucket-name>/<prefix-name>*`, so the full grant scope path would be or `s3://<bucket-name>/<prefix-name>*`.

If the `S3SubPrefix` includes a prefix, append the wildcard character `*` after the prefix to indicate that you want to include all object key names in the bucket that start with that prefix.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `^.+$`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AccessPoint

Service: Amazon S3 Control

An access point used to access a bucket.

Contents

Bucket

The name of the bucket associated with this access point.

Type: String

Length Constraints: Maximum length of 255.

Required: Yes

Name

The name of this access point.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

NetworkOrigin

Indicates whether this access point allows access from the public internet. If `VpcConfiguration` is specified for this access point, then `NetworkOrigin` is `VPC`, and the access point doesn't allow access from the public internet. Otherwise, `NetworkOrigin` is `Internet`, and the access point allows access from the public internet, subject to the access point and bucket access policies.

Type: String

Valid Values: `Internet | VPC`

Required: Yes

AccessPointArn

The ARN for the access point.

Type: String

Length Constraints: Minimum length of 4. Maximum length of 128.

Required: No

Alias

The name or alias of the access point.

Type: String

Length Constraints: Maximum length of 63.

Pattern: `^[0-9a-z\\-]{63}`

Required: No

BucketAccountId

The AWS account ID associated with the S3 bucket associated with this access point.

Type: String

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: No

DataSourceId

A unique identifier for the data source of the access point.

Type: String

Length Constraints: Maximum length of 191.

Required: No

DataSourceType

The type of the data source that the access point is attached to.

Type: String

Required: No

VpcConfiguration

The virtual private cloud (VPC) configuration for this access point, if one exists.

> **Note**
>
> This element is empty if this access point is an Amazon S3 on Outposts access point that is used by other AWS services.

Type: VpcConfiguration data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AccountLevel

Service: Amazon S3 Control

A container element for the account-level Amazon S3 Storage Lens configuration.

For more information about S3 Storage Lens, see Assessing your storage activity and usage with S3 Storage Lens in the *Amazon S3 User Guide*. For a complete list of S3 Storage Lens metrics, see S3 Storage Lens metrics glossary in the *Amazon S3 User Guide*.

Contents

BucketLevel

A container element for the S3 Storage Lens bucket-level configuration.

Type: BucketLevel data type

Required: Yes

ActivityMetrics

A container element for S3 Storage Lens activity metrics.

Type: ActivityMetrics data type

Required: No

AdvancedCostOptimizationMetrics

A container element for S3 Storage Lens advanced cost-optimization metrics.

Type: AdvancedCostOptimizationMetrics data type

Required: No

AdvancedDataProtectionMetrics

A container element for S3 Storage Lens advanced data-protection metrics.

Type: AdvancedDataProtectionMetrics data type

Required: No

DetailedStatusCodesMetrics

A container element for detailed status code metrics.

Type: DetailedStatusCodesMetrics data type

Required: No

StorageLensGroupLevel

A container element for S3 Storage Lens groups metrics.

Type: StorageLensGroupLevel data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ActivityMetrics

Service: Amazon S3 Control

The container element for Amazon S3 Storage Lens activity metrics. Activity metrics show details about how your storage is requested, such as requests (for example, All requests, Get requests, Put requests), bytes uploaded or downloaded, and errors.

For more information about S3 Storage Lens, see Assessing your storage activity and usage with S3 Storage Lens in the *Amazon S3 User Guide*. For a complete list of S3 Storage Lens metrics, see S3 Storage Lens metrics glossary in the *Amazon S3 User Guide*.

Contents

IsEnabled

A container that indicates whether activity metrics are enabled.

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AdvancedCostOptimizationMetrics

Service: Amazon S3 Control

The container element for Amazon S3 Storage Lens advanced cost-optimization metrics. Advanced cost-optimization metrics provide insights that you can use to manage and optimize your storage costs, for example, lifecycle rule counts for transitions, expirations, and incomplete multipart uploads.

For more information about S3 Storage Lens, see Assessing your storage activity and usage with S3 Storage Lens in the *Amazon S3 User Guide*. For a complete list of S3 Storage Lens metrics, see S3 Storage Lens metrics glossary in the *Amazon S3 User Guide*.

Contents

IsEnabled

A container that indicates whether advanced cost-optimization metrics are enabled.

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AdvancedDataProtectionMetrics

Service: Amazon S3 Control

The container element for Amazon S3 Storage Lens advanced data-protection metrics. Advanced data-protection metrics provide insights that you can use to perform audits and protect your data, for example replication rule counts within and across Regions.

For more information about S3 Storage Lens, see Assessing your storage activity and usage with S3 Storage Lens in the *Amazon S3 User Guide*. For a complete list of S3 Storage Lens metrics, see S3 Storage Lens metrics glossary in the *Amazon S3 User Guide*.

Contents

IsEnabled

A container that indicates whether advanced data-protection metrics are enabled.

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AsyncErrorDetails

Service: Amazon S3 Control

Error details for the failed asynchronous operation.

Contents

Code

A string that uniquely identifies the error condition.

Type: String

Length Constraints: Maximum length of 1024.

Required: No

Message

A generic description of the error condition in English.

Type: String

Length Constraints: Maximum length of 1024.

Required: No

RequestId

The ID of the request associated with the error.

Type: String

Length Constraints: Maximum length of 1024.

Required: No

Resource

The identifier of the resource associated with the error.

Type: String

Length Constraints: Maximum length of 1024.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AsyncOperation

Service: Amazon S3 Control

A container for the information about an asynchronous operation.

Contents

CreationTime

The time that the request was sent to the service.

Type: Timestamp

Required: No

Operation

The specific operation for the asynchronous request.

Type: String

Valid Values: `CreateMultiRegionAccessPoint | DeleteMultiRegionAccessPoint | PutMultiRegionAccessPointPolicy`

Required: No

RequestParameters

The parameters associated with the request.

Type: AsyncRequestParameters data type

Required: No

RequestStatus

The current status of the request.

Type: String

Required: No

RequestTokenARN

The request token associated with the request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `arn:.+`

Required: No

ResponseDetails

The details of the response.

Type: AsyncResponseDetails data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AsyncRequestParameters

Service: Amazon S3 Control

A container for the request parameters associated with an asynchronous request.

Contents

CreateMultiRegionAccessPointRequest

A container of the parameters for a CreateMultiRegionAccessPoint request.

Type: CreateMultiRegionAccessPointInput data type

Required: No

DeleteMultiRegionAccessPointRequest

A container of the parameters for a DeleteMultiRegionAccessPoint request.

Type: DeleteMultiRegionAccessPointInput data type

Required: No

PutMultiRegionAccessPointPolicyRequest

A container of the parameters for a PutMultiRegionAccessPoint request.

Type: PutMultiRegionAccessPointPolicyInput data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AsyncResponseDetails

Service: Amazon S3 Control

A container for the response details that are returned when querying about an asynchronous request.

Contents

ErrorDetails

Error details for an asynchronous request.

Type: AsyncErrorDetails data type

Required: No

MultiRegionAccessPointDetails

The details for the Multi-Region Access Point.

Type: MultiRegionAccessPointsAsyncResponse data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

AwsLambdaTransformation

Service: Amazon S3 Control

AWS Lambda function used to transform objects through an Object Lambda Access Point.

Contents

FunctionArn

The Amazon Resource Name (ARN) of the AWS Lambda function.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `(arn:(aws[a-zA-Z-]*)?:lambda:)?([a-z]{2}((-gov)|(-iso([a-z]?)))?-[a-z]+-\d{1}:)?(\d{12}:)?(function:)?([a-zA-Z0-9-_]+)(:(\$LATEST|[a-zA-Z0-9-_]+))?`

Required: Yes

FunctionPayload

Additional JSON that provides supplemental data to the Lambda function used to transform objects.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

BucketLevel

Service: Amazon S3 Control

A container for the bucket-level configuration for Amazon S3 Storage Lens.

For more information about S3 Storage Lens, see Assessing your storage activity and usage with S3 Storage Lens in the *Amazon S3 User Guide*.

Contents

ActivityMetrics

A container for the bucket-level activity metrics for S3 Storage Lens.

Type: ActivityMetrics data type

Required: No

AdvancedCostOptimizationMetrics

A container for bucket-level advanced cost-optimization metrics for S3 Storage Lens.

Type: AdvancedCostOptimizationMetrics data type

Required: No

AdvancedDataProtectionMetrics

A container for bucket-level advanced data-protection metrics for S3 Storage Lens.

Type: AdvancedDataProtectionMetrics data type

Required: No

DetailedStatusCodesMetrics

A container for bucket-level detailed status code metrics for S3 Storage Lens.

Type: DetailedStatusCodesMetrics data type

Required: No

PrefixLevel

A container for the prefix-level metrics for S3 Storage Lens.

Type: PrefixLevel data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

CloudWatchMetrics

Service: Amazon S3 Control

A container for enabling Amazon CloudWatch publishing for S3 Storage Lens metrics.

For more information about publishing S3 Storage Lens metrics to CloudWatch, see Monitor S3 Storage Lens metrics in CloudWatch in the *Amazon S3 User Guide*.

Contents

IsEnabled

A container that indicates whether CloudWatch publishing for S3 Storage Lens metrics is enabled. A value of `true` indicates that CloudWatch publishing for S3 Storage Lens metrics is enabled.

Type: Boolean

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

CreateBucketConfiguration

Service: Amazon S3 Control

The container for the bucket configuration.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Contents

LocationConstraint

Specifies the Region where the bucket will be created. If you are creating a bucket on the US East (N. Virginia) Region (us-east-1), you do not need to specify the location.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Type: String

Valid Values: EU | `eu-west-1` | `us-west-1` | `us-west-2` | `ap-south-1` | `ap-southeast-1` | `ap-southeast-2` | `ap-northeast-1` | `sa-east-1` | `cn-north-1` | `eu-central-1`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

CreateMultiRegionAccessPointInput

Service: Amazon S3 Control

A container for the information associated with a CreateMultiRegionAccessPoint request.

Contents

Name

The name of the Multi-Region Access Point associated with this request.

Type: String

Length Constraints: Maximum length of 50.

Pattern: `^[a-z0-9][-a-z0-9]{1,48}[a-z0-9]$`

Required: Yes

Regions

The buckets in different Regions that are associated with the Multi-Region Access Point.

Type: Array of Region data types

Required: Yes

PublicAccessBlock

The `PublicAccessBlock` configuration that you want to apply to this Amazon S3 account. You can enable the configuration options in any combination. For more information about when Amazon S3 considers a bucket or object public, see The Meaning of "Public" in the *Amazon S3 User Guide*.

This data type is not supported for Amazon S3 on Outposts.

Type: PublicAccessBlockConfiguration data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Credentials

Service: Amazon S3 Control

The AWS Security Token Service temporary credential that S3 Access Grants vends to grantees and client applications.

Contents

AccessKeyId

The unique access key ID of the AWS STS temporary credential that S3 Access Grants vends to grantees and client applications.

Type: String

Required: No

Expiration

The expiration date and time of the temporary credential that S3 Access Grants vends to grantees and client applications.

Type: Timestamp

Required: No

SecretAccessKey

The secret access key of the AWS STS temporary credential that S3 Access Grants vends to grantees and client applications.

Type: String

Required: No

SessionToken

The AWS STS temporary credential that S3 Access Grants vends to grantees and client applications.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

DeleteMarkerReplication

Service: Amazon S3 Control

Specifies whether S3 on Outposts replicates delete markers. If you specify a `Filter` element in your replication configuration, you must also include a `DeleteMarkerReplication` element. If your `Filter` includes a `Tag` element, the `DeleteMarkerReplication` element's `Status` child element must be set to `Disabled`, because S3 on Outposts does not support replicating delete markers for tag-based rules.

For more information about delete marker replication, see How delete operations affect replication in the *Amazon S3 User Guide*.

Contents

Status

Indicates whether to replicate delete markers.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

DeleteMultiRegionAccessPointInput

Service: Amazon S3 Control

A container for the information associated with a DeleteMultiRegionAccessPoint request.

Contents

Name

The name of the Multi-Region Access Point associated with this request.

Type: String

Length Constraints: Maximum length of 50.

Pattern: `^[a-z0-9][-a-z0-9]{1,48}[a-z0-9]$`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Destination

Service: Amazon S3 Control

Specifies information about the replication destination bucket and its settings for an S3 on Outposts replication configuration.

Contents

Bucket

The Amazon Resource Name (ARN) of the access point for the destination bucket where you want S3 on Outposts to store the replication results.

Type: String

Required: Yes

AccessControlTranslation

Specify this property only in a cross-account scenario (where the source and destination bucket owners are not the same), and you want to change replica ownership to the AWS account that owns the destination bucket. If this property is not specified in the replication configuration, the replicas are owned by same AWS account that owns the source object.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Type: AccessControlTranslation data type

Required: No

Account

The destination bucket owner's account ID.

Type: String

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: No

EncryptionConfiguration

A container that provides information about encryption. If `SourceSelectionCriteria` is specified, you must specify this element.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Type: EncryptionConfiguration data type

Required: No

Metrics

A container that specifies replication metrics-related settings.

Type: Metrics data type

Required: No

ReplicationTime

A container that specifies S3 Replication Time Control (S3 RTC) settings, including whether S3 RTC is enabled and the time when all objects and operations on objects must be replicated. Must be specified together with a `Metrics` block.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Type: ReplicationTime data type

Required: No

StorageClass

The storage class to use when replicating objects. All objects stored on S3 on Outposts are stored in the `OUTPOSTS` storage class. S3 on Outposts uses the `OUTPOSTS` storage class to create the object replicas.

> **Note**
>
> Values other than OUTPOSTS aren't supported by Amazon S3 on Outposts.

Type: String

Valid Values: `STANDARD | REDUCED_REDUNDANCY | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | GLACIER | DEEP_ARCHIVE | OUTPOSTS | GLACIER_IR`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

DetailedStatusCodesMetrics

Service: Amazon S3 Control

The container element for Amazon S3 Storage Lens detailed status code metrics. Detailed status code metrics generate metrics for HTTP status codes, such as `200 OK`, `403 Forbidden`, `503 Service Unavailable` and others.

For more information about S3 Storage Lens, see Assessing your storage activity and usage with S3 Storage Lens in the *Amazon S3 User Guide*. For a complete list of S3 Storage Lens metrics, see S3 Storage Lens metrics glossary in the *Amazon S3 User Guide*.

Contents

IsEnabled

A container that indicates whether detailed status code metrics are enabled.

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

EncryptionConfiguration

Service: Amazon S3 Control

Specifies encryption-related information for an Amazon S3 bucket that is a destination for replicated objects. If you're specifying a customer managed KMS key, we recommend using a fully qualified KMS key ARN. If you use a KMS key alias instead, then AWS KMS resolves the key within the requester's account. This behavior can result in data that's encrypted with a KMS key that belongs to the requester, and not the bucket owner.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Contents

ReplicaKmsKeyID

Specifies the ID of the customer managed AWS KMS key that's stored in AWS Key Management Service (AWS KMS) for the destination bucket. This ID is either the Amazon Resource Name (ARN) for the KMS key or the alias ARN for the KMS key. Amazon S3 uses this KMS key to encrypt replica objects. Amazon S3 supports only symmetric encryption KMS keys. For more information, see Symmetric encryption KMS keys in the *AWS Key Management Service Developer Guide*.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

EstablishedMultiRegionAccessPointPolicy

Service: Amazon S3 Control

The last established access control policy for a Multi-Region Access Point.

When you update the policy, the update is first listed as the proposed policy. After the update is finished and all Regions have been updated, the proposed policy is listed as the established policy. If both policies have the same version number, the proposed policy is the established policy.

Contents

Policy

The details of the last established policy.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Exclude

Service: Amazon S3 Control

A container for what Amazon S3 Storage Lens will exclude.

Contents

Buckets

A container for the S3 Storage Lens bucket excludes.

Type: Array of strings

Length Constraints: Minimum length of 1. Maximum length of 128.

Pattern: `arn:[^:]+:s3:.*`

Required: No

Regions

A container for the S3 Storage Lens Region excludes.

Type: Array of strings

Length Constraints: Minimum length of 5. Maximum length of 30.

Pattern: `[a-z0-9\-]+`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ExistingObjectReplication

Service: Amazon S3 Control

An optional configuration to replicate existing source bucket objects.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Contents

Status

Specifies whether Amazon S3 replicates existing source bucket objects.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

GeneratedManifestEncryption

Service: Amazon S3 Control

The encryption configuration to use when storing the generated manifest.

Contents

SSEKMS

Configuration details on how SSE-KMS is used to encrypt generated manifest objects.

Type: SSEKMSEncryption data type

Required: No

SSES3

Specifies the use of SSE-S3 to encrypt generated manifest objects.

Type: SSES3Encryption data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Grantee

Service: Amazon S3 Control

The user, group, or role to which you are granting access. You can grant access to an IAM user or role. If you have added your corporate directory to AWS IAM Identity Center and associated your Identity Center instance with your S3 Access Grants instance, the grantee can also be a corporate directory user or group.

Contents

GranteeIdentifier

The unique identifier of the `Grantee`. If the grantee type is `IAM`, the identifier is the IAM Amazon Resource Name (ARN) of the user or role. If the grantee type is a directory user or group, the identifier is 128-bit universally unique identifier (UUID) in the format `a1b2c3d4-5678-90ab-cdef-EXAMPLE11111`. You can obtain this UUID from your AWS IAM Identity Center instance.

Type: String

Required: No

GranteeType

The type of the grantee to which access has been granted. It can be one of the following values:

- `IAM` - An IAM user or role.
- `DIRECTORY_USER` - Your corporate directory user. You can use this option if you have added your corporate identity directory to IAM Identity Center and associated the IAM Identity Center instance with your S3 Access Grants instance.
- `DIRECTORY_GROUP` - Your corporate directory group. You can use this option if you have added your corporate identity directory to IAM Identity Center and associated the IAM Identity Center instance with your S3 Access Grants instance.

Type: String

Valid Values: `DIRECTORY_USER | DIRECTORY_GROUP | IAM`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Include

Service: Amazon S3 Control

A container for what Amazon S3 Storage Lens configuration includes.

Contents

Buckets

A container for the S3 Storage Lens bucket includes.

Type: Array of strings

Length Constraints: Minimum length of 1. Maximum length of 128.

Pattern: `arn:[^:]+:s3:.*`

Required: No

Regions

A container for the S3 Storage Lens Region includes.

Type: Array of strings

Length Constraints: Minimum length of 5. Maximum length of 30.

Pattern: `[a-z0-9\-]+`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JobDescriptor

Service: Amazon S3 Control

A container element for the job configuration and status information returned by a `Describe Job` request.

Contents

ConfirmationRequired

Indicates whether confirmation is required before Amazon S3 begins running the specified job. Confirmation is required only for jobs created through the Amazon S3 console.

Type: Boolean

Required: No

CreationTime

A timestamp indicating when this job was created.

Type: Timestamp

Required: No

Description

The description for this job, if one was provided in this job's `Create Job` request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Required: No

FailureReasons

If the specified job failed, this field contains information describing the failure.

Type: Array of JobFailure data types

Required: No

GeneratedManifestDescriptor

The attribute of the JobDescriptor containing details about the job's generated manifest.

Type: S3GeneratedManifestDescriptor data type

Required: No

JobArn

The Amazon Resource Name (ARN) for this job.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `arn:[^:]+:s3:[a-zA-Z0-9\-]+:\d{12}:job\/.*`

Required: No

JobId

The ID for the specified job.

Type: String

Length Constraints: Minimum length of 5. Maximum length of 36.

Pattern: `[a-zA-Z0-9\-\_]+`

Required: No

Manifest

The configuration information for the specified job's manifest object.

Type: JobManifest data type

Required: No

ManifestGenerator

The manifest generator that was used to generate a job manifest for this job.

Type: JobManifestGenerator data type

Note: This object is a Union. Only one member of this object can be specified or returned.

Required: No

Operation

The operation that the specified job is configured to run on the objects listed in the manifest.

Type: JobOperation data type

Required: No

Priority

The priority of the specified job.

Type: Integer

Valid Range: Minimum value of 0. Maximum value of 2147483647.

Required: No

ProgressSummary

Describes the total number of tasks that the specified job has run, the number of tasks that succeeded, and the number of tasks that failed.

Type: JobProgressSummary data type

Required: No

Report

Contains the configuration information for the job-completion report if you requested one in the `Create Job` request.

Type: JobReport data type

Required: No

RoleArn

The Amazon Resource Name (ARN) for the AWS Identity and Access Management (IAM) role assigned to run the tasks for this job.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[^:]+:iam::\d{12}:role/.*`

Required: No

Status

The current status of the specified job.

Type: String

Valid Values: `Active | Cancelled | Cancelling | Complete | Completing | Failed | Failing | New | Paused | Pausing | Preparing | Ready | Suspended`

Required: No

StatusUpdateReason

The reason for updating the job.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Required: No

SuspendedCause

The reason why the specified job was suspended. A job is only suspended if you create it through the Amazon S3 console. When you create the job, it enters the `Suspended` state to await confirmation before running. After you confirm the job, it automatically exits the `Suspended` state.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

SuspendedDate

The timestamp when this job was suspended, if it has been suspended.

Type: Timestamp

Required: No

TerminationDate

A timestamp indicating when this job terminated. A job's termination date is the date and time when it succeeded, failed, or was canceled.

Type: Timestamp

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JobFailure

Service: Amazon S3 Control

If this job failed, this element indicates why the job failed.

Contents

FailureCode

The failure code, if any, for the specified job.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Required: No

FailureReason

The failure reason, if any, for the specified job.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JobListDescriptor

Service: Amazon S3 Control

Contains the configuration and status information for a single job retrieved as part of a job list.

Contents

CreationTime

A timestamp indicating when the specified job was created.

Type: Timestamp

Required: No

Description

The user-specified description that was included in the specified job's `Create Job` request.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 256.

Required: No

JobId

The ID for the specified job.

Type: String

Length Constraints: Minimum length of 5. Maximum length of 36.

Pattern: `[a-zA-Z0-9\-\_]+`

Required: No

Operation

The operation that the specified job is configured to run on every object listed in the manifest.

Type: String

Valid Values: `LambdaInvoke | S3PutObjectCopy | S3PutObjectAcl | S3PutObjectTagging | S3DeleteObjectTagging | S3InitiateRestoreObject`

`| S3PutObjectLegalHold | S3PutObjectRetention | S3ReplicateObject | S3ComputeObjectChecksum`

Required: No

Priority

The current priority for the specified job.

Type: Integer

Valid Range: Minimum value of 0. Maximum value of 2147483647.

Required: No

ProgressSummary

Describes the total number of tasks that the specified job has run, the number of tasks that succeeded, and the number of tasks that failed.

Type: JobProgressSummary data type

Required: No

Status

The specified job's current status.

Type: String

Valid Values: `Active | Cancelled | Cancelling | Complete | Completing | Failed | Failing | New | Paused | Pausing | Preparing | Ready | Suspended`

Required: No

TerminationDate

A timestamp indicating when the specified job terminated. A job's termination date is the date and time when it succeeded, failed, or was canceled.

Type: Timestamp

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JobManifest

Service: Amazon S3 Control

Contains the configuration information for a job's manifest.

Contents

Location

Contains the information required to locate the specified job's manifest. Manifests can't be imported from directory buckets. For more information, see Directory buckets.

Type: JobManifestLocation data type

Required: Yes

Spec

Describes the format of the specified job's manifest. If the manifest is in CSV format, also describes the columns contained within the manifest.

Type: JobManifestSpec data type

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JobManifestGenerator

Service: Amazon S3 Control

Configures the type of the job's ManifestGenerator.

Contents

> **Important**
>
> This data type is a UNION, so only one of the following members can be specified when used or returned.

S3JobManifestGenerator

The S3 job ManifestGenerator's configuration details.

Type: S3JobManifestGenerator data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JobManifestGeneratorFilter

Service: Amazon S3 Control

The filter used to describe a set of objects for the job's manifest.

Contents

CreatedAfter

If provided, the generated manifest includes only source bucket objects that were created after this time.

Type: Timestamp

Required: No

CreatedBefore

If provided, the generated manifest includes only source bucket objects that were created before this time.

Type: Timestamp

Required: No

EligibleForReplication

Include objects in the generated manifest only if they are eligible for replication according to the Replication configuration on the source bucket.

Type: Boolean

Required: No

KeyNameConstraint

If provided, the generated manifest includes only source bucket objects whose object keys match the string constraints specified for `MatchAnyPrefix`, `MatchAnySuffix`, and `MatchAnySubstring`.

Type: KeyNameConstraint data type

Required: No

MatchAnyStorageClass

If provided, the generated manifest includes only source bucket objects that are stored with the specified storage class.

Type: Array of strings

Valid Values: `STANDARD | STANDARD_IA | ONEZONE_IA | GLACIER | INTELLIGENT_TIERING | DEEP_ARCHIVE | GLACIER_IR`

Required: No

ObjectReplicationStatuses

If provided, the generated manifest includes only source bucket objects that have one of the specified Replication statuses.

Type: Array of strings

Valid Values: `COMPLETED | FAILED | REPLICA | NONE`

Required: No

ObjectSizeGreaterThanBytes

If provided, the generated manifest includes only source bucket objects whose file size is greater than the specified number of bytes.

Type: Long

Required: No

ObjectSizeLessThanBytes

If provided, the generated manifest includes only source bucket objects whose file size is less than the specified number of bytes.

Type: Long

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JobManifestLocation

Service: Amazon S3 Control

Contains the information required to locate a manifest object. Manifests can't be imported from directory buckets. For more information, see Directory buckets.

Contents

ETag

The ETag for the specified manifest object.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: Yes

ObjectArn

The Amazon Resource Name (ARN) for a manifest object.

> **Important**
>
> When you're using XML requests, you must replace special characters (such as carriage returns) in object keys with their equivalent XML entity codes. For more information, see XML-related object key constraints in the *Amazon S3 User Guide*.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `arn:[^:]+:s3:.*`

Required: Yes

ObjectVersionId

The optional version ID to identify a specific version of the manifest object.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JobManifestSpec

Service: Amazon S3 Control

Describes the format of a manifest. If the manifest is in CSV format, also describes the columns contained within the manifest.

Contents

Format

Indicates which of the available formats the specified manifest uses.

Type: String

Valid Values: `S3BatchOperations_CSV_20180820` | `S3InventoryReport_CSV_20161130`

Required: Yes

Fields

If the specified manifest object is in the `S3BatchOperations_CSV_20180820` format, this element describes which columns contain the required data.

Type: Array of strings

Valid Values: `Ignore` | `Bucket` | `Key` | `VersionId`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JobOperation

Service: Amazon S3 Control

The operation that you want this job to perform on every object listed in the manifest. For more information about the available operations, see Operations in the *Amazon S3 User Guide*.

Contents

LambdaInvoke

Directs the specified job to invoke an AWS Lambda function on every object in the manifest.

Type: LambdaInvokeOperation data type

Required: No

S3ComputeObjectChecksum

Directs the specified job to compute checksum values for every object in the manifest.

Type: S3ComputeObjectChecksumOperation data type

Required: No

S3DeleteObjectTagging

Directs the specified job to execute a DELETE Object tagging call on every object in the manifest.

> **Note**
>
> This functionality is not supported by directory buckets.

Type: S3DeleteObjectTaggingOperation data type

Required: No

S3InitiateRestoreObject

Directs the specified job to initiate restore requests for every archived object in the manifest.

> **Note**
>
> This functionality is not supported by directory buckets.

Type: S3InitiateRestoreObjectOperation data type

Required: No

S3PutObjectAcl

Directs the specified job to run a `PutObjectAcl` call on every object in the manifest.

> **Note**
>
> This functionality is not supported by directory buckets.

Type: S3SetObjectAclOperation data type

Required: No

S3PutObjectCopy

Directs the specified job to run a PUT Copy object call on every object in the manifest.

Type: S3CopyObjectOperation data type

Required: No

S3PutObjectLegalHold

Contains the configuration for an S3 Object Lock legal hold operation that an S3 Batch Operations job passes to every object to the underlying `PutObjectLegalHold` API operation. For more information, see Using S3 Object Lock legal hold with S3 Batch Operations in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported by directory buckets.

Type: S3SetObjectLegalHoldOperation data type

Required: No

S3PutObjectRetention

Contains the configuration parameters for the Object Lock retention action for an S3 Batch Operations job. Batch Operations passes every object to the underlying `PutObjectRetention`

API operation. For more information, see Using S3 Object Lock retention with S3 Batch Operations in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported by directory buckets.

Type: S3SetObjectRetentionOperation data type

Required: No

S3PutObjectTagging

Directs the specified job to run a PUT Object tagging call on every object in the manifest.

> **Note**
>
> This functionality is not supported by directory buckets.

Type: S3SetObjectTaggingOperation data type

Required: No

S3ReplicateObject

Directs the specified job to invoke `ReplicateObject` on every object in the job's manifest.

> **Note**
>
> This functionality is not supported by directory buckets.

Type: S3ReplicateObjectOperation data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JobProgressSummary

Service: Amazon S3 Control

Describes the total number of tasks that the specified job has started, the number of tasks that succeeded, and the number of tasks that failed.

Contents

NumberOfTasksFailed

Type: Long

Valid Range: Minimum value of 0.

Required: No

NumberOfTasksSucceeded

Type: Long

Valid Range: Minimum value of 0.

Required: No

Timers

The JobTimers attribute of a job's progress summary.

Type: JobTimers data type

Required: No

TotalNumberOfTasks

Type: Long

Valid Range: Minimum value of 0.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JobReport

Service: Amazon S3 Control

Contains the configuration parameters for a job-completion report.

Contents

Enabled

Indicates whether the specified job will generate a job-completion report.

Type: Boolean

Required: Yes

Bucket

The Amazon Resource Name (ARN) for the bucket where specified job-completion report will be stored.

> **Note**
>
> **Directory buckets** - Directory buckets aren't supported as a location for Batch Operations to store job completion reports.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 128.

Pattern: `arn:[^:]+:s3:.*`

Required: No

ExpectedBucketOwner

Lists the AWS account ID that owns the target bucket, where the completion report is received.

Type: String

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: No

Format

The format of the specified job-completion report.

Type: String

Valid Values: `Report_CSV_20180820`

Required: No

Prefix

An optional prefix to describe where in the specified bucket the job-completion report will be stored. Amazon S3 stores the job-completion report at `<prefix>/job-<job-id>/report.json`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 512.

Required: No

ReportScope

Indicates whether the job-completion report will include details of all tasks or only failed tasks.

Type: String

Valid Values: `AllTasks | FailedTasksOnly`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

JobTimers

Service: Amazon S3 Control

Provides timing details for the job.

Contents

ElapsedTimeInActiveSeconds

Indicates the elapsed time in seconds the job has been in the Active job state.

Type: Long

Valid Range: Minimum value of 0.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

KeyNameConstraint

Service: Amazon S3 Control

If provided, the generated manifest includes only source bucket objects whose object keys match the string constraints specified for `MatchAnyPrefix`, `MatchAnySuffix`, and `MatchAnySubstring`.

Contents

MatchAnyPrefix

If provided, the generated manifest includes objects where the specified string appears at the start of the object key string. Each KeyNameConstraint filter accepts an array of strings with a length of 1 string.

Type: Array of strings

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

MatchAnySubstring

If provided, the generated manifest includes objects where the specified string appears anywhere within the object key string. Each KeyNameConstraint filter accepts an array of strings with a length of 1 string.

Type: Array of strings

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

MatchAnySuffix

If provided, the generated manifest includes objects where the specified string appears at the end of the object key string. Each KeyNameConstraint filter accepts an array of strings with a length of 1 string.

Type: Array of strings

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

LambdaInvokeOperation

Service: Amazon S3 Control

Contains the configuration parameters for a `Lambda Invoke` operation.

Contents

FunctionArn

The Amazon Resource Name (ARN) for the AWS Lambda function that the specified job will invoke on every object in the manifest.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `(arn:(aws[a-zA-Z-]*)?:lambda:)?([a-z]{2}((-gov)|(-iso([a-z]?)))?-[a-z]+-\d{1}:)?(\d{12}:)?(function:)?([a-zA-Z0-9-_]+)(:(\$LATEST|[a-zA-Z0-9-_]+))?`

Required: No

InvocationSchemaVersion

Specifies the schema version for the payload that Batch Operations sends when invoking an AWS Lambda function. Version `1.0` is the default. Version `2.0` is required when you use Batch Operations to invoke AWS Lambda functions that act on directory buckets, or if you need to specify `UserArguments`. For more information, see Automate object processing in Amazon S3 directory buckets with S3 Batch Operations and AWS Lambda in the *AWS Storage Blog*.

> **Important**
>
> Ensure that your AWS Lambda function code expects `InvocationSchemaVersion` **2.0** and uses bucket name rather than bucket ARN. If the `InvocationSchemaVersion` does not match what your AWS Lambda function expects, your function might not work as expected.

> **Note**
>
> **Directory buckets** - To initiate AWS Lambda function to perform custom actions on objects in directory buckets, you must specify `2.0`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Required: No

UserArguments

Key-value pairs that are passed in the payload that Batch Operations sends when invoking an AWS Lambda function. You must specify `InvocationSchemaVersion` **2.0** for `LambdaInvoke` operations that include `UserArguments`. For more information, see Automate object processing in Amazon S3 directory buckets with S3 Batch Operations and AWS Lambda in the *AWS Storage Blog*.

Type: String to string map

Map Entries: Maximum number of 10 items.

Key Length Constraints: Minimum length of 1. Maximum length of 64.

Value Length Constraints: Maximum length of 1024.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

LifecycleConfiguration

Service: Amazon S3 Control

The container for the Outposts bucket lifecycle configuration.

Contents

Rules

A lifecycle rule for individual objects in an Outposts bucket.

Type: Array of LifecycleRule data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

LifecycleExpiration

Service: Amazon S3 Control

The container of the Outposts bucket lifecycle expiration.

Contents

Date

Indicates at what date the object is to be deleted. Should be in GMT ISO 8601 format.

Type: Timestamp

Required: No

Days

Indicates the lifetime, in days, of the objects that are subject to the rule. The value must be a non-zero positive integer.

Type: Integer

Required: No

ExpiredObjectDeleteMarker

Indicates whether Amazon S3 will remove a delete marker with no noncurrent versions. If set to true, the delete marker will be expired. If set to false, the policy takes no action. This cannot be specified with Days or Date in a Lifecycle Expiration Policy. To learn more about delete markers, see Working with delete markers.

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2

- AWS SDK for Ruby V3

LifecycleRule

Service: Amazon S3 Control

The container for the Outposts bucket lifecycle rule.

Contents

Status

If 'Enabled', the rule is currently being applied. If 'Disabled', the rule is not currently being applied.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

AbortIncompleteMultipartUpload

Specifies the days since the initiation of an incomplete multipart upload that Amazon S3 waits before permanently removing all parts of the upload. For more information, see Aborting Incomplete Multipart Uploads Using a Bucket Lifecycle Configuration in the *Amazon S3 User Guide*.

Type: AbortIncompleteMultipartUpload data type

Required: No

Expiration

Specifies the expiration for the lifecycle of the object in the form of date, days and, whether the object has a delete marker.

Type: LifecycleExpiration data type

Required: No

Filter

The container for the filter of lifecycle rule.

Type: LifecycleRuleFilter data type

Required: No

ID

Unique identifier for the rule. The value cannot be longer than 255 characters.

Type: String

Required: No

NoncurrentVersionExpiration

The noncurrent version expiration of the lifecycle rule.

Type: NoncurrentVersionExpiration data type

Required: No

NoncurrentVersionTransitions

Specifies the transition rule for the lifecycle rule that describes when noncurrent objects transition to a specific storage class. If your bucket is versioning-enabled (or versioning is suspended), you can set this action to request that Amazon S3 transition noncurrent object versions to a specific storage class at a set period in the object's lifetime.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Type: Array of NoncurrentVersionTransition data types

Required: No

Transitions

Specifies when an Amazon S3 object transitions to a specified storage class.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Type: Array of Transition data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

LifecycleRuleAndOperator

Service: Amazon S3 Control

The container for the Outposts bucket lifecycle rule and operator.

Contents

ObjectSizeGreaterThan

The non-inclusive minimum object size for the lifecycle rule. Setting this property to 7 means the rule applies to objects with a size that is greater than 7.

Type: Long

Required: No

ObjectSizeLessThan

The non-inclusive maximum object size for the lifecycle rule. Setting this property to 77 means the rule applies to objects with a size that is less than 77.

Type: Long

Required: No

Prefix

Prefix identifying one or more objects to which the rule applies.

Type: String

Required: No

Tags

All of these tags must exist in the object's tag set in order for the rule to apply.

Type: Array of S3Tag data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

LifecycleRuleFilter

Service: Amazon S3 Control

The container for the filter of the lifecycle rule.

Contents

And

The container for the AND condition for the lifecycle rule.

Type: LifecycleRuleAndOperator data type

Required: No

ObjectSizeGreaterThan

Minimum object size to which the rule applies.

Type: Long

Required: No

ObjectSizeLessThan

Maximum object size to which the rule applies.

Type: Long

Required: No

Prefix

Prefix identifying one or more objects to which the rule applies.

> **Important**
>
> When you're using XML requests, you must replace special characters (such as carriage returns) in object keys with their equivalent XML entity codes. For more information, see XML-related object key constraints in the *Amazon S3 User Guide*.

Type: String

Required: No

Tag

A container for a key-value name pair.

Type: S3Tag data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ListAccessGrantEntry

Service: Amazon S3 Control

Information about the access grant.

Contents

AccessGrantArn

The Amazon Resource Name (ARN) of the access grant.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:access\-grants\/grant/[a-zA-Z0-9\-]+`

Required: No

AccessGrantId

The ID of the access grant. S3 Access Grants auto-generates this ID when you create the access grant.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

Required: No

AccessGrantsLocationConfiguration

The configuration options of the grant location. The grant location is the S3 path to the data to which you are granting access.

Type: AccessGrantsLocationConfiguration data type

Required: No

AccessGrantsLocationId

The ID of the registered location to which you are granting access. S3 Access Grants assigns this ID when you register the location. S3 Access Grants assigns the ID `default` to the default location `s3://` and assigns an auto-generated ID to other locations that you register.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

Required: No

ApplicationArn

The Amazon Resource Name (ARN) of an AWS IAM Identity Center application associated with your Identity Center instance. If the grant includes an application ARN, the grantee can only access the S3 data through this application.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::\d{12}:application/.*$`

Required: No

CreatedAt

The date and time when you created the S3 Access Grants instance.

Type: Timestamp

Required: No

Grantee

The user, group, or role to which you are granting access. You can grant access to an IAM user or role. If you have added your corporate directory to AWS IAM Identity Center and associated your Identity Center instance with your S3 Access Grants instance, the grantee can also be a corporate directory user or group.

Type: Grantee data type

Required: No

GrantScope

The S3 path of the data to which you are granting access. It is the result of appending the `Subprefix` to the location scope.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `^.+$`

Required: No

Permission

The type of access granted to your S3 data, which can be set to one of the following values:

- `READ` – Grant read-only access to the S3 data.
- `WRITE` – Grant write-only access to the S3 data.
- `READWRITE` – Grant both read and write access to the S3 data.

Type: String

Valid Values: `READ | WRITE | READWRITE`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ListAccessGrantsInstanceEntry

Service: Amazon S3 Control

Information about the S3 Access Grants instance.

Contents

AccessGrantsInstanceArn

The Amazon Resource Name (ARN) of the S3 Access Grants instance.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:access\-grants\/[a-zA-Z0-9\-]+`

Required: No

AccessGrantsInstanceId

The ID of the S3 Access Grants instance. The ID is `default`. You can have one S3 Access Grants instance per Region per account.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

Required: No

CreatedAt

The date and time when you created the S3 Access Grants instance.

Type: Timestamp

Required: No

IdentityCenterApplicationArn

If you associated your S3 Access Grants instance with an AWS IAM Identity Center instance, this field returns the Amazon Resource Name (ARN) of the IAM Identity Center instance application; a subresource of the original Identity Center instance. S3 Access Grants creates this Identity Center application for the specific S3 Access Grants instance.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::\d{12}:application/.*$`

Required: No

IdentityCenterArn

This member has been deprecated.

If you associated your S3 Access Grants instance with an AWS IAM Identity Center instance, this field returns the Amazon Resource Name (ARN) of the IAM Identity Center instance application; a subresource of the original Identity Center instance. S3 Access Grants creates this Identity Center application for the specific S3 Access Grants instance.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::(\d{12}){0,1}:instance/.*$`

Required: No

IdentityCenterInstanceArn

The Amazon Resource Name (ARN) of the AWS IAM Identity Center instance that you are associating with your S3 Access Grants instance. An IAM Identity Center instance is your corporate identity directory that you added to the IAM Identity Center. You can use the ListInstances API operation to retrieve a list of your Identity Center instances and their ARNs.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::(\d{12}){0,1}:instance/.*$`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ListAccessGrantsLocationsEntry

Service: Amazon S3 Control

A container for information about the registered location.

Contents

AccessGrantsLocationArn

The Amazon Resource Name (ARN) of the registered location.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:access\-grants\/location/[a-zA-Z0-9\-]+`

Required: No

AccessGrantsLocationId

The ID of the registered location to which you are granting access. S3 Access Grants assigns this ID when you register the location. S3 Access Grants assigns the ID `default` to the default location `s3://` and assigns an auto-generated ID to other locations that you register.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-]+`

Required: No

CreatedAt

The date and time when you registered the location.

Type: Timestamp

Required: No

IAMRoleArn

The Amazon Resource Name (ARN) of the IAM role for the registered location. S3 Access Grants assumes this role to manage access to the registered location.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[^:]+:iam::\d{12}:role/.*`

Required: No

LocationScope

The S3 path to the location that you are registering. The location scope can be the default S3 location `s3://`, the S3 path to a bucket `s3://<bucket>`, or the S3 path to a bucket and prefix `s3://<bucket>/<prefix>`. A prefix in S3 is a string of characters at the beginning of an object key name used to organize the objects that you store in your S3 buckets. For example, object key names that start with the `engineering/` prefix or object key names that start with the `marketing/campaigns/` prefix.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `^.+$`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ListCallerAccessGrantsEntry

Service: Amazon S3 Control

Part of `ListCallerAccessGrantsResult`. Each entry includes the permission level (READ, WRITE, or READWRITE) and the grant scope of the access grant. If the grant also includes an application ARN, the grantee can only access the S3 data through this application.

Contents

ApplicationArn

The Amazon Resource Name (ARN) of an AWS IAM Identity Center application associated with your Identity Center instance. If the grant includes an application ARN, the grantee can only access the S3 data through this application.

Type: String

Length Constraints: Minimum length of 10. Maximum length of 1224.

Pattern: `arn:[^:]+:sso::\d{12}:application/.*$`

Required: No

GrantScope

The S3 path of the data to which you have been granted access.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Pattern: `^.+$`

Required: No

Permission

The type of permission granted, which can be one of the following values:

- `READ` - Grants read-only access to the S3 data.
- `WRITE` - Grants write-only access to the S3 data.
- `READWRITE` - Grants both read and write access to the S3 data.

Type: String

Valid Values: `READ | WRITE | READWRITE`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ListStorageLensConfigurationEntry

Service: Amazon S3 Control

Part of `ListStorageLensConfigurationResult`. Each entry includes the description of the S3 Storage Lens configuration, its home Region, whether it is enabled, its Amazon Resource Name (ARN), and config ID.

Contents

HomeRegion

A container for the S3 Storage Lens home Region. Your metrics data is stored and retained in your designated S3 Storage Lens home Region.

Type: String

Length Constraints: Minimum length of 5. Maximum length of 30.

Pattern: `[a-z0-9\-]+`

Required: Yes

Id

A container for the S3 Storage Lens configuration ID.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-\_\.]+`

Required: Yes

StorageLensArn

The ARN of the S3 Storage Lens configuration. This property is read-only.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:storage\-lens\/.*`

Required: Yes

IsEnabled

A container for whether the S3 Storage Lens configuration is enabled. This property is required.

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ListStorageLensGroupEntry

Service: Amazon S3 Control

Each entry contains a Storage Lens group that exists in the specified home Region.

Contents

HomeRegion

Contains the AWS Region where the Storage Lens group was created.

Type: String

Length Constraints: Minimum length of 5. Maximum length of 30.

Pattern: `[a-z0-9\-]+`

Required: Yes

Name

Contains the name of the Storage Lens group that exists in the specified home Region.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-\_]+`

Required: Yes

StorageLensGroupArn

Contains the Amazon Resource Name (ARN) of the Storage Lens group. This property is read-only.

Type: String

Length Constraints: Minimum length of 4. Maximum length of 1024.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:storage\-lens\-group\/.*`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MatchObjectAge

Service: Amazon S3 Control

A filter condition that specifies the object age range of included objects in days. Only integers are supported.

Contents

DaysGreaterThan

Specifies the maximum object age in days. Must be a positive whole number, greater than the minimum object age and less than or equal to 2,147,483,647.

Type: Integer

Required: No

DaysLessThan

Specifies the minimum object age in days. The value must be a positive whole number, greater than 0 and less than or equal to 2,147,483,647.

Type: Integer

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MatchObjectSize

Service: Amazon S3 Control

A filter condition that specifies the object size range of included objects in bytes. Only integers are supported.

Contents

BytesGreaterThan

Specifies the minimum object size in Bytes. The value must be a positive number, greater than 0 and less than 5 TB.

Type: Long

Required: No

BytesLessThan

Specifies the maximum object size in Bytes. The value must be a positive number, greater than the minimum object size and less than 5 TB.

Type: Long

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Metrics

Service: Amazon S3 Control

A container that specifies replication metrics-related settings.

Contents

Status

Specifies whether replication metrics are enabled.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

EventThreshold

A container that specifies the time threshold for emitting the `s3:Replication:OperationMissedThreshold` event.

> **Note**
> This is not supported by Amazon S3 on Outposts buckets.

Type: ReplicationTimeValue data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MultiRegionAccessPointPolicyDocument

Service: Amazon S3 Control

The Multi-Region Access Point access control policy.

When you update the policy, the update is first listed as the proposed policy. After the update is finished and all Regions have been updated, the proposed policy is listed as the established policy. If both policies have the same version number, the proposed policy is the established policy.

Contents

Established

The last established policy for the Multi-Region Access Point.

Type: EstablishedMultiRegionAccessPointPolicy data type

Required: No

Proposed

The proposed policy for the Multi-Region Access Point.

Type: ProposedMultiRegionAccessPointPolicy data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MultiRegionAccessPointRegionalResponse

Service: Amazon S3 Control

Status information for a single Multi-Region Access Point Region.

Contents

Name

The name of the Region in the Multi-Region Access Point.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Required: No

RequestStatus

The current status of the Multi-Region Access Point in this Region.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MultiRegionAccessPointReport

Service: Amazon S3 Control

A collection of statuses for a Multi-Region Access Point in the various Regions it supports.

Contents

Alias

The alias for the Multi-Region Access Point. For more information about the distinction between the name and the alias of an Multi-Region Access Point, see Rules for naming Amazon S3 Multi-Region Access Points.

Type: String

Length Constraints: Maximum length of 63.

Pattern: `^[a-z][a-z0-9]*[.]mrap$`

Required: No

CreatedAt

When the Multi-Region Access Point create request was received.

Type: Timestamp

Required: No

Name

The name of the Multi-Region Access Point.

Type: String

Length Constraints: Maximum length of 50.

Pattern: `^[a-z0-9][-a-z0-9]{1,48}[a-z0-9]$`

Required: No

PublicAccessBlock

The `PublicAccessBlock` configuration that you want to apply to this Amazon S3 account. You can enable the configuration options in any combination. For more information about when

Amazon S3 considers a bucket or object public, see The Meaning of "Public" in the *Amazon S3 User Guide*.

This data type is not supported for Amazon S3 on Outposts.

Type: PublicAccessBlockConfiguration data type

Required: No

Regions

A collection of the Regions and buckets associated with the Multi-Region Access Point.

Type: Array of RegionReport data types

Required: No

Status

The current status of the Multi-Region Access Point.

`CREATING` and `DELETING` are temporary states that exist while the request is propagating and being completed. If a Multi-Region Access Point has a status of `PARTIALLY_CREATED`, you can retry creation or send a request to delete the Multi-Region Access Point. If a Multi-Region Access Point has a status of `PARTIALLY_DELETED`, you can retry a delete request to finish the deletion of the Multi-Region Access Point.

Type: String

Valid Values: `READY | INCONSISTENT_ACROSS_REGIONS | CREATING | PARTIALLY_CREATED | PARTIALLY_DELETED | DELETING`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MultiRegionAccessPointRoute

Service: Amazon S3 Control

A structure for a Multi-Region Access Point that indicates where Amazon S3 traffic can be routed. Routes can be either active or passive. Active routes can process Amazon S3 requests through the Multi-Region Access Point, but passive routes are not eligible to process Amazon S3 requests.

Each route contains the Amazon S3 bucket name and the AWS Region that the bucket is located in. The route also includes the `TrafficDialPercentage` value, which shows whether the bucket and Region are active (indicated by a value of `100`) or passive (indicated by a value of `0`).

Contents

TrafficDialPercentage

The traffic state for the specified bucket or AWS Region.

A value of `0` indicates a passive state, which means that no new traffic will be routed to the Region.

A value of `100` indicates an active state, which means that traffic will be routed to the specified Region.

When the routing configuration for a Region is changed from active to passive, any in-progress operations (uploads, copies, deletes, and so on) to the formerly active Region will continue to run to until a final success or failure status is reached.

If all Regions in the routing configuration are designated as passive, you'll receive an `InvalidRequest` error.

Type: Integer

Valid Range: Minimum value of 0. Maximum value of 100.

Required: Yes

Bucket

The name of the Amazon S3 bucket for which you'll submit a routing configuration change. Either the `Bucket` or the `Region` value must be provided. If both are provided, the bucket must be in the specified Region.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: No

Region

The AWS Region to which you'll be submitting a routing configuration change. Either the `Bucket` or the `Region` value must be provided. If both are provided, the bucket must be in the specified Region.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MultiRegionAccessPointsAsyncResponse

Service: Amazon S3 Control

The Multi-Region Access Point details that are returned when querying about an asynchronous request.

Contents

Regions

A collection of status information for the different Regions that a Multi-Region Access Point supports.

Type: Array of MultiRegionAccessPointRegionalResponse data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

NoncurrentVersionExpiration

Service: Amazon S3 Control

The container of the noncurrent version expiration.

Contents

NewerNoncurrentVersions

Specifies how many noncurrent versions S3 on Outposts will retain. If there are this many more recent noncurrent versions, S3 on Outposts will take the associated action. For more information about noncurrent versions, see Lifecycle configuration elements in the *Amazon S3 User Guide*.

Type: Integer

Required: No

NoncurrentDays

Specifies the number of days an object is noncurrent before Amazon S3 can perform the associated action. For information about the noncurrent days calculations, see How Amazon S3 Calculates When an Object Became Noncurrent in the *Amazon S3 User Guide*.

Type: Integer

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

NoncurrentVersionTransition

Service: Amazon S3 Control

The container for the noncurrent version transition.

Contents

NoncurrentDays

Specifies the number of days an object is noncurrent before Amazon S3 can perform the associated action. For information about the noncurrent days calculations, see How Amazon S3 Calculates How Long an Object Has Been Noncurrent in the *Amazon S3 User Guide*.

Type: Integer

Required: No

StorageClass

The class of storage used to store the object.

Type: String

Valid Values: `GLACIER | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | DEEP_ARCHIVE`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ObjectLambdaAccessPoint

Service: Amazon S3 Control

An access point with an attached AWS Lambda function used to access transformed data from an Amazon S3 bucket.

Contents

Name

The name of the Object Lambda Access Point.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 45.

Pattern: `^[a-z0-9]([a-z0-9\-]*[a-z0-9])?$`

Required: Yes

Alias

The alias of the Object Lambda Access Point.

Type: ObjectLambdaAccessPointAlias data type

Required: No

ObjectLambdaAccessPointArn

Specifies the ARN for the Object Lambda Access Point.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[^:]+:s3-object-lambda:[^:]*:\d{12}:accesspoint/.*`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ObjectLambdaAccessPointAlias

Service: Amazon S3 Control

The alias of an Object Lambda Access Point. For more information, see How to use a bucket-style alias for your S3 bucket Object Lambda Access Point.

Contents

Status

The status of the Object Lambda Access Point alias. If the status is `PROVISIONING`, the Object Lambda Access Point is provisioning the alias and the alias is not ready for use yet. If the status is `READY`, the Object Lambda Access Point alias is successfully provisioned and ready for use.

Type: String

Length Constraints: Minimum length of 2. Maximum length of 16.

Valid Values: `PROVISIONING | READY`

Required: No

Value

The alias value of the Object Lambda Access Point.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Pattern: `^[0-9a-z\\-]{3,63}`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ObjectLambdaConfiguration

Service: Amazon S3 Control

A configuration used when creating an Object Lambda Access Point.

Contents

SupportingAccessPoint

Standard access point associated with the Object Lambda Access Point.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `arn:[^:]+:s3:[^:]*:\d{12}:accesspoint/.*`

Required: Yes

TransformationConfigurations

A container for transformation configurations for an Object Lambda Access Point.

Type: Array of ObjectLambdaTransformationConfiguration data types

Required: Yes

AllowedFeatures

A container for allowed features. Valid inputs are `GetObject-Range`, `GetObject-PartNumber`, `HeadObject-Range`, and `HeadObject-PartNumber`.

Type: Array of strings

Valid Values: `GetObject-Range | GetObject-PartNumber | HeadObject-Range | HeadObject-PartNumber`

Required: No

CloudWatchMetricsEnabled

A container for whether the CloudWatch metrics configuration is enabled.

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ObjectLambdaContentTransformation

Service: Amazon S3 Control

A container for AwsLambdaTransformation.

Contents

> **Important**
>
> This data type is a UNION, so only one of the following members can be specified when used or returned.

AwsLambda

A container for an AWS Lambda function.

Type: AwsLambdaTransformation data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ObjectLambdaTransformationConfiguration

Service: Amazon S3 Control

A configuration used when creating an Object Lambda Access Point transformation.

Contents

Actions

A container for the action of an Object Lambda Access Point configuration. Valid inputs are `GetObject`, `ListObjects`, `HeadObject`, and `ListObjectsV2`.

Type: Array of strings

Valid Values: `GetObject | HeadObject | ListObjects | ListObjectsV2`

Required: Yes

ContentTransformation

A container for the content transformation of an Object Lambda Access Point configuration.

Type: ObjectLambdaContentTransformation data type

Note: This object is a Union. Only one member of this object can be specified or returned.

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

PolicyStatus

Service: Amazon S3 Control

Indicates whether this access point policy is public. For more information about how Amazon S3 evaluates policies to determine whether they are public, see The Meaning of "Public" in the *Amazon S3 User Guide*.

Contents

IsPublic

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

PrefixLevel

Service: Amazon S3 Control

A container for the prefix-level configuration.

Contents

StorageMetrics

A container for the prefix-level storage metrics for S3 Storage Lens.

Type: PrefixLevelStorageMetrics data type

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

PrefixLevelStorageMetrics

Service: Amazon S3 Control

A container for the prefix-level storage metrics for S3 Storage Lens.

Contents

IsEnabled

A container for whether prefix-level storage metrics are enabled.

Type: Boolean

Required: No

SelectionCriteria

Type: SelectionCriteria data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ProposedMultiRegionAccessPointPolicy

Service: Amazon S3 Control

The proposed access control policy for the Multi-Region Access Point.

When you update the policy, the update is first listed as the proposed policy. After the update is finished and all Regions have been updated, the proposed policy is listed as the established policy. If both policies have the same version number, the proposed policy is the established policy.

Contents

Policy

The details of the proposed policy.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

PublicAccessBlockConfiguration

Service: Amazon S3 Control

The `PublicAccessBlock` configuration that you want to apply to this Amazon S3 account. You can enable the configuration options in any combination. For more information about when Amazon S3 considers a bucket or object public, see The Meaning of "Public" in the *Amazon S3 User Guide*.

This data type is not supported for Amazon S3 on Outposts.

Contents

BlockPublicAcls

Specifies whether Amazon S3 should block public access control lists (ACLs) for buckets in this account. Setting this element to `TRUE` causes the following behavior:

- `PutBucketAcl` and `PutObjectAcl` calls fail if the specified ACL is public.
- PUT Object calls fail if the request includes a public ACL.
- PUT Bucket calls fail if the request includes a public ACL.

Enabling this setting doesn't affect existing policies or ACLs.

This property is not supported for Amazon S3 on Outposts.

Type: Boolean

Required: No

BlockPublicPolicy

Specifies whether Amazon S3 should block public bucket policies for buckets in this account. Setting this element to `TRUE` causes Amazon S3 to reject calls to PUT Bucket policy if the specified bucket policy allows public access.

Enabling this setting doesn't affect existing bucket policies.

This property is not supported for Amazon S3 on Outposts.

Type: Boolean

Required: No

IgnorePublicAcls

Specifies whether Amazon S3 should ignore public ACLs for buckets in this account. Setting this element to TRUE causes Amazon S3 to ignore all public ACLs on buckets in this account and any objects that they contain.

Enabling this setting doesn't affect the persistence of any existing ACLs and doesn't prevent new public ACLs from being set.

This property is not supported for Amazon S3 on Outposts.

Type: Boolean

Required: No

RestrictPublicBuckets

Specifies whether Amazon S3 should restrict public bucket policies for buckets in this account. Setting this element to TRUE restricts access to buckets with public policies to only AWS service principals and authorized users within this account.

Enabling this setting doesn't affect previously stored bucket policies, except that public and cross-account access within any public bucket policy, including non-public delegation to specific accounts, is blocked.

This property is not supported for Amazon S3 on Outposts.

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

PutMultiRegionAccessPointPolicyInput

Service: Amazon S3 Control

A container for the information associated with a PutMultiRegionAccessPoint request.

Contents

Name

The name of the Multi-Region Access Point associated with the request.

Type: String

Length Constraints: Maximum length of 50.

Pattern: `^[a-z0-9][-a-z0-9]{1,48}[a-z0-9]$`

Required: Yes

Policy

The policy details for the `PutMultiRegionAccessPoint` request.

Type: String

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Region

Service: Amazon S3 Control

A Region that supports a Multi-Region Access Point as well as the associated bucket for the Region.

Contents

Bucket

The name of the associated bucket for the Region.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

BucketAccountId

The AWS account ID that owns the Amazon S3 bucket that's associated with this Multi-Region Access Point.

Type: String

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

RegionalBucket

Service: Amazon S3 Control

The container for the regional bucket.

Contents

Bucket

Type: String

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: Yes

CreationDate

The creation date of the regional bucket

Type: Timestamp

Required: Yes

PublicAccessBlockEnabled

Type: Boolean

Required: Yes

BucketArn

The Amazon Resource Name (ARN) for the regional bucket.

Type: String

Length Constraints: Minimum length of 4. Maximum length of 128.

Required: No

OutpostId

The AWS Outposts ID of the regional bucket.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

RegionReport

Service: Amazon S3 Control

A combination of a bucket and Region that's part of a Multi-Region Access Point.

Contents

Bucket

The name of the bucket.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 255.

Required: No

BucketAccountId

The AWS account ID that owns the Amazon S3 bucket that's associated with this Multi-Region Access Point.

Type: String

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: No

Region

The name of the Region.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ReplicaModifications

Service: Amazon S3 Control

A filter that you can use to specify whether replica modification sync is enabled. S3 on Outposts replica modification sync can help you keep object metadata synchronized between replicas and source objects. By default, S3 on Outposts replicates metadata from the source objects to the replicas only. When replica modification sync is enabled, S3 on Outposts replicates metadata changes made to the replica copies back to the source object, making the replication bidirectional.

To replicate object metadata modifications on replicas, you can specify this element and set the `Status` of this element to `Enabled`.

> **Note**
>
> You must enable replica modification sync on the source and destination buckets to replicate replica metadata changes between the source and the replicas.

Contents

Status

Specifies whether S3 on Outposts replicates modifications to object metadata on replicas.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ReplicationConfiguration

Service: Amazon S3 Control

A container for one or more replication rules. A replication configuration must have at least one rule and you can add up to 100 rules. The maximum size of a replication configuration is 128 KB.

Contents

Role

The Amazon Resource Name (ARN) of the AWS Identity and Access Management (IAM) role that S3 on Outposts assumes when replicating objects. For information about S3 replication on Outposts configuration, see Setting up replication in the *Amazon S3 User Guide*.

Type: String

Required: Yes

Rules

A container for one or more replication rules. A replication configuration must have at least one rule and can contain an array of 100 rules at the most.

Type: Array of ReplicationRule data types

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ReplicationRule

Service: Amazon S3 Control

Specifies which S3 on Outposts objects to replicate and where to store the replicas.

Contents

Bucket

The Amazon Resource Name (ARN) of the access point for the source Outposts bucket that you want S3 on Outposts to replicate the objects from.

Type: String

Required: Yes

Destination

A container for information about the replication destination and its configurations.

Type: Destination data type

Required: Yes

Status

Specifies whether the rule is enabled.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

DeleteMarkerReplication

Specifies whether S3 on Outposts replicates delete markers. If you specify a `Filter` element in your replication configuration, you must also include a `DeleteMarkerReplication` element. If your `Filter` includes a `Tag` element, the `DeleteMarkerReplication` element's `Status` child element must be set to `Disabled`, because S3 on Outposts doesn't support replicating delete markers for tag-based rules.

For more information about delete marker replication, see How delete operations affect replication in the *Amazon S3 User Guide*.

Type: DeleteMarkerReplication data type

Required: No

ExistingObjectReplication

An optional configuration to replicate existing source bucket objects.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Type: ExistingObjectReplication data type

Required: No

Filter

A filter that identifies the subset of objects to which the replication rule applies. A `Filter` element must specify exactly one `Prefix`, `Tag`, or `And` child element.

Type: ReplicationRuleFilter data type

Required: No

ID

A unique identifier for the rule. The maximum value is 255 characters.

Type: String

Required: No

Prefix

This member has been deprecated.

An object key name prefix that identifies the object or objects to which the rule applies. The maximum prefix length is 1,024 characters. To include all objects in an Outposts bucket, specify an empty string.

> **Important**
>
> When you're using XML requests, you must replace special characters (such as carriage returns) in object keys with their equivalent XML entity codes. For more information, see XML-related object key constraints in the *Amazon S3 User Guide*.

Type: String

Required: No

Priority

The priority indicates which rule has precedence whenever two or more replication rules conflict. S3 on Outposts attempts to replicate objects according to all replication rules. However, if there are two or more rules with the same destination Outposts bucket, then objects will be replicated according to the rule with the highest priority. The higher the number, the higher the priority.

For more information, see Creating replication rules on Outposts in the *Amazon S3 User Guide*.

Type: Integer

Required: No

SourceSelectionCriteria

A container that describes additional filters for identifying the source Outposts objects that you want to replicate. You can choose to enable or disable the replication of these objects.

Type: SourceSelectionCriteria data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ReplicationRuleAndOperator

Service: Amazon S3 Control

A container for specifying rule filters. The filters determine the subset of objects to which the rule applies. This element is required only if you specify more than one filter.

For example:

- If you specify both a `Prefix` and a `Tag` filter, wrap these filters in an `And` element.
- If you specify a filter based on multiple tags, wrap the `Tag` elements in an `And` element.

Contents

Prefix

An object key name prefix that identifies the subset of objects that the rule applies to.

Type: String

Required: No

Tags

An array of tags that contain key and value pairs.

Type: Array of S3Tag data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ReplicationRuleFilter

Service: Amazon S3 Control

A filter that identifies the subset of objects to which the replication rule applies. A `Filter` element must specify exactly one `Prefix`, `Tag`, or `And` child element.

Contents

And

A container for specifying rule filters. The filters determine the subset of objects that the rule applies to. This element is required only if you specify more than one filter. For example:

- If you specify both a `Prefix` and a `Tag` filter, wrap these filters in an `And` element.
- If you specify a filter based on multiple tags, wrap the `Tag` elements in an `And` element.

Type: ReplicationRuleAndOperator data type

Required: No

Prefix

An object key name prefix that identifies the subset of objects that the rule applies to.

> **Important**
>
> When you're using XML requests, you must replace special characters (such as carriage returns) in object keys with their equivalent XML entity codes. For more information, see XML-related object key constraints in the *Amazon S3 User Guide*.

Type: String

Required: No

Tag

A container for a key-value name pair.

Type: S3Tag data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ReplicationTime

Service: Amazon S3 Control

A container that specifies S3 Replication Time Control (S3 RTC) related information, including whether S3 RTC is enabled and the time when all objects and operations on objects must be replicated.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Contents

Status

Specifies whether S3 Replication Time Control (S3 RTC) is enabled.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

Time

A container that specifies the time by which replication should be complete for all objects and operations on objects.

Type: ReplicationTimeValue data type

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ReplicationTimeValue

Service: Amazon S3 Control

A container that specifies the time value for S3 Replication Time Control (S3 RTC). This value is also used for the replication metrics `EventThreshold` element.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Contents

Minutes

Contains an integer that specifies the time period in minutes.

Valid value: 15

Type: Integer

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3AccessControlList

Service: Amazon S3 Control

Contents

Owner

Type: S3ObjectOwner data type

Required: Yes

Grants

Type: Array of S3Grant data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3AccessControlPolicy

Service: Amazon S3 Control

Contents

AccessControlList

Type: S3AccessControlList data type

Required: No

CannedAccessControlList

Type: String

Valid Values: `private | public-read | public-read-write | aws-exec-read | authenticated-read | bucket-owner-read | bucket-owner-full-control`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3BucketDestination

Service: Amazon S3 Control

A container for the bucket where the Amazon S3 Storage Lens metrics export files are located.

Contents

AccountId

The account ID of the owner of the S3 Storage Lens metrics export bucket.

Type: String

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: Yes

Arn

The Amazon Resource Name (ARN) of the bucket. This property is read-only and follows the following format: `arn:aws:s3:`*`us-east-1`*`:`*`example-account-id`*`:bucket/`*`your-destination-bucket-name`*

Type: String

Length Constraints: Minimum length of 1. Maximum length of 128.

Pattern: `arn:[^:]+:s3:.*`

Required: Yes

Format

Type: String

Valid Values: `CSV` | `Parquet`

Required: Yes

OutputSchemaVersion

The schema version of the export file.

Type: String

Valid Values: V_1

Required: Yes

Encryption

The container for the type encryption of the metrics exports in this bucket.

Type: StorageLensDataExportEncryption data type

Required: No

Prefix

The prefix of the destination bucket where the metrics export will be delivered.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3ComputeObjectChecksumOperation

Service: Amazon S3 Control

Directs the specified job to invoke the `ComputeObjectChecksum` operation on every object listed in the job's manifest.

Contents

ChecksumAlgorithm

Indicates the algorithm that you want Amazon S3 to use to create the checksum. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Valid Values: `CRC32 | CRC32C | CRC64NVME | MD5 | SHA1 | SHA256`

Required: No

ChecksumType

Indicates the checksum type that you want Amazon S3 to use to calculate the object's checksum value. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Valid Values: `FULL_OBJECT | COMPOSITE`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3CopyObjectOperation

Service: Amazon S3 Control

Contains the configuration parameters for a PUT Copy object operation. S3 Batch Operations passes every object to the underlying `CopyObject` API operation. For more information about the parameters for this operation, see CopyObject.

Contents

AccessControlGrants

> **Note**
>
> This functionality is not supported by directory buckets.

Type: Array of S3Grant data types

Required: No

BucketKeyEnabled

Specifies whether Amazon S3 should use an S3 Bucket Key for object encryption with server-side encryption using AWS KMS (SSE-KMS). Setting this header to `true` causes Amazon S3 to use an S3 Bucket Key for object encryption with SSE-KMS.

Specifying this header with an *Copy* action doesn't affect *bucket-level* settings for S3 Bucket Key.

> **Note**
>
> **Directory buckets** - S3 Bucket Keys aren't supported, when you copy SSE-KMS encrypted objects from general purpose buckets to directory buckets, from directory buckets to general purpose buckets, or between directory buckets, through the Copy operation in Batch Operations. In this case, Amazon S3 makes a call to AWS KMS every time a copy request is made for a KMS-encrypted object.

Type: Boolean

Required: No

CannedAccessControlList

> **Note**
>
> This functionality is not supported by directory buckets.

Type: String

Valid Values: `private` | `public-read` | `public-read-write` | `aws-exec-read` | `authenticated-read` | `bucket-owner-read` | `bucket-owner-full-control`

Required: No

ChecksumAlgorithm

Indicates the algorithm that you want Amazon S3 to use to create the checksum. For more information, see Checking object integrity in the *Amazon S3 User Guide*.

Type: String

Valid Values: `CRC32` | `CRC32C` | `SHA1` | `SHA256` | `CRC64NVME`

Required: No

MetadataDirective

Type: String

Valid Values: `COPY` | `REPLACE`

Required: No

ModifiedSinceConstraint

Type: Timestamp

Required: No

NewObjectMetadata

If you don't provide this parameter, Amazon S3 copies all the metadata from the original objects. If you specify an empty set, the new objects will have no tags. Otherwise, Amazon S3 assigns the supplied tags to the new objects.

Type: S3ObjectMetadata data type

Required: No

NewObjectTagging

Specifies a list of tags to add to the destination objects after they are copied. If `NewObjectTagging` is not specified, the tags of the source objects are copied to destination objects by default.

> **Note**
>
> **Directory buckets** - Tags aren't supported by directory buckets. If your source objects have tags and your destination bucket is a directory bucket, specify an empty tag set in the `NewObjectTagging` field to prevent copying the source object tags to the directory bucket.

Type: Array of S3Tag data types

Required: No

ObjectLockLegalHoldStatus

The legal hold status to be applied to all objects in the Batch Operations job.

> **Note**
>
> This functionality is not supported by directory buckets.

Type: String

Valid Values: `OFF` | `ON`

Required: No

ObjectLockMode

The retention mode to be applied to all objects in the Batch Operations job.

> **Note**
>
> This functionality is not supported by directory buckets.

Type: String

Valid Values: `COMPLIANCE | GOVERNANCE`

Required: No

ObjectLockRetainUntilDate

The date when the applied object retention configuration expires on all objects in the Batch Operations job.

> **Note**
>
> This functionality is not supported by directory buckets.

Type: Timestamp

Required: No

RedirectLocation

If the destination bucket is configured as a website, specifies an optional metadata property for website redirects, `x-amz-website-redirect-location`. Allows webpage redirects if the object copy is accessed through a website endpoint.

> **Note**
>
> This functionality is not supported by directory buckets.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Required: No

RequesterPays

> **Note**
>
> This functionality is not supported by directory buckets.

Type: Boolean

Required: No

SSEAwsKmsKeyId

Specifies the AWS KMS key ID (Key ID, Key ARN, or Key Alias) to use for object encryption. If the KMS key doesn't exist in the same account that's issuing the command, you must use the full Key ARN not the Key ID.

> **Note**
>
> **Directory buckets** - If you specify `SSEAlgorithm` with `KMS`, you must specify the `SSEAwsKmsKeyId` parameter with the ID (Key ID or Key ARN) of the AWS KMS symmetric encryption customer managed key to use. Otherwise, you get an HTTP `400 Bad Request` error. The key alias format of the KMS key isn't supported. To encrypt new object copies in a directory bucket with SSE-KMS, you must specify SSE-KMS as the directory bucket's default encryption configuration with a KMS key (specifically, a customer managed key). The AWS managed key (`aws/s3`) isn't supported. Your SSE-KMS configuration can only support 1 customer managed key per directory bucket for the lifetime of the bucket. After you specify a customer managed key for SSE-KMS as the bucket default encryption, you can't override the customer managed key for the bucket's SSE-KMS configuration. Then, when you specify server-side encryption settings for new object copies with SSE-KMS, you must make sure the encryption key is the same customer managed key that you specified for the directory bucket's default encryption configuration.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Required: No

StorageClass

Specify the storage class for the destination objects in a Copy operation.

> **Note**
>
> **Directory buckets** - This functionality is not supported by directory buckets.

Type: String

Valid Values: `STANDARD | STANDARD_IA | ONEZONE_IA | GLACIER | INTELLIGENT_TIERING | DEEP_ARCHIVE | GLACIER_IR`

Required: No

TargetKeyPrefix

Specifies the folder prefix that you want the objects to be copied into. For example, to copy objects into a folder named `Folder1` in the destination bucket, set the `TargetKeyPrefix` property to `Folder1`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

TargetResource

Specifies the destination bucket Amazon Resource Name (ARN) for the batch copy operation.

- **General purpose buckets** - For example, to copy objects to a general purpose bucket named `destinationBucket`, set the `TargetResource` property to `arn:aws:s3:::destinationBucket`.
- **Directory buckets** - For example, to copy objects to a directory bucket named `destinationBucket` in the Availability Zone identified by the AZ ID `usw2-az1`, set the `TargetResource` property to `arn:aws:s3express:`*`region`*`:`*`account_id`*`:/`

bucket/*destination_bucket_base_name*--*usw2-az1*--x-s3. A directory bucket as a destination bucket can be in Availability Zone or Local Zone.

> **Note**
>
> Copying objects across different AWS Regions isn't supported when the source or destination bucket is in AWS Local Zones. The source and destination buckets must have the same parent AWS Region. Otherwise, you get an HTTP `400 Bad Request` error with the error code `InvalidRequest`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 128.

Pattern: `arn:[^:]+:(s3|s3express):.*`

Required: No

UnModifiedSinceConstraint

Type: Timestamp

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3DeleteObjectTaggingOperation

Service: Amazon S3 Control

Contains no configuration parameters because the DELETE Object tagging (`DeleteObjectTagging`) API operation accepts only the bucket name and key name as parameters, which are defined in the job's manifest.

Contents

The members of this exception structure are context-dependent.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3GeneratedManifestDescriptor

Service: Amazon S3 Control

Describes the specified job's generated manifest. Batch Operations jobs created with a ManifestGenerator populate details of this descriptor after execution of the ManifestGenerator.

Contents

Format

The format of the generated manifest.

Type: String

Valid Values: `S3InventoryReport_CSV_20211130`

Required: No

Location

Contains the information required to locate a manifest object. Manifests can't be imported from directory buckets. For more information, see Directory buckets.

Type: JobManifestLocation data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3Grant

Service: Amazon S3 Control

Contents

Grantee

Type: S3Grantee data type

Required: No

Permission

Type: String

Valid Values: `FULL_CONTROL | READ | WRITE | READ_ACP | WRITE_ACP`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3Grantee

Service: Amazon S3 Control

Contents

DisplayName

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

Identifier

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

TypeIdentifier

Type: String

Valid Values: `id | emailAddress | uri`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3InitiateRestoreObjectOperation

Service: Amazon S3 Control

Contains the configuration parameters for a POST Object restore job. S3 Batch Operations passes every object to the underlying `RestoreObject` API operation. For more information about the parameters for this operation, see RestoreObject.

Contents

ExpirationInDays

This argument specifies how long the S3 Glacier or S3 Glacier Deep Archive object remains available in Amazon S3. S3 Initiate Restore Object jobs that target S3 Glacier and S3 Glacier Deep Archive objects require `ExpirationInDays` set to 1 or greater.

Conversely, do *not* set `ExpirationInDays` when creating S3 Initiate Restore Object jobs that target S3 Intelligent-Tiering Archive Access and Deep Archive Access tier objects. Objects in S3 Intelligent-Tiering archive access tiers are not subject to restore expiry, so specifying `ExpirationInDays` results in restore request failure.

S3 Batch Operations jobs can operate either on S3 Glacier and S3 Glacier Deep Archive storage class objects or on S3 Intelligent-Tiering Archive Access and Deep Archive Access storage tier objects, but not both types in the same job. If you need to restore objects of both types you *must* create separate Batch Operations jobs.

Type: Integer

Valid Range: Minimum value of 1.

Required: No

GlacierJobTier

S3 Batch Operations supports `STANDARD` and `BULK` retrieval tiers, but not the `EXPEDITED` retrieval tier.

Type: String

Valid Values: `BULK` | `STANDARD`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3JobManifestGenerator

Service: Amazon S3 Control

The container for the service that will create the S3 manifest.

Contents

EnableManifestOutput

Determines whether or not to write the job's generated manifest to a bucket.

Type: Boolean

Required: Yes

SourceBucket

The ARN of the source bucket used by the ManifestGenerator.

> **Note**
>
> **Directory buckets** - Directory buckets aren't supported as the source buckets used by `S3JobManifestGenerator` to generate the job manifest.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 128.

Pattern: `arn:[^:]+:s3:.*`

Required: Yes

ExpectedBucketOwner

The AWS account ID that owns the bucket the generated manifest is written to. If provided the generated manifest bucket's owner AWS account ID must match this value, else the job fails.

Type: String

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: No

Filter

Specifies rules the S3JobManifestGenerator should use to decide whether an object in the source bucket should or should not be included in the generated job manifest.

Type: JobManifestGeneratorFilter data type

Required: No

ManifestOutputLocation

Specifies the location the generated manifest will be written to. Manifests can't be written to directory buckets. For more information, see Directory buckets.

Type: S3ManifestOutputLocation data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3ManifestOutputLocation

Service: Amazon S3 Control

Location details for where the generated manifest should be written.

Contents

Bucket

The bucket ARN the generated manifest should be written to.

> **Note**
>
> **Directory buckets** - Directory buckets aren't supported as the buckets to store the generated manifest.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 128.

Pattern: `arn:[^:]+:s3:.*`

Required: Yes

ManifestFormat

The format of the generated manifest.

Type: String

Valid Values: `S3InventoryReport_CSV_20211130`

Required: Yes

ExpectedManifestBucketOwner

The Account ID that owns the bucket the generated manifest is written to.

Type: String

Length Constraints: Maximum length of 64.

Pattern: `^\d{12}$`

Required: No

ManifestEncryption

Specifies what encryption should be used when the generated manifest objects are written.

Type: GeneratedManifestEncryption data type

Required: No

ManifestPrefix

Prefix identifying one or more objects to which the manifest applies.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 512.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3ObjectLockLegalHold

Service: Amazon S3 Control

Whether S3 Object Lock legal hold will be applied to objects in an S3 Batch Operations job.

Contents

Status

The Object Lock legal hold status to be applied to all objects in the Batch Operations job.

Type: String

Valid Values: `OFF` | `ON`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3ObjectMetadata

Service: Amazon S3 Control

Contents

CacheControl

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

ContentDisposition

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

ContentEncoding

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

ContentLanguage

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

ContentLength

This member has been deprecated.

Type: Long

Valid Range: Minimum value of 0.

Required: No

ContentMD5

This member has been deprecated.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

ContentType

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

HttpExpiresDate

Type: Timestamp

Required: No

RequesterCharged

This member has been deprecated.

Type: Boolean

Required: No

SSEAlgorithm

The server-side encryption algorithm used when storing objects in Amazon S3.

Directory buckets - For directory buckets, there are only two supported options for server-side encryption: server-side encryption with Amazon S3 managed keys (SSE-S3) (`AES256`) and server-side encryption with AWS KMS keys (SSE-KMS) (`KMS`). For more information,

see Protecting data with server-side encryption in the *Amazon S3 User Guide*. For the Copy operation in Batch Operations, see S3CopyObjectOperation.

Type: String

Valid Values: `AES256` | `KMS`

Required: No

UserMetadata

Type: String to string map

Map Entries: Maximum number of 8192 items.

Key Length Constraints: Minimum length of 1. Maximum length of 1024.

Value Length Constraints: Maximum length of 1024.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3ObjectOwner

Service: Amazon S3 Control

Contents

DisplayName

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

ID

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3ReplicateObjectOperation

Service: Amazon S3 Control

Directs the specified job to invoke `ReplicateObject` on every object in the job's manifest.

Contents

The members of this exception structure are context-dependent.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3Retention

Service: Amazon S3 Control

Contains the S3 Object Lock retention mode to be applied to all objects in the S3 Batch Operations job. If you don't provide `Mode` and `RetainUntilDate` data types in your operation, you will remove the retention from your objects. For more information, see Using S3 Object Lock retention with S3 Batch Operations in the *Amazon S3 User Guide*.

Contents

Mode

The Object Lock retention mode to be applied to all objects in the Batch Operations job.

Type: String

Valid Values: `COMPLIANCE | GOVERNANCE`

Required: No

RetainUntilDate

The date when the applied Object Lock retention will expire on all objects set by the Batch Operations job.

Type: Timestamp

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3SetObjectAclOperation

Service: Amazon S3 Control

Contains the configuration parameters for a PUT Object ACL operation. S3 Batch Operations passes every object to the underlying `PutObjectAcl` API operation. For more information about the parameters for this operation, see PutObjectAcl.

Contents

AccessControlPolicy

Type: S3AccessControlPolicy data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3SetObjectLegalHoldOperation

Service: Amazon S3 Control

Contains the configuration for an S3 Object Lock legal hold operation that an S3 Batch Operations job passes to every object to the underlying `PutObjectLegalHold` API operation. For more information, see Using S3 Object Lock legal hold with S3 Batch Operations in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported by directory buckets.

Contents

LegalHold

Contains the Object Lock legal hold status to be applied to all objects in the Batch Operations job.

Type: S3ObjectLockLegalHold data type

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3SetObjectRetentionOperation

Service: Amazon S3 Control

Contains the configuration parameters for the Object Lock retention action for an S3 Batch Operations job. Batch Operations passes every object to the underlying `PutObjectRetention` API operation. For more information, see Using S3 Object Lock retention with S3 Batch Operations in the *Amazon S3 User Guide*.

> **Note**
>
> This functionality is not supported by directory buckets.

Contents

Retention

Contains the Object Lock retention mode to be applied to all objects in the Batch Operations job. For more information, see Using S3 Object Lock retention with S3 Batch Operations in the *Amazon S3 User Guide*.

Type: S3Retention data type

Required: Yes

BypassGovernanceRetention

Indicates if the action should be applied to objects in the Batch Operations job even if they have Object Lock `GOVERNANCE` type in place.

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2

- AWS SDK for Ruby V3

S3SetObjectTaggingOperation

Service: Amazon S3 Control

Contains the configuration parameters for a PUT Object Tagging operation. S3 Batch Operations passes every object to the underlying `PutObjectTagging` API operation. For more information about the parameters for this operation, see PutObjectTagging.

Contents

TagSet

Type: Array of S3Tag data types

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

S3Tag

Service: Amazon S3 Control

A container for a key-value name pair.

Contents

Key

Key of the tag

Type: String

Length Constraints: Minimum length of 1. Maximum length of 128.

Pattern: `^([\p{L}\p{Z}\p{N}_.:/=+\-@]*)$`

Required: Yes

Value

Value of the tag

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `^([\p{L}\p{Z}\p{N}_.:/=+\-@]*)$`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Scope

Service: Amazon S3 Control

You can use the access point scope to restrict access to specific prefixes, API operations, or a combination of both.

For more information, see Manage the scope of your access points for directory buckets.

Contents

Permissions

You can include one or more API operations as permissions.

Type: Array of strings

Valid Values: `GetObject | GetObjectAttributes | ListMultipartUploadParts | ListBucket | ListBucketMultipartUploads | PutObject | DeleteObject | AbortMultipartUpload`

Required: No

Prefixes

You can specify any amount of prefixes, but the total length of characters of all prefixes must be less than 256 bytes in size.

Type: Array of strings

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

SelectionCriteria

Service: Amazon S3 Control

Contents

Delimiter

A container for the delimiter of the selection criteria being used.

Type: String

Length Constraints: Maximum length of 1.

Required: No

MaxDepth

The max depth of the selection criteria

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 10.

Required: No

MinStorageBytesPercentage

The minimum number of storage bytes percentage whose metrics will be selected.

> **Note**
>
> You must choose a value greater than or equal to `1.0`.

Type: Double

Valid Range: Minimum value of 0.1. Maximum value of 100.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

SourceSelectionCriteria

Service: Amazon S3 Control

A container that describes additional filters for identifying the source objects that you want to replicate. You can choose to enable or disable the replication of these objects.

Contents

ReplicaModifications

A filter that you can use to specify whether replica modification sync is enabled. S3 on Outposts replica modification sync can help you keep object metadata synchronized between replicas and source objects. By default, S3 on Outposts replicates metadata from the source objects to the replicas only. When replica modification sync is enabled, S3 on Outposts replicates metadata changes made to the replica copies back to the source object, making the replication bidirectional.

To replicate object metadata modifications on replicas, you can specify this element and set the `Status` of this element to `Enabled`.

> **Note**
>
> You must enable replica modification sync on the source and destination buckets to replicate replica metadata changes between the source and the replicas.

Type: ReplicaModifications data type

Required: No

SseKmsEncryptedObjects

A filter that you can use to select Amazon S3 objects that are encrypted with server-side encryption by using AWS Key Management Service (AWS KMS) keys. If you include `SourceSelectionCriteria` in the replication configuration, this element is required.

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Type: SseKmsEncryptedObjects data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

SSEKMS

Service: Amazon S3 Control

Contents

KeyId

A container for the ARN of the SSE-KMS encryption. This property is read-only and follows the following format: `arn:aws:kms:us-east-1:example-account-id:key/example-9a73-4afc-8d29-8f5900cef44e`

Type: String

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

SseKmsEncryptedObjects

Service: Amazon S3 Control

A container for filter information that you can use to select S3 objects that are encrypted with AWS Key Management Service (AWS KMS).

> **Note**
>
> This is not supported by Amazon S3 on Outposts buckets.

Contents

Status

Specifies whether Amazon S3 replicates objects that are created with server-side encryption by using an AWS KMS key stored in AWS Key Management Service.

Type: String

Valid Values: `Enabled | Disabled`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

SSEKMSEncryption

Service: Amazon S3 Control

Configuration for the use of SSE-KMS to encrypt generated manifest objects.

Contents

KeyId

Specifies the ID of the AWS Key Management Service (AWS KMS) symmetric encryption customer managed key to use for encrypting generated manifest objects.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

SSES3

Service: Amazon S3 Control

Contents

The members of this exception structure are context-dependent.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

SSES3Encryption

Service: Amazon S3 Control

Configuration for the use of SSE-S3 to encrypt generated manifest objects.

Contents

The members of this exception structure are context-dependent.

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

StorageLensAwsOrg

Service: Amazon S3 Control

The AWS organization for your S3 Storage Lens.

Contents

Arn

A container for the Amazon Resource Name (ARN) of the AWS organization. This property is read-only and follows the following format: `arn:aws:organizations:`*`us-east-1`*`:`*`example-account-id`*`:organization/`*`o-ex2l495dck`*

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `arn:[a-z\-]+:organizations::\d{12}:organization\/o-[a-z0-9]{10,32}`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

StorageLensConfiguration

Service: Amazon S3 Control

A container for the Amazon S3 Storage Lens configuration.

Contents

AccountLevel

A container for all the account-level configurations of your S3 Storage Lens configuration.

Type: AccountLevel data type

Required: Yes

Id

A container for the Amazon S3 Storage Lens configuration ID.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-\_\.]+`

Required: Yes

IsEnabled

A container for whether the S3 Storage Lens configuration is enabled.

Type: Boolean

Required: Yes

AwsOrg

A container for the AWS organization for this S3 Storage Lens configuration.

Type: StorageLensAwsOrg data type

Required: No

DataExport

A container to specify the properties of your S3 Storage Lens metrics export including, the destination, schema and format.

Type: StorageLensDataExport data type

Required: No

Exclude

A container for what is excluded in this configuration. This container can only be valid if there is no `Include` container submitted, and it's not empty.

Type: Exclude data type

Required: No

Include

A container for what is included in this configuration. This container can only be valid if there is no `Exclude` container submitted, and it's not empty.

Type: Include data type

Required: No

StorageLensArn

The Amazon Resource Name (ARN) of the S3 Storage Lens configuration. This property is read-only and follows the following format: `arn:aws:s3:`*`us-east-1`*`:`*`example-account-id`*`:storage-lens/`*`your-dashboard-name`*

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:storage\-lens\/.*`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2

- AWS SDK for Ruby V3

StorageLensDataExport

Service: Amazon S3 Control

A container to specify the properties of your S3 Storage Lens metrics export, including the destination, schema, and format.

Contents

CloudWatchMetrics

A container for enabling Amazon CloudWatch publishing for S3 Storage Lens metrics.

Type: CloudWatchMetrics data type

Required: No

S3BucketDestination

A container for the bucket where the S3 Storage Lens metrics export will be located.

> **Note**
>
> This bucket must be located in the same Region as the storage lens configuration.

Type: S3BucketDestination data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

StorageLensDataExportEncryption

Service: Amazon S3 Control

A container for the encryption of the S3 Storage Lens metrics exports.

Contents

SSEKMS

Type: SSEKMS data type

Required: No

SSES3

Type: SSES3 data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

StorageLensGroup

Service: Amazon S3 Control

A custom grouping of objects that include filters for prefixes, suffixes, object tags, object size, or object age. You can create an S3 Storage Lens group that includes a single filter or multiple filter conditions. To specify multiple filter conditions, you use `AND` or `OR` logical operators.

Contents

Filter

Sets the criteria for the Storage Lens group data that is displayed. For multiple filter conditions, the `AND` or `OR` logical operator is used.

Type: StorageLensGroupFilter data type

Required: Yes

Name

Contains the name of the Storage Lens group.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `[a-zA-Z0-9\-\_]+`

Required: Yes

StorageLensGroupArn

Contains the Amazon Resource Name (ARN) of the Storage Lens group. This property is read-only.

Type: String

Length Constraints: Minimum length of 4. Maximum length of 1024.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:storage\-lens\-group\/.*`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

StorageLensGroupAndOperator

Service: Amazon S3 Control

A logical operator that allows multiple filter conditions to be joined for more complex comparisons of Storage Lens group data.

Contents

MatchAnyPrefix

Contains a list of prefixes. At least one prefix must be specified. Up to 10 prefixes are allowed.

Type: Array of strings

Required: No

MatchAnySuffix

Contains a list of suffixes. At least one suffix must be specified. Up to 10 suffixes are allowed.

Type: Array of strings

Required: No

MatchAnyTag

Contains the list of object tags. At least one object tag must be specified. Up to 10 object tags are allowed.

Type: Array of S3Tag data types

Required: No

MatchObjectAge

Contains `DaysGreaterThan` and `DaysLessThan` to define the object age range (minimum and maximum number of days).

Type: MatchObjectAge data type

Required: No

MatchObjectSize

Contains `BytesGreaterThan` and `BytesLessThan` to define the object size range (minimum and maximum number of Bytes).

Type: MatchObjectSize data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

StorageLensGroupFilter

Service: Amazon S3 Control

The filter element sets the criteria for the Storage Lens group data that is displayed. For multiple filter conditions, the `AND` or `OR` logical operator is used.

Contents

And

A logical operator that allows multiple filter conditions to be joined for more complex comparisons of Storage Lens group data. Objects must match all of the listed filter conditions that are joined by the `And` logical operator. Only one of each filter condition is allowed.

Type: StorageLensGroupAndOperator data type

Required: No

MatchAnyPrefix

Contains a list of prefixes. At least one prefix must be specified. Up to 10 prefixes are allowed.

Type: Array of strings

Required: No

MatchAnySuffix

Contains a list of suffixes. At least one suffix must be specified. Up to 10 suffixes are allowed.

Type: Array of strings

Required: No

MatchAnyTag

Contains the list of S3 object tags. At least one object tag must be specified. Up to 10 object tags are allowed.

Type: Array of S3Tag data types

Required: No

MatchObjectAge

Contains `DaysGreaterThan` and `DaysLessThan` to define the object age range (minimum and maximum number of days).

Type: MatchObjectAge data type

Required: No

MatchObjectSize

Contains `BytesGreaterThan` and `BytesLessThan` to define the object size range (minimum and maximum number of Bytes).

Type: MatchObjectSize data type

Required: No

Or

A single logical operator that allows multiple filter conditions to be joined. Objects can match any of the listed filter conditions, which are joined by the `Or` logical operator. Only one of each filter condition is allowed.

Type: StorageLensGroupOrOperator data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

StorageLensGroupLevel

Service: Amazon S3 Control

Specifies the Storage Lens groups to include in the Storage Lens group aggregation.

Contents

SelectionCriteria

Indicates which Storage Lens group ARNs to include or exclude in the Storage Lens group aggregation. If this value is left null, then all Storage Lens groups are selected.

Type: StorageLensGroupLevelSelectionCriteria data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

StorageLensGroupLevelSelectionCriteria

Service: Amazon S3 Control

Indicates which Storage Lens group ARNs to include or exclude in the Storage Lens group aggregation. You can only attach Storage Lens groups to your Storage Lens dashboard if they're included in your Storage Lens group aggregation. If this value is left null, then all Storage Lens groups are selected.

Contents

Exclude

Indicates which Storage Lens group ARNs to exclude from the Storage Lens group aggregation.

Type: Array of strings

Length Constraints: Minimum length of 4. Maximum length of 1024.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:storage\-lens\-group\/.*`

Required: No

Include

Indicates which Storage Lens group ARNs to include in the Storage Lens group aggregation.

Type: Array of strings

Length Constraints: Minimum length of 4. Maximum length of 1024.

Pattern: `arn:[a-z\-]+:s3:[a-z0-9\-]+:\d{12}:storage\-lens\-group\/.*`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

StorageLensGroupOrOperator

Service: Amazon S3 Control

A container element for specifying `Or` rule conditions. The rule conditions determine the subset of objects to which the `Or` rule applies. Objects can match any of the listed filter conditions, which are joined by the `Or` logical operator. Only one of each filter condition is allowed.

Contents

MatchAnyPrefix

Filters objects that match any of the specified prefixes.

Type: Array of strings

Required: No

MatchAnySuffix

Filters objects that match any of the specified suffixes.

Type: Array of strings

Required: No

MatchAnyTag

Filters objects that match any of the specified S3 object tags.

Type: Array of S3Tag data types

Required: No

MatchObjectAge

Filters objects that match the specified object age range.

Type: MatchObjectAge data type

Required: No

MatchObjectSize

Filters objects that match the specified object size range.

Type: MatchObjectSize data type

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

StorageLensTag

Service: Amazon S3 Control

Contents

Key

Type: String

Length Constraints: Minimum length of 1. Maximum length of 128.

Pattern: `^([\p{L}\p{Z}\p{N}_.:/=+\-@]*)$`

Required: Yes

Value

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `^([\p{L}\p{Z}\p{N}_.:/=+\-@]*)$`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Tag

Service: Amazon S3 Control

A key-value pair that you use to label your resources. You can add tags to new resources when you create them, or you can add tags to existing resources. Tags can help you organize, track costs for, and control access to resources.

Contents

Key

The key of the key-value pair of a tag added to your AWS resource. A tag key can be up to 128 Unicode characters in length and is case-sensitive. System created tags that begin with `aws:` aren't supported.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 128.

Pattern: `^([\p{L}\p{Z}\p{N}_.:/=+\-@]*)$`

Required: Yes

Value

The value of the key-value pair of a tag added to your AWS resource. A tag value can be up to 256 Unicode characters in length and is case-sensitive.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `^([\p{L}\p{Z}\p{N}_.:/=+\-@]*)$`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++

- AWS SDK for Java V2
- AWS SDK for Ruby V3

Tagging

Service: Amazon S3 Control

Contents

TagSet

A collection for a set of tags.

Type: Array of S3Tag data types

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Transition

Service: Amazon S3 Control

Specifies when an object transitions to a specified storage class. For more information about Amazon S3 Lifecycle configuration rules, see Transitioning objects using Amazon S3 Lifecycle in the *Amazon S3 User Guide*.

Contents

Date

Indicates when objects are transitioned to the specified storage class. The date value must be in ISO 8601 format. The time is always midnight UTC.

Type: Timestamp

Required: No

Days

Indicates the number of days after creation when objects are transitioned to the specified storage class. The value must be a positive integer.

Type: Integer

Required: No

StorageClass

The storage class to which you want the object to transition.

Type: String

Valid Values: `GLACIER | STANDARD_IA | ONEZONE_IA | INTELLIGENT_TIERING | DEEP_ARCHIVE`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

VersioningConfiguration

Service: Amazon S3 Control

Describes the versioning state of an Amazon S3 on Outposts bucket. For more information, see PutBucketVersioning.

Contents

MFADelete

Specifies whether MFA delete is enabled or disabled in the bucket versioning configuration for the S3 on Outposts bucket.

Type: String

Valid Values: `Enabled | Disabled`

Required: No

Status

Sets the versioning state of the S3 on Outposts bucket.

Type: String

Valid Values: `Enabled | Suspended`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

VpcConfiguration

Service: Amazon S3 Control

The virtual private cloud (VPC) configuration for an access point.

Contents

VpcId

If this field is specified, this access point will only allow connections from the specified VPC ID.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Amazon S3 on Outposts

The following data types are supported by Amazon S3 on Outposts:

- Endpoint
- FailedReason
- NetworkInterface
- Outpost

Endpoint

Service: Amazon S3 on Outposts

Amazon S3 on Outposts Access Points simplify managing data access at scale for shared datasets in S3 on Outposts. S3 on Outposts uses endpoints to connect to AWS Outposts buckets so that you can perform actions within your virtual private cloud (VPC). For more information, see Accessing S3 on Outposts using VPC-only access points in the *Amazon Simple Storage Service User Guide*.

Contents

AccessType

The type of connectivity used to access the Amazon S3 on Outposts endpoint.

Type: String

Valid Values: `Private | CustomerOwnedIp`

Required: No

CidrBlock

The VPC CIDR committed by this endpoint.

Type: String

Required: No

CreationTime

The time the endpoint was created.

Type: Timestamp

Required: No

CustomerOwnedIpv4Pool

The ID of the customer-owned IPv4 address pool used for the endpoint.

Type: String

Pattern: `^ipv4pool-coip-([0-9a-f]{17})$`

Required: No

EndpointArn

The Amazon Resource Name (ARN) of the endpoint.

Type: String

Pattern: `^arn:(aws|aws-cn|aws-us-gov|aws-iso|aws-iso-b):s3-outposts:[a-z\-0-9]*:[0-9]{12}:outpost/(op-[a-f0-9]{17}|ec2)/endpoint/[a-zA-Z0-9]{19}$`

Required: No

FailedReason

The failure reason, if any, for a create or delete endpoint operation.

Type: FailedReason object

Required: No

NetworkInterfaces

The network interface of the endpoint.

Type: Array of NetworkInterface objects

Required: No

OutpostsId

The ID of the AWS Outposts.

Type: String

Pattern: `^(op-[a-f0-9]{17}|\d{12}|ec2)$`

Required: No

SecurityGroupId

The ID of the security group used for the endpoint.

Type: String

Pattern: `^sg-([0-9a-f]{8}|[0-9a-f]{17})$`

Required: No

Status

The status of the endpoint.

Type: String

Valid Values: `Pending | Available | Deleting | Create_Failed | Delete_Failed`

Required: No

SubnetId

The ID of the subnet used for the endpoint.

Type: String

Pattern: `^subnet-([0-9a-f]{8}|[0-9a-f]{17})$`

Required: No

VpcId

The ID of the VPC used for the endpoint.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

FailedReason

Service: Amazon S3 on Outposts

The failure reason, if any, for a create or delete endpoint operation.

Contents

ErrorCode

The failure code, if any, for a create or delete endpoint operation.

Type: String

Required: No

Message

Additional error details describing the endpoint failure and recommended action.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

NetworkInterface

Service: Amazon S3 on Outposts

The container for the network interface.

Contents

NetworkInterfaceId

The ID for the network interface.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Outpost

Service: Amazon S3 on Outposts

Contains the details for the Outpost object.

Contents

CapacityInBytes

The Amazon S3 capacity of the outpost in bytes.

Type: Long

Required: No

OutpostArn

Specifies the unique Amazon Resource Name (ARN) for the outpost.

Type: String

Pattern: `^arn:(aws|aws-cn|aws-us-gov|aws-iso|aws-iso-b):outposts:[a-z\-0-9]*:[0-9]{12}:outpost/(op-[a-f0-9]{17}|ec2)$`

Required: No

OutpostId

Specifies the unique identifier for the outpost.

Type: String

Pattern: `^(op-[a-f0-9]{17}|\d{12}|ec2)$`

Required: No

OwnerId

Returns the AWS account ID of the outpost owner. Useful for comparing owned versus shared outposts.

Type: String

Pattern: `^\d{12}$`

Required: No

S3OutpostArn

Specifies the unique S3 on Outposts ARN for use with AWS Resource Access Manager (AWS RAM).

Type: String

Pattern: `^arn:(aws|aws-cn|aws-us-gov|aws-iso|aws-iso-b):s3-outposts:[a-z\-0-9]*:[0-9]{12}:outpost/(op-[a-f0-9]{17}|\d{12})/s3$`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Amazon S3 Tables

The following data types are supported by Amazon S3 Tables:

- EncryptionConfiguration
- IcebergCompactionSettings
- IcebergMetadata
- IcebergSchema
- IcebergSnapshotManagementSettings
- IcebergUnreferencedFileRemovalSettings
- NamespaceSummary
- SchemaField
- TableBucketMaintenanceConfigurationValue
- TableBucketMaintenanceSettings

- TableBucketSummary
- TableMaintenanceConfigurationValue
- TableMaintenanceJobStatusValue
- TableMaintenanceSettings
- TableMetadata
- TableSummary

EncryptionConfiguration

Service: Amazon S3 Tables

Configuration specifying how data should be encrypted. This structure defines the encryption algorithm and optional KMS key to be used for server-side encryption.

Contents

sseAlgorithm

The server-side encryption algorithm to use. Valid values are `AES256` for S3-managed encryption keys, or `aws:kms` for AWS KMS-managed encryption keys. If you choose SSE-KMS encryption you must grant the S3 Tables maintenance principal access to your KMS key. For more information, see Permissions requirements for S3 Tables SSE-KMS encryption.

Type: String

Valid Values: `AES256 | aws:kms`

Required: Yes

kmsKeyArn

The Amazon Resource Name (ARN) of the KMS key to use for encryption. This field is required only when `sseAlgorithm` is set to `aws:kms`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `(arn:aws[-a-z0-9]*:kms:[-a-z0-9]*:[0-9]{12}:key/.+)`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

IcebergCompactionSettings

Service: Amazon S3 Tables

Contains details about the compaction settings for an Iceberg table.

Contents

targetFileSizeMB

The target file size for the table in MB.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 2147483647.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

IcebergMetadata

Service: Amazon S3 Tables

Contains details about the metadata for an Iceberg table.

Contents

schema

The schema for an Iceberg table.

Type: IcebergSchema object

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

IcebergSchema

Service: Amazon S3 Tables

Contains details about the schema for an Iceberg table.

Contents

fields

The schema fields for the table

Type: Array of SchemaField objects

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

IcebergSnapshotManagementSettings

Service: Amazon S3 Tables

Contains details about the snapshot management settings for an Iceberg table. The oldest snapshot expires when its age exceeds the `maxSnapshotAgeHours` and the total number of snapshots exceeds the value for the minimum number of snapshots to keep `minSnapshotsToKeep`.

Contents

maxSnapshotAgeHours

The maximum age of a snapshot before it can be expired.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 2147483647.

Required: No

minSnapshotsToKeep

The minimum number of snapshots to keep.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 2147483647.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

IcebergUnreferencedFileRemovalSettings

Service: Amazon S3 Tables

Contains details about the unreferenced file removal settings for an Iceberg table bucket.

Contents

nonCurrentDays

The number of days an object has to be non-current before it is deleted.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 2147483647.

Required: No

unreferencedDays

The number of days an object has to be unreferenced before it is marked as non-current.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 2147483647.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

NamespaceSummary

Service: Amazon S3 Tables

Contains details about a namespace.

Contents

createdAt

The date and time the namespace was created at.

Type: Timestamp

Required: Yes

createdBy

The ID of the account that created the namespace.

Type: String

Length Constraints: Fixed length of 12.

Pattern: `[0-9].*`

Required: Yes

namespace

The name of the namespace.

Type: Array of strings

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

ownerAccountId

The ID of the account that owns the namespace.

Type: String

Length Constraints: Fixed length of 12.

Pattern: `[0-9].*`

Required: Yes

namespaceId

The system-assigned unique identifier for the namespace.

Type: String

Required: No

tableBucketId

The system-assigned unique identifier for the table bucket that contains this namespace.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

SchemaField

Service: Amazon S3 Tables

Contains details about a schema field.

Contents

name

The name of the field.

Type: String

Required: Yes

type

The field type. S3 Tables supports all Apache Iceberg primitive types. For more information, see the Apache Iceberg documentation.

Type: String

Required: Yes

required

A Boolean value that specifies whether values are required for each row in this field. By default, this is `false` and null values are allowed in the field. If this is `true` the field does not allow null values.

Type: Boolean

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

TableBucketMaintenanceConfigurationValue

Service: Amazon S3 Tables

Details about the values that define the maintenance configuration for a table bucket.

Contents

settings

Contains details about the settings of the maintenance configuration.

Type: TableBucketMaintenanceSettings object

Note: This object is a Union. Only one member of this object can be specified or returned.

Required: No

status

The status of the maintenance configuration.

Type: String

Valid Values: `enabled | disabled`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

TableBucketMaintenanceSettings

Service: Amazon S3 Tables

Contains details about the maintenance settings for the table bucket.

Contents

> **Important**
>
> This data type is a UNION, so only one of the following members can be specified when used or returned.

icebergUnreferencedFileRemoval

The unreferenced file removal settings for the table bucket.

Type: IcebergUnreferencedFileRemovalSettings object

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

TableBucketSummary

Service: Amazon S3 Tables

Contains details about a table bucket.

Contents

arn

The Amazon Resource Name (ARN) of the table bucket.

Type: String

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63})`

Required: Yes

createdAt

The date and time the table bucket was created at.

Type: Timestamp

Required: Yes

name

The name of the table bucket.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Pattern: `[0-9a-z-]*`

Required: Yes

ownerAccountId

The ID of the account that owns the table bucket.

Type: String

Length Constraints: Fixed length of 12.

Pattern: `[0-9].*`

Required: Yes

tableBucketId

The system-assigned unique identifier for the table bucket.

Type: String

Required: No

type

The type of the table bucket.

Type: String

Valid Values: `customer | aws`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

TableMaintenanceConfigurationValue

Service: Amazon S3 Tables

Contains the values that define a maintenance configuration for a table.

Contents

settings

Contains details about the settings for the maintenance configuration.

Type: TableMaintenanceSettings object

Note: This object is a Union. Only one member of this object can be specified or returned.

Required: No

status

The status of the maintenance configuration.

Type: String

Valid Values: `enabled | disabled`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

TableMaintenanceJobStatusValue

Service: Amazon S3 Tables

Details about the status of a maintenance job.

Contents

status

The status of the job.

Type: String

Valid Values: `Not_Yet_Run | Successful | Failed | Disabled`

Required: Yes

failureMessage

The failure message of a failed job.

Type: String

Required: No

lastRunTimestamp

The date and time that the maintenance job was last run.

Type: Timestamp

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

TableMaintenanceSettings

Service: Amazon S3 Tables

Contains details about maintenance settings for the table.

Contents

> **Important**
>
> This data type is a UNION, so only one of the following members can be specified when used or returned.

icebergCompaction

Contains details about the Iceberg compaction settings for the table.

Type: IcebergCompactionSettings object

Required: No

icebergSnapshotManagement

Contains details about the Iceberg snapshot management settings for the table.

Type: IcebergSnapshotManagementSettings object

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

TableMetadata

Service: Amazon S3 Tables

Contains details about the table metadata.

Contents

> **Important**
>
> This data type is a UNION, so only one of the following members can be specified when used or returned.

iceberg

Contains details about the metadata of an Iceberg table.

Type: IcebergMetadata object

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

TableSummary

Service: Amazon S3 Tables

Contains details about a table.

Contents

createdAt

The date and time the table was created at.

Type: Timestamp

Required: Yes

modifiedAt

The date and time the table was last modified at.

Type: Timestamp

Required: Yes

name

The name of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

namespace

The name of the namespace.

Type: Array of strings

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `[0-9a-z_]*`

Required: Yes

tableARN

The Amazon Resource Name (ARN) of the table.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `(arn:aws[-a-z0-9]*:[a-z0-9]+:[-a-z0-9]*:[0-9]{12}:bucket/[a-z0-9_-]{3,63}/table/[a-zA-Z0-9-_]{1,255})`

Required: Yes

type

The type of the table.

Type: String

Valid Values: `customer | aws`

Required: Yes

namespaceId

The unique identifier for the namespace that contains this table.

Type: String

Required: No

tableBucketId

The unique identifier for the table bucket that contains this table.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++

- AWS SDK for Java V2
- AWS SDK for Ruby V3

Amazon S3 Vectors

The following data types are supported by Amazon S3 Vectors:

- EncryptionConfiguration
- GetOutputVector
- Index
- IndexSummary
- ListOutputVector
- MetadataConfiguration
- PutInputVector
- QueryOutputVector
- ValidationExceptionField
- VectorBucket
- VectorBucketSummary
- VectorData

EncryptionConfiguration

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

The encryption configuration for a vector bucket. By default, if you don't specify, all new vectors in Amazon S3 vector buckets use server-side encryption with Amazon S3 managed keys (SSE-S3), specifically `AES256`.

Contents

kmsKeyArn

AWS Key Management Service (KMS) customer managed key ID to use for the encryption configuration. This parameter is allowed if and only if `sseType` is set to `aws:kms`.

To specify the KMS key, you must use the format of the KMS key Amazon Resource Name (ARN).

For example, specify Key ARN in the following format: `arn:aws:kms:us-east-2:111122223333:key/1234abcd-12ab-34cd-56ef-1234567890ab`

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2048.

Pattern: `(arn:aws[-a-z0-9]*:kms:[-a-z0-9]*:[0-9]{12}:key/.+)`

Required: No

sseType

The server-side encryption type to use for the encryption configuration of the vector bucket. By default, if you don't specify, all new vectors in Amazon S3 vector buckets use server-side encryption with Amazon S3 managed keys (SSE-S3), specifically `AES256`.

Type: String

Valid Values: `AES256` | `aws:kms`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

GetOutputVector

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

The attributes of a vector returned by the `GetVectors` operation.

Contents

key

The name of the vector.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: Yes

data

The vector data of the vector.

Type: VectorData object

Note: This object is a Union. Only one member of this object can be specified or returned.

Required: No

metadata

Metadata about the vector.

Type: JSON value

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Index

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

The attributes of a vector index.

Contents

creationTime

Date and time when the vector index was created.

Type: Timestamp

Required: Yes

dataType

The data type of the vectors inserted into the vector index.

Type: String

Valid Values: `float32`

Required: Yes

dimension

The number of values in the vectors that are inserted into the vector index.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 4096.

Required: Yes

distanceMetric

The distance metric to be used for similarity search.

Type: String

Valid Values: `euclidean | cosine`

Required: Yes

indexArn

The Amazon Resource Name (ARN) of the vector index.

Type: String

Required: Yes

indexName

The name of the vector index.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: Yes

vectorBucketName

The name of the vector bucket that contains the vector index.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: Yes

metadataConfiguration

The metadata configuration for the vector index.

Type: MetadataConfiguration object

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++

- AWS SDK for Java V2
- AWS SDK for Ruby V3

IndexSummary

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Summary information about a vector index.

Contents

creationTime

Date and time when the vector index was created.

Type: Timestamp

Required: Yes

indexArn

The Amazon Resource Name (ARN) of the vector index.

Type: String

Required: Yes

indexName

The name of the vector index.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: Yes

vectorBucketName

The name of the vector bucket that contains the vector index.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ListOutputVector

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

The attributes of a vector returned by the `ListVectors` operation.

Contents

key

The name of the vector.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: Yes

data

The vector data of the vector.

Type: VectorData object

Note: This object is a Union. Only one member of this object can be specified or returned.

Required: No

metadata

Metadata about the vector.

Type: JSON value

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

MetadataConfiguration

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

The metadata configuration for a vector index.

Contents

nonFilterableMetadataKeys

Non-filterable metadata keys allow you to enrich vectors with additional context during storage and retrieval. Unlike default metadata keys, these keys can't be used as query filters. Non-filterable metadata keys can be retrieved but can't be searched, queried, or filtered. You can access non-filterable metadata keys of your vectors after finding the vectors. For more information about non-filterable metadata keys, see Vectors and Limitations and restrictions in the *Amazon S3 User Guide*.

Type: Array of strings

Array Members: Minimum number of 1 item. Maximum number of 10 items.

Length Constraints: Minimum length of 1. Maximum length of 63.

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

PutInputVector

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

The attributes of a vector to add to a vector index.

Contents

data

The vector data of the vector.

Vector dimensions must match the dimension count that's configured for the vector index.

- For the `cosine` distance metric, zero vectors (vectors containing all zeros) aren't allowed.
- For both `cosine` and `euclidean` distance metrics, vector data must contain only valid floating-point values. Invalid values such as NaN (Not a Number) or Infinity aren't allowed.

Type: VectorData object

Note: This object is a Union. Only one member of this object can be specified or returned.

Required: Yes

key

The name of the vector. The key uniquely identifies the vector in a vector index.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: Yes

metadata

Metadata about the vector. All metadata entries undergo validation to ensure they meet the format requirements for size and data types.

Type: JSON value

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

QueryOutputVector

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

The attributes of a vector in the approximate nearest neighbor search.

Contents

key

The key of the vector in the approximate nearest neighbor search.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 1024.

Required: Yes

data

The vector data associated with the vector, if requested.

Type: VectorData object

Note: This object is a Union. Only one member of this object can be specified or returned.

Required: No

distance

The measure of similarity between the vector in the response and the query vector.

Type: Float

Required: No

metadata

The metadata associated with the vector, if requested.

Type: JSON value

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ValidationExceptionField

Service: Amazon S3 Vectors

Contains information about a validation exception.

Contents

message

A message about the validation exception.

Type: String

Required: Yes

path

A path about the validation exception.

Type: String

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

VectorBucket

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

The attributes of a vector bucket.

Contents

creationTime

Date and time when the vector bucket was created.

Type: Timestamp

Required: Yes

vectorBucketArn

The Amazon Resource Name (ARN) of the vector bucket.

Type: String

Required: Yes

vectorBucketName

The name of the vector bucket.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: Yes

encryptionConfiguration

The encryption configuration for the vector bucket.

Type: EncryptionConfiguration object

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

VectorBucketSummary

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

Summary information about a vector bucket.

Contents

creationTime

Date and time when the vector bucket was created.

Type: Timestamp

Required: Yes

vectorBucketArn

The Amazon Resource Name (ARN) of the vector bucket.

Type: String

Required: Yes

vectorBucketName

The name of the vector bucket.

Type: String

Length Constraints: Minimum length of 3. Maximum length of 63.

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

VectorData

Service: Amazon S3 Vectors

> **Note**
>
> Amazon S3 Vectors is in preview release for Amazon S3 and is subject to change.

The vector data in different formats.

Contents

> **Important**
>
> This data type is a UNION, so only one of the following members can be specified when used or returned.

float32

The vector data as 32-bit floating point numbers. The number of elements in this array must exactly match the dimension of the vector index where the operation is being performed.

Type: Array of floats

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Developing with Amazon S3

This section covers developer-related topics for using Amazon S3. For more information, review the topics below.

Topics

- Making requests
- Developing with Amazon S3 using the AWS CLI
- Developing with Amazon S3 using the AWS SDKs
- Getting Amazon S3 request IDs for AWS Support
- Supported Amazon S3 object-level API operations for S3 Tables

Making requests

Amazon S3 is a REST service. You can send requests to Amazon S3 using the REST API or the AWS SDK (see Sample Code and Libraries) wrapper libraries that wrap the underlying Amazon S3 REST API, simplifying your programming tasks.

Every interaction with Amazon S3 is either authenticated or anonymous. Authentication is a process of verifying the identity of the requester trying to access an Amazon Web Services (AWS) product. Authenticated requests must include a signature value that authenticates the request sender. The signature value is, in part, generated from the requester's AWS access keys (access key ID and secret access key). For more information about getting access keys, see How Do I Get Security Credentials? in the *AWS General Reference*.

If you are using the AWS SDK, the libraries compute the signature from the keys you provide. However, if you make direct REST API calls in your application, you must write the code to compute the signature and add it to the request.

Topics

- About access keys
- Request endpoints
- Making requests to Amazon S3 over IPv6
- Making requests using the AWS SDKs

- Making requests using the REST API

About access keys

The following sections review the types of access keys that you can use to make authenticated requests.

AWS account access keys

The account access keys provide full access to the AWS resources owned by the account. The following are examples of access keys:

- Access key ID (a 20-character, alphanumeric string). For example: AKIAIOSFODNN7EXAMPLE
- Secret access key (a 40-character string). For example: wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY

The access key ID uniquely identifies an AWS account. You can use these access keys to send authenticated requests to Amazon S3.

IAM user access keys

You can create one AWS account for your company; however, there may be several employees in the organization who need access to your organization's AWS resources. Sharing your AWS account access keys reduces security, and creating individual AWS accounts for each employee might not be practical. Also, you cannot easily share resources such as buckets and objects because they are owned by different accounts. To share resources, you must grant permissions, which is additional work.

In such scenarios, you can use AWS Identity and Access Management (IAM) to create users under your AWS account with their own access keys and attach IAM user policies that grant appropriate resource access permissions to these users. To better manage these users, IAM enables you to create groups of users and grant group-level permissions that apply to all users in that group.

These users are referred to as IAM users that you create and manage within AWS. The parent account controls a user's ability to access AWS. Any resources an IAM user creates are under the control of and paid for by the parent AWS account. These IAM users can send authenticated requests to Amazon S3 using their own security credentials. For more information about creating and managing users under your AWS account, go to the AWS Identity and Access Management product details page.

Temporary security credentials

In addition to creating IAM users with their own access keys, IAM also enables you to grant temporary security credentials (temporary access keys and a security token) to any IAM user to enable them to access your AWS services and resources. You can also manage users in your system outside AWS. These are referred to as federated users. Additionally, users can be applications that you create to access your AWS resources.

IAM provides the AWS Security Token Service API for you to request temporary security credentials. You can use either the AWS STS API or the AWS SDK to request these credentials. The API returns temporary security credentials (access key ID and secret access key), and a security token. These credentials are valid only for the duration you specify when you request them. You use the access key ID and secret key the same way you use them when sending requests using your AWS account or IAM user access keys. In addition, you must include the token in each request you send to Amazon S3.

An IAM user can request these temporary security credentials for their own use or hand them out to federated users or applications. When requesting temporary security credentials for federated users, you must provide a user name and an IAM policy defining the permissions you want to associate with these temporary security credentials. The federated user cannot get more permissions than the parent IAM user who requested the temporary credentials.

You can use these temporary security credentials in making requests to Amazon S3. The API libraries compute the necessary signature value using those credentials to authenticate your request. If you send requests using expired credentials, Amazon S3 denies the request.

For information on signing requests using temporary security credentials in your REST API requests, see Signing and authenticating REST requests (AWS signature version 2). For information about sending requests using AWS SDKs, see Making requests using the AWS SDKs.

For more information about IAM support for temporary security credentials, see Temporary Security Credentials in the *IAM User Guide*.

For added security, you can require multifactor authentication (MFA) when accessing your Amazon S3 resources by configuring a bucket policy. For information, see Example bucket policies: Requiring MFA . After you require MFA to access your Amazon S3 resources, the only way you can access these resources is by providing temporary credentials that are created with an MFA key. For more information, see the AWS Multi-Factor Authentication detail page and Configuring MFA-Protected API Access in the *IAM User Guide*.

Request endpoints

You send REST requests to the service's predefined endpoint. For a list of all AWS services and their corresponding endpoints, go to Regions and Endpoints in the *AWS General Reference*.

Making requests to Amazon S3 over IPv6

Amazon Simple Storage Service (Amazon S3) supports the ability to access S3 buckets using the Internet Protocol version 6 (IPv6), in addition to the IPv4 protocol. Amazon S3 dual-stack endpoints support requests to S3 buckets over IPv6 and IPv4. There are no additional charges for accessing Amazon S3 over IPv6. For more information about pricing, see Amazon S3 Pricing.

Topics

- Getting started making requests over IPv6
- Using IPv6 addresses in IAM policies
- Testing IP address compatibility
- Using Amazon S3 dual-stack endpoints

Getting started making requests over IPv6

To make a request to an S3 bucket over IPv6, you need to use a dual-stack endpoint. The next section describes how to make requests over IPv6 by using dual-stack endpoints.

The following are some things you should know before trying to access a bucket over IPv6:

- The client and the network accessing the bucket must be enabled to use IPv6.
- Both virtual hosted-style and path style requests are supported for IPv6 access. For more information, see Amazon S3 dual-stack endpoints.
- If you use source IP address filtering in your AWS Identity and Access Management (IAM) user or bucket policies, you need to update the policies to include IPv6 address ranges. For more information, see Using IPv6 addresses in IAM policies.
- When using IPv6, server access log files output IP addresses in an IPv6 format. You need to update existing tools, scripts, and software that you use to parse Amazon S3 log files so that they can parse the IPv6 formatted `Remote IP` addresses. For more information, see Logging requests with server access logging .

> **Note**
>
> If you experience issues related to the presence of IPv6 addresses in log files, contact AWS Support.

Making requests over IPv6 by using dual-stack endpoints

You make requests with Amazon S3 API calls over IPv6 by using dual-stack endpoints. The Amazon S3 API operations work the same way whether you're accessing Amazon S3 over IPv6 or over IPv4. Performance should be the same too.

When using the REST API, you access a dual-stack endpoint directly. For more information, see Dual-stack endpoints.

When using the AWS Command Line Interface (AWS CLI) and AWS SDKs, you can use a parameter or flag to change to a dual-stack endpoint. You can also specify the dual-stack endpoint directly as an override of the Amazon S3 endpoint in the config file.

You can use a dual-stack endpoint to access a bucket over IPv6 from any of the following:

- The AWS CLI, see Using dual-stack endpoints from the AWS CLI.
- The AWS SDKs, see Using dual-stack endpoints from the AWS SDKs.
- The REST API, see Making requests to dual-stack endpoints by using the REST API.

Features not available over IPv6

The following feature is currently not supported when accessing an S3 bucket over IPv6: Static website hosting from an S3 bucket.

Using IPv6 addresses in IAM policies

Before trying to access a bucket using IPv6, you must ensure that any IAM user or S3 bucket polices that are used for IP address filtering are updated to include IPv6 address ranges. IP address filtering policies that are not updated to handle IPv6 addresses may result in clients incorrectly losing or gaining access to the bucket when they start using IPv6. For more information about managing access permissions with IAM, see Identity and Access Management for Amazon S3 .

IAM policies that filter IP addresses use IP Address Condition Operators. The following bucket policy identifies the 54.240.143.* range of allowed IPv4 addresses by using IP address condition operators. Any IP addresses outside of this range will be denied access to the bucket (`examplebucket`). Since all IPv6 addresses are outside of the allowed range, this policy prevents IPv6 addresses from being able to access `examplebucket`.

JSON

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "IPAllow",
      "Effect": "Allow",
      "Principal": "*",
      "Action": "s3:*",
      "Resource": "arn:aws:s3:::examplebucket/*",
      "Condition": {
         "IpAddress": {"aws:SourceIp": "54.240.143.0/24"}
      }
    }
  ]
}
```

You can modify the bucket policy's `Condition` element to allow both IPv4 (`54.240.143.0/24`) and IPv6 (`2001:DB8:1234:5678::/64`) address ranges as shown in the following example. You can use the same type of `Condition` block shown in the example to update both your IAM user and bucket policies.

```
       "Condition": {
         "IpAddress": {
            "aws:SourceIp": [
              "54.240.143.0/24",
               "2001:DB8:1234:5678::/64"
             ]
        }
      }
```

Before using IPv6 you must update all relevant IAM user and bucket policies that use IP address filtering. We do not recommend using IP address filterig in bucket policies.

You can review your IAM user policies using the IAM console at https://console.aws.amazon.com/iam/. For more information about IAM, see the IAM User Guide. For information about editing S3 bucket policies, see Adding a bucket policy.

Testing IP address compatibility

If you are using use Linux/Unix or Mac OS X, you can test whether you can access a dual-stack endpoint over IPv6 by using the `curl` command as shown in the following example:

Example

```
curl -v  http://s3.dualstack.us-west-2.amazonaws.com/
```

You get back information similar to the following example. If you are connected over IPv6 the connected IP address will be an IPv6 address.

```
* About to connect() to s3-us-west-2.amazonaws.com port 80 (#0)
*   Trying IPv6 address... connected
* Connected to s3.dualstack.us-west-2.amazonaws.com (IPv6 address) port 80 (#0)
> GET / HTTP/1.1
> User-Agent: curl/7.18.1 (x86_64-unknown-linux-gnu) libcurl/7.18.1 OpenSSL/1.0.1t
 zlib/1.2.3
> Host: s3.dualstack.us-west-2.amazonaws.com
```

If you are using Microsoft Windows 7 or Windows 10, you can test whether you can access a dual-stack endpoint over IPv6 or IPv4 by using the `ping` command as shown in the following example.

```
ping ipv6.s3.dualstack.us-west-2.amazonaws.com
```

Using Amazon S3 dual-stack endpoints

Amazon S3 dual-stack endpoints support requests to S3 buckets over IPv6 and IPv4. This section describes how to use dual-stack endpoints.

Topics

- Amazon S3 dual-stack endpoints
- Using dual-stack endpoints from the AWS CLI
- Using dual-stack endpoints from the AWS SDKs
- Using dual-stack endpoints from the REST API

Amazon S3 dual-stack endpoints

When you make a request to a dual-stack endpoint, the bucket URL resolves to an IPv6 or an IPv4 address. For more information about accessing a bucket over IPv6, see Making requests to Amazon S3 over IPv6.

When using the REST API, you directly access an Amazon S3 endpoint by using the endpoint name (URI). You can access an S3 bucket through a dual-stack endpoint by using a virtual hosted-style or a path-style endpoint name. Amazon S3 supports only regional dual-stack endpoint names, which means that you must specify the region as part of the name.

Use the following naming conventions for the dual-stack virtual hosted-style and path-style endpoint names:

- Virtual hosted-style dual-stack endpoint:

  bucketname.s3.dualstack.*aws-region*.amazonaws.com

- Path-style dual-stack endpoint:

  s3.dualstack.*aws-region*.amazonaws.com/*bucketname*

For more information, about endpoint name style, see Accessing and listing an Amazon S3 bucket . For a list of Amazon S3 endpoints, see Regions and Endpoints in the *AWS General Reference*.

> **Important**
>
> You can use transfer acceleration with dual-stack endpoints. For more information, see Getting started with Amazon S3 Transfer Acceleration .

> **Note**
>
> The two types of VPC endpoints to access Amazon S3 (*Interface VPC endpoints* and *Gateway VPC endpoints*) don't have dual-stack support. For more information about VPC endpoints for Amazon S3, see AWS PrivateLink for Amazon S3 .

When using the AWS Command Line Interface (AWS CLI) and AWS SDKs, you can use a parameter or flag to change to a dual-stack endpoint. You can also specify the dual-stack endpoint directly as an override of the Amazon S3 endpoint in the config file. The following sections describe how to use dual-stack endpoints from the AWS CLI and the AWS SDKs.

Using dual-stack endpoints from the AWS CLI

This section provides examples of AWS CLI commands used to make requests to a dual-stack endpoint. For instructions on setting up the AWS CLI, see Developing with Amazon S3 using the AWS CLI.

You set the configuration value `use_dualstack_endpoint` to `true` in a profile in your AWS Config file to direct all Amazon S3 requests made by the `s3` and `s3api` AWS CLI commands to the dual-stack endpoint for the specified region. You specify the region in the config file or in a command using the `--region` option.

When using dual-stack endpoints with the AWS CLI, both `path` and `virtual` addressing styles are supported. The addressing style, set in the config file, controls if the bucket name is in the hostname or part of the URL. By default, the CLI will attempt to use virtual style where possible, but will fall back to path style if necessary. For more information, see AWS CLI Amazon S3 Configuration.

You can also make configuration changes by using a command, as shown in the following example, which sets `use_dualstack_endpoint` to `true` and `addressing_style` to `virtual` in the default profile.

```
$ aws configure set default.s3.use_dualstack_endpoint true
$ aws configure set default.s3.addressing_style virtual
```

If you want to use a dual-stack endpoint for specified AWS CLI commands only (not all commands), you can use either of the following methods:

- You can use the dual-stack endpoint per command by setting the `--endpoint-url` parameter to `https://s3.dualstack.aws-region.amazonaws.com` or `http://s3.dualstack.aws-region.amazonaws.com` for any `s3` or `s3api` command.

```
$ aws s3api list-objects --bucket bucketname --endpoint-url https://s3.dualstack.aws-region.amazonaws.com
```

- You can set up separate profiles in your AWS Config file. For example, create one profile that sets `use_dualstack_endpoint` to `true` and a profile that does not set `use_dualstack_endpoint`. When you run a command, specify which profile you want to use, depending upon whether or not you want to use the dual-stack endpoint.

> **Note**
>
> When using the AWS CLI you currently cannot use transfer acceleration with dual-stack endpoints. However, support for the AWS CLI is coming soon. For more information, see Enabling and using S3 Transfer Acceleration .

Using dual-stack endpoints from the AWS SDKs

This section provides examples of how to access a dual-stack endpoint by using the AWS SDKs.

AWS SDK for Java dual-stack endpoint example

The following example shows how to enable dual-stack endpoints when creating an Amazon S3 client using the AWS SDK for Java.

For instructions on creating and testing a working Java sample, see Getting Started in the AWS SDK for Java Developer Guide.

```
import com.amazonaws.AmazonServiceException;
import com.amazonaws.SdkClientException;
import com.amazonaws.auth.profile.ProfileCredentialsProvider;
import com.amazonaws.regions.Regions;
import com.amazonaws.services.s3.AmazonS3;
import com.amazonaws.services.s3.AmazonS3ClientBuilder;

public class DualStackEndpoints {
```

```
    public static void main(String[] args) {
        Regions clientRegion = Regions.DEFAULT_REGION;
        String bucketName = "*** Bucket name ***";

        try {
            // Create an Amazon S3 client with dual-stack endpoints enabled.
            AmazonS3 s3Client = AmazonS3ClientBuilder.standard()
                    .withCredentials(new ProfileCredentialsProvider())
                    .withRegion(clientRegion)
                    .withDualstackEnabled(true)
                    .build();

            s3Client.listObjects(bucketName);
        } catch (AmazonServiceException e) {
            // The call was transmitted successfully, but Amazon S3 couldn't process
            // it, so it returned an error response.
            e.printStackTrace();
        } catch (SdkClientException e) {
            // Amazon S3 couldn't be contacted for a response, or the client
            // couldn't parse the response from Amazon S3.
            e.printStackTrace();
        }
    }
}
```

If you are using the AWS SDK for Java on Windows, you might have to set the following Java virtual machine (JVM) property:

```
java.net.preferIPv6Addresses=true
```

AWS .NET SDK dual-stack endpoint example

When using the AWS SDK for .NET you use the `AmazonS3Config` class to enable the use of a dual-stack endpoint as shown in the following example.

```
using Amazon;
using Amazon.S3;
using Amazon.S3.Model;
using System;
using System.Threading.Tasks;
```

```
namespace Amazon.DocSamples.S3
{
    class DualStackEndpointTest
    {
        private const string bucketName = "*** bucket name ***";
        // Specify your bucket region (an example region is shown).
        private static readonly RegionEndpoint bucketRegion = RegionEndpoint.USWest2;
        private static IAmazonS3 client;

        public static void Main()
        {
            var config = new AmazonS3Config
            {
                UseDualstackEndpoint = true,
                RegionEndpoint = bucketRegion
            };
            client = new AmazonS3Client(config);
            Console.WriteLine("Listing objects stored in a bucket");
            ListingObjectsAsync().Wait();
        }

        private static async Task ListingObjectsAsync()
        {
            try
            {
                var request = new ListObjectsV2Request
                {
                    BucketName = bucketName,
                    MaxKeys = 10
                };
                ListObjectsV2Response response;
                do
                {
                    response = await client.ListObjectsV2Async(request);

                    // Process the response.
                    foreach (S3Object entry in response.S3Objects)
                    {
                        Console.WriteLine("key = {0} size = {1}",
                            entry.Key, entry.Size);
                    }
                    Console.WriteLine("Next Continuation Token: {0}",
 response.NextContinuationToken);
                    request.ContinuationToken = response.NextContinuationToken;
```

```
                } while (response.IsTruncated == true);
            }
            catch (AmazonS3Exception amazonS3Exception)
            {
                Console.WriteLine("An AmazonS3Exception was thrown. Exception: " +
 amazonS3Exception.ToString());
            }
            catch (Exception e)
            {
                Console.WriteLine("Exception: " + e.ToString());
            }
        }
    }
}
```

For information about setting up and running the code examples, see Getting Started with the AWS SDK for .NET in the *AWS SDK for .NET Developer Guide*.

Using dual-stack endpoints from the REST API

For information about making requests to dual-stack endpoints by using the REST API, see Making requests to dual-stack endpoints by using the REST API.

Making requests using the AWS SDKs

Topics

- Making requests using AWS account or IAM user credentials
- Making requests using IAM user temporary credentials
- Making requests using federated user temporary credentials

You can send authenticated requests to Amazon S3 using either the AWS SDK or by making the REST API calls directly in your application. The AWS SDK API uses the credentials that you provide to compute the signature for authentication. If you use the REST API directly in your applications, you must write the necessary code to compute the signature for authenticating your request. For a list of available AWS SDKs go to, Sample Code and Libraries.

Making requests using AWS account or IAM user credentials

You can use your AWS account or IAM user security credentials to send authenticated requests to Amazon S3. This section provides examples of how you can send authenticated requests using the AWS SDK for Java, AWS SDK for .NET, and AWS SDK for PHP. For a list of available AWS SDKs, go to Sample Code and Libraries.

Each of these AWS SDKs uses an SDK-specific credentials provider chain to find and use credentials and perform actions on behalf of the credentials owner. What all these credentials provider chains have in common is that they all look for your local AWS credentials file.

For more information, see the topics below:

Topics

- To create a local AWS credentials file
- Sending authenticated requests using the AWS SDKs

To create a local AWS credentials file

The easiest way to configure credentials for your AWS SDKs is to use an AWS credentials file. If you use the AWS Command Line Interface (AWS CLI), you may already have a local AWS credentials file configured. Otherwise, use the following procedure to set up a credentials file:

1. Sign in to the AWS Management Console and open the IAM console at https://console.aws.amazon.com/iam/.

2. Create a new user with permissions limited to the services and actions that you want your code to have access to. For more information about creating a new user, see Creating IAM users (Console), and follow the instructions through step 8.
3. Choose **Download .csv** to save a local copy of your AWS credentials.
4. On your computer, navigate to your home directory, and create an `.aws` directory. On Unix-based systems, such as Linux or OS X, this is in the following location:

   ```
   ~/.aws
   ```

   On Windows, this is in the following location:

   ```
   %HOMEPATH%\.aws
   ```

5. In the `.aws` directory, create a new file named `credentials`.
6. Open the credentials `.csv` file that you downloaded from the IAM console, and copy its contents into the `credentials` file using the following format:

   ```
   [default]
   aws_access_key_id = your_access_key_id
   aws_secret_access_key = your_secret_access_key
   ```

7. Save the `credentials` file, and delete the `.csv` file that you downloaded in step 3.

Your shared credentials file is now configured on your local computer, and it's ready to be used with the AWS SDKs.

Sending authenticated requests using the AWS SDKs

Use the AWS SDKs to send authenticated requests. For more information about sending authenticated requests, see AWS security credentials or IAM Identity Center Authentication.

Java

For information about authenticating requests using the AWS SDK for Java, see Using shared config and credentials files to globally configure AWS SDKs and tools and Authentication and access using AWS SDKs and tools in the AWS SDKs and Tools Reference Guide.

.NET

To send authenticated requests using your AWS account or IAM user credentials:

- Create an instance of the `AmazonS3Client` class.
- Run one of the `AmazonS3Client` methods to send requests to Amazon S3. The client generates the necessary signature from the credentials that you provide and includes it in the request it sends to Amazon S3.

For more information, see Making requests using AWS account or IAM user credentials >.

> **Note**
>
> - You can create the `AmazonS3Client` client without providing your security credentials. Requests sent using this client are anonymous requests, without a signature. Amazon S3 returns an error if you send anonymous requests for a resource that is not publicly available.
> - You can create an AWS account and create the required users. You can also manage credentials for those users. You need these credentials to perform the task in the following example. For more information, see Configure AWS credentials in the *SDK for .NET Developer Guide*.
>
> You can then also configure your application to actively retrieve profiles and credentials, and then explicitly use those credentials when creating an AWS service client. For more information, see Accessing credentials and profiles in an application in the *SDK for .NET Developer Guide*.

The following C# example shows how to perform the preceding tasks. For information about setting up and running the code examples, see Getting Started with the AWS SDK for .NET in the *AWS SDK for .NET Developer Guide*.

Example

```
using Amazon;
using Amazon.S3;
using Amazon.S3.Model;
using System;
using System.Threading.Tasks;

namespace Amazon.DocSamples.S3
{
```

```
    class MakeS3RequestTest
    {
        private const string bucketName = "*** bucket name ***";
        // Specify your bucket region (an example region is shown).
        private static readonly RegionEndpoint bucketRegion =
RegionEndpoint.USWest2;
        private static IAmazonS3 client;

        public static void Main()
        {
            using (client = new AmazonS3Client(bucketRegion))
            {
                Console.WriteLine("Listing objects stored in a bucket");
                ListingObjectsAsync().Wait();
            }
        }

        static async Task ListingObjectsAsync()
        {
            try
            {
                ListObjectsRequest request = new ListObjectsRequest
                {
                    BucketName = bucketName,
                    MaxKeys = 2
                };
                do
                {
                    ListObjectsResponse response = await
client.ListObjectsAsync(request);
                    // Process the response.
                    foreach (S3Object entry in response.S3Objects)
                    {
                        Console.WriteLine("key = {0} size = {1}",
                            entry.Key, entry.Size);
                    }

                    // If the response is truncated, set the marker to get the next
                    // set of keys.
                    if (response.IsTruncated)
                    {
                        request.Marker = response.NextMarker;
                    }
                    else
```

```
                    {
                        request = null;
                    }
                } while (request != null);
            }
            catch (AmazonS3Exception e)
            {
                Console.WriteLine("Error encountered on server. Message:'{0}' when
 writing an object", e.Message);
            }
            catch (Exception e)
            {
                Console.WriteLine("Unknown encountered on server. Message:'{0}' when
 writing an object", e.Message);
            }
        }
    }
}
```

PHP

The following PHP example shows how the client makes a request using your security credentials to list all of the buckets for your account.

Example

```
require 'vendor/autoload.php';

use Aws\S3\Exception\S3Exception;
use Aws\S3\S3Client;

$bucket = '*** Your Bucket Name ***';

$s3 = new S3Client([
    'region' => 'us-east-1',
    'version' => 'latest',
]);

// Retrieve the list of buckets.
$result = $s3->listBuckets();

try {
    // Retrieve a paginator for listing objects.
```

```
    $objects = $s3->getPaginator('ListObjects', [
        'Bucket' => $bucket
    ]);

    echo "Keys retrieved!" . PHP_EOL;

    // Print the list of objects to the page.
    foreach ($objects as $object) {
        echo $object['Key'] . PHP_EOL;
    }
} catch (S3Exception $e) {
    echo $e->getMessage() . PHP_EOL;
}
```

> **Note**
>
> You can create the `S3Client` client without providing your security credentials. Requests sent using this client are anonymous requests, without a signature. Amazon S3 returns an error if you send anonymous requests for a resource that is not publicly available. For more information, see Creating Anonymous Clients in the AWS SDK for PHP Documentation.

Ruby

Before you can use version 3 of the AWS SDK for Ruby to make calls to Amazon S3, you must set the AWS access credentials that the SDK uses to verify your access to your buckets and objects. If you have shared credentials set up in the AWS credentials profile on your local system, version 3 of the SDK for Ruby can use those credentials without your having to declare them in your code. For more information about setting up shared credentials, see Making requests using AWS account or IAM user credentials .

The following Ruby code snippet uses the credentials in a shared AWS credentials file on a local computer to authenticate a request to get all of the object key names in a specific bucket. It does the following:

1. Creates an instance of the `Aws::S3::Client` class.
2. Makes a request to Amazon S3 by enumerating objects in a bucket using the `list_objects_v2` method of `Aws::S3::Client`. The client generates the necessary

signature value from the credentials in the AWS credentials file on your computer, and includes it in the request it sends to Amazon S3.

3. Prints the array of object key names to the terminal.

Example

```
# Prerequisites:
#  - An existing Amazon S3 bucket.

require 'aws-sdk-s3'

# @param s3_client [Aws::S3::Client] An initialized Amazon S3 client.
# @param bucket_name [String] The bucket's name.
# @return [Boolean] true if all operations succeed; otherwise, false.
# @example
#   s3_client = Aws::S3::Client.new(region: 'us-west-2')
#   exit 1 unless list_bucket_objects?(s3_client, 'amzn-s3-demo-bucket')
def list_bucket_objects?(s3_client, bucket_name)
  puts "Accessing the bucket named '#{bucket_name}'..."
  objects = s3_client.list_objects_v2(
    bucket: bucket_name,
    max_keys: 50
  )

  if objects.count.positive?
    puts 'The object keys in this bucket are (first 50 objects):'
    objects.contents.each do |object|
      puts object.key
    end
  else
    puts 'No objects found in this bucket.'
  end

  true
rescue StandardError => e
  puts "Error while accessing the bucket named '#{bucket_name}': #{e.message}"
  false
end

# Example usage:
def run_me
```

```
  region = 'us-west-2'
  bucket_name = 'BUCKET_NAME'
  s3_client = Aws::S3::Client.new(region: region)

  exit 1 unless list_bucket_objects?(s3_client, bucket_name)
end

run_me if $PROGRAM_NAME == __FILE__
```

If you don't have a local AWS credentials file, you can still create the `Aws::S3::Client` resource and run code against Amazon S3 buckets and objects. Requests that are sent using version 3 of the SDK for Ruby are anonymous, with no signature by default. Amazon S3 returns an error if you send anonymous requests for a resource that's not publicly available.

You can use and expand the previous code snippet for SDK for Ruby applications, as in the following more robust example.

```
# Prerequisites:
#  - An existing Amazon S3 bucket.

require 'aws-sdk-s3'

# @param s3_client [Aws::S3::Client] An initialized Amazon S3 client.
# @param bucket_name [String] The bucket's name.
# @return [Boolean] true if all operations succeed; otherwise, false.
# @example
#   s3_client = Aws::S3::Client.new(region: 'us-west-2')
#   exit 1 unless list_bucket_objects?(s3_client, 'amzn-s3-demo-bucket')
def list_bucket_objects?(s3_client, bucket_name)
  puts "Accessing the bucket named '#{bucket_name}'..."
  objects = s3_client.list_objects_v2(
    bucket: bucket_name,
    max_keys: 50
  )

  if objects.count.positive?
    puts 'The object keys in this bucket are (first 50 objects):'
    objects.contents.each do |object|
      puts object.key
    end
  else
```

```
    puts 'No objects found in this bucket.'
  end

  true
rescue StandardError => e
  puts "Error while accessing the bucket named '#{bucket_name}': #{e.message}"
  false
end

# Example usage:
def run_me
  region = 'us-west-2'
  bucket_name = 'BUCKET_NAME'
  s3_client = Aws::S3::Client.new(region: region)

  exit 1 unless list_bucket_objects?(s3_client, bucket_name)
end

run_me if $PROGRAM_NAME == __FILE__
```

Go

Example

The following example uses AWS credentials automatically loaded by the SDK for Go from the shared credentials file.

```
package main

import (
 "context"
 "errors"
 "fmt"

 "github.com/aws/aws-sdk-go-v2/config"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/smithy-go"
)

// main uses the AWS SDK for Go V2 to create an Amazon Simple Storage Service
// (Amazon S3) client and list up to 10 buckets in your account.
// This example uses the default settings specified in your shared credentials
```

```
// and config files.
func main() {
 ctx := context.Background()
 sdkConfig, err := config.LoadDefaultConfig(ctx)
 if err != nil {
  fmt.Println("Couldn't load default configuration. Have you set up your AWS
 account?")
  fmt.Println(err)
  return
 }
 s3Client := s3.NewFromConfig(sdkConfig)
 count := 10
 fmt.Printf("Let's list up to %v buckets for your account.\n", count)
 result, err := s3Client.ListBuckets(ctx, &s3.ListBucketsInput{})
 if err != nil {
  var ae smithy.APIError
  if errors.As(err, &ae) && ae.ErrorCode() == "AccessDenied" {
   fmt.Println("You don't have permission to list buckets for this account.")
  } else {
   fmt.Printf("Couldn't list buckets for your account. Here's why: %v\n", err)
  }
  return
 }
 if len(result.Buckets) == 0 {
  fmt.Println("You don't have any buckets!")
 } else {
  if count > len(result.Buckets) {
   count = len(result.Buckets)
  }
  for _, bucket := range result.Buckets[:count] {
   fmt.Printf("\t%v\n", *bucket.Name)
  }
 }
}
```

Making requests using IAM user temporary credentials

An AWS account or an IAM user can request temporary security credentials and use them to send authenticated requests to Amazon S3. This section provides examples of how to use the AWS SDK for Java, .NET, and PHP to obtain temporary security credentials and use them to authenticate your requests to Amazon S3.

Java

An IAM user or an AWS account can request temporary security credentials (see Making requests) using the AWS SDK for Java and use them to access Amazon S3. These credentials expire after the specified session duration.

By default, the session duration is one hour. If you use IAM user credentials, you can specify the duration when requesting the temporary security credentials from 15 minutes to the maximum session duration for the role. For more information about temporary security credentials, see Temporary Security Credentials in the *IAM User Guide*. For more information about making requests, see Making requests.

To get temporary security credentials and access Amazon S3

1. Create an instance of the `AWSSecurityTokenService` class.
2. Retrieve the temporary security credentials for the desired role by calling the `assumeRole()` method of the Security Token Service (STS) client.
3. Package the temporary security credentials into a `BasicSessionCredentials` object. You use this object to provide the temporary security credentials to your Amazon S3 client.
4. Create an instance of the `AmazonS3Client` class using the temporary security credentials. You send requests to Amazon S3 using this client. If you send requests using expired credentials, Amazon S3 will return an error.

Note

The following example lists a set of object keys in the specified bucket. The example obtains temporary security credentials for a session and uses them to send an authenticated request to Amazon S3.

If you want to test the sample by using IAM user credentials, you must create an IAM user under your AWS account. For more information about how to create an IAM user, see Creating Your First IAM user and Administrators Group in the *IAM User Guide*.

For instructions on creating and testing a working sample, see Getting Started in the AWS SDK for Java Developer Guide.

```
import com.amazonaws.AmazonServiceException;
import com.amazonaws.SdkClientException;
import com.amazonaws.auth.AWSStaticCredentialsProvider;
import com.amazonaws.auth.BasicSessionCredentials;
import com.amazonaws.auth.profile.ProfileCredentialsProvider;
import com.amazonaws.services.s3.AmazonS3;
import com.amazonaws.services.s3.AmazonS3ClientBuilder;
import com.amazonaws.services.s3.model.ObjectListing;
import com.amazonaws.services.securitytoken.AWSSecurityTokenService;
import com.amazonaws.services.securitytoken.AWSSecurityTokenServiceClientBuilder;
import com.amazonaws.services.securitytoken.model.AssumeRoleRequest;
import com.amazonaws.services.securitytoken.model.AssumeRoleResult;
import com.amazonaws.services.securitytoken.model.Credentials;

public class MakingRequestsWithIAMTempCredentials {
    public static void main(String[] args) {
        String clientRegion = "*** Client region ***";
        String roleARN = "*** ARN for role to be assumed ***";
        String roleSessionName = "*** Role session name ***";
        String bucketName = "*** Bucket name ***";

        try {
            // Creating the STS client is part of your trusted code. It has
            // the security credentials you use to obtain temporary security
 credentials.
            AWSSecurityTokenService stsClient =
 AWSSecurityTokenServiceClientBuilder.standard()
                    .withCredentials(new ProfileCredentialsProvider())
                    .withRegion(clientRegion)
                    .build();

            // Obtain credentials for the IAM role. Note that you cannot assume the
 role of
            // an AWS root account;
```

```
            // Amazon S3 will deny access. You must use credentials for an IAM user
 or an
            // IAM role.
            AssumeRoleRequest roleRequest = new AssumeRoleRequest()
                    .withRoleArn(roleARN)
                    .withRoleSessionName(roleSessionName);
            AssumeRoleResult roleResponse = stsClient.assumeRole(roleRequest);
            Credentials sessionCredentials = roleResponse.getCredentials();

            // Create a BasicSessionCredentials object that contains the credentials
 you
            // just retrieved.
            BasicSessionCredentials awsCredentials = new BasicSessionCredentials(
                    sessionCredentials.getAccessKeyId(),
                    sessionCredentials.getSecretAccessKey(),
                    sessionCredentials.getSessionToken());

            // Provide temporary security credentials so that the Amazon S3 client
            // can send authenticated requests to Amazon S3. You create the client
            // using the sessionCredentials object.
            AmazonS3 s3Client = AmazonS3ClientBuilder.standard()
                    .withCredentials(new
 AWSStaticCredentialsProvider(awsCredentials))
                    .withRegion(clientRegion)
                    .build();

            // Verify that assuming the role worked and the permissions are set
 correctly
            // by getting a set of object keys from the bucket.
            ObjectListing objects = s3Client.listObjects(bucketName);
            System.out.println("No. of Objects: " +
 objects.getObjectSummaries().size());
        } catch (AmazonServiceException e) {
            // The call was transmitted successfully, but Amazon S3 couldn't process
            // it, so it returned an error response.
            e.printStackTrace();
        } catch (SdkClientException e) {
            // Amazon S3 couldn't be contacted for a response, or the client
            // couldn't parse the response from Amazon S3.
            e.printStackTrace();
        }
    }
}
```

.NET

An IAM user or an AWS account can request temporary security credentials using the AWS SDK for .NET and use them to access Amazon S3. These credentials expire after the session duration.

By default, the session duration is one hour. If you use IAM user credentials, you can specify the duration when requesting the temporary security credentials from 15 minutes to the maximum session duration for the role. For more information about temporary security credentials, see Temporary Security Credentials in the *IAM User Guide*. For more information about making requests, see Making requests.

To get temporary security credentials and access Amazon S3

1. Create an instance of the AWS Security Token Service client, `AmazonSecurityTokenServiceClient`.
2. Start a session by calling the `GetSessionToken` method of the STS client you created in the preceding step. You provide session information to this method using a `GetSessionTokenRequest` object.

   The method returns your temporary security credentials.
3. Package the temporary security credentials in an instance of the `SessionAWSCredentials` object. You use this object to provide the temporary security credentials to your Amazon S3 client.
4. Create an instance of the `AmazonS3Client` class by passing in the temporary security credentials. You send requests to Amazon S3 using this client. If you send requests using expired credentials, Amazon S3 returns an error.

Note

The following C# example lists object keys in the specified bucket. For illustration, the example obtains temporary security credentials for a default one-hour session and uses them to send authenticated request to Amazon S3.

If you want to test the sample by using IAM user credentials, you must create an IAM user under your AWS account. For more information about how to create an IAM user, see Creating Your First IAM user and Administrators Group in the *IAM User Guide*. For more information about making requests, see Making requests.

For information about setting up and running the code examples, see Getting Started with the AWS SDK for .NET in the *AWS SDK for .NET Developer Guide*.

```
using Amazon;
using Amazon.Runtime;
using Amazon.S3;
using Amazon.S3.Model;
using Amazon.SecurityToken;
using Amazon.SecurityToken.Model;
using System;
using System.Collections.Generic;
using System.Threading.Tasks;

namespace Amazon.DocSamples.S3
{
    class TempCredExplicitSessionStartTest
    {
        private const string bucketName = "*** bucket name ***";
        // Specify your bucket region (an example region is shown).
        private static readonly RegionEndpoint bucketRegion =
 RegionEndpoint.USWest2;
        private static IAmazonS3 s3Client;
        public static void Main()
        {
            ListObjectsAsync().Wait();
        }

        private static async Task ListObjectsAsync()
        {
            try
            {
                // Credentials use the default AWS SDK for .NET credential search
 chain.
                // On local development machines, this is your default profile.
                Console.WriteLine("Listing objects stored in a bucket");
                SessionAWSCredentials tempCredentials = await
 GetTemporaryCredentialsAsync();
```

```
                // Create a client by providing temporary security credentials.
                using (s3Client = new AmazonS3Client(tempCredentials, bucketRegion))
                {
                    var listObjectRequest = new ListObjectsRequest
                    {
                        BucketName = bucketName
                    };
                    // Send request to Amazon S3.
                    ListObjectsResponse response = await
s3Client.ListObjectsAsync(listObjectRequest);
                    List<S3Object> objects = response.S3Objects;
                    Console.WriteLine("Object count = {0}", objects.Count);
                }
            }
            catch (AmazonS3Exception s3Exception)
            {
                Console.WriteLine(s3Exception.Message, s3Exception.InnerException);
            }
            catch (AmazonSecurityTokenServiceException stsException)
            {
                Console.WriteLine(stsException.Message,
stsException.InnerException);
            }
        }

        private static async Task<SessionAWSCredentials>
GetTemporaryCredentialsAsync()
        {
            using (var stsClient = new AmazonSecurityTokenServiceClient())
            {
                var getSessionTokenRequest = new GetSessionTokenRequest
                {
                    DurationSeconds = 7200 // seconds
                };

                GetSessionTokenResponse sessionTokenResponse =
                              await
stsClient.GetSessionTokenAsync(getSessionTokenRequest);

                Credentials credentials = sessionTokenResponse.Credentials;

                var sessionCredentials =
                    new SessionAWSCredentials(credentials.AccessKeyId,
                                              credentials.SecretAccessKey,
```

```
                                                    credentials.SessionToken);
                return sessionCredentials;
            }
        }
    }
}
```

PHP

For more information about the AWS SDK for Ruby API, go to AWS SDK for Ruby - Version 2.

An IAM user or an AWS account can request temporary security credentials using version 3 of the AWS SDK for PHP. It can then use the temporary credentials to access Amazon S3. The credentials expire when the session duration expires.

By default, the session duration is one hour. If you use IAM user credentials, you can specify the duration when requesting the temporary security credentials from 15 minutes to the maximum session duration for the role. For more information about temporary security credentials, see Temporary Security Credentials in the *IAM User Guide*. For more information about making requests, see Making requests.

> **Note**

Example

The following PHP example lists object keys in the specified bucket using temporary security credentials. The example obtains temporary security credentials for a default one-hour session, and uses them to send authenticated request to Amazon S3. For more information about the AWS SDK for Ruby API, go to AWS SDK for Ruby - Version 2.

If you want to test the example by using IAM user credentials, you must create an IAM user under your AWS account. For information about how to create an IAM user, see Creating Your First IAM user and Administrators Group in the *IAM User Guide*. For examples of setting the session duration when using IAM user credentials to request a session, see Making requests using IAM user temporary credentials .

```
 require 'vendor/autoload.php';

use Aws\S3\Exception\S3Exception;
```

```
use Aws\S3\S3Client;
use Aws\Sts\StsClient;

$bucket = '*** Your Bucket Name ***';

$sts = new StsClient([
    'version' => 'latest',
    'region' => 'us-east-1'
]);

$sessionToken = $sts->getSessionToken();

$s3 = new S3Client([
    'region' => 'us-east-1',
    'version' => 'latest',
    'credentials' => [
        'key'    => $sessionToken['Credentials']['AccessKeyId'],
        'secret' => $sessionToken['Credentials']['SecretAccessKey'],
        'token'  => $sessionToken['Credentials']['SessionToken']
    ]
]);

$result = $s3->listBuckets();

try {
    // Retrieve a paginator for listing objects.
    $objects = $s3->getPaginator('ListObjects', [
        'Bucket' => $bucket
    ]);

    echo "Keys retrieved!" . PHP_EOL;

    // List objects
    foreach ($objects as $object) {
        echo $object['Key'] . PHP_EOL;
    }
} catch (S3Exception $e) {
    echo $e->getMessage() . PHP_EOL;
}
```

Ruby

An IAM user or an AWS account can request temporary security credentials using AWS SDK for Ruby and use them to access Amazon S3. These credentials expire after the session duration.

By default, the session duration is one hour. If you use IAM user credentials, you can specify the duration when requesting the temporary security credentials from 15 minutes to the maximum session duration for the role. For more information about temporary security credentials, see Temporary Security Credentials in the *IAM User Guide*. For more information about making requests, see Making requests.

Note

The following Ruby example creates a temporary user to list the items in a specified bucket for one hour. To use this example, you must have AWS credentials that have the necessary permissions to create new AWS Security Token Service (AWS STS) clients, and list Amazon S3 buckets.

```
# Prerequisites:
# - A user in AWS Identity and Access Management (IAM). This user must
#   be able to assume the following IAM role. You must run this code example
#   within the context of this user.
# - An existing role in IAM that allows all of the Amazon S3 actions for all of the
#   resources in this code example. This role must also trust the preceding IAM
 user.
# - An existing S3 bucket.

require 'aws-sdk-core'
require 'aws-sdk-s3'
require 'aws-sdk-iam'

# Checks whether a user exists in IAM.
#
# @param iam [Aws::IAM::Client] An initialized IAM client.
# @param user_name [String] The user's name.
# @return [Boolean] true if the user exists; otherwise, false.
# @example
#   iam_client = Aws::IAM::Client.new(region: 'us-west-2')
#   exit 1 unless user_exists?(iam_client, 'my-user')
```

```
def user_exists?(iam_client, user_name)
  response = iam_client.get_user(user_name: user_name)
  return true if response.user.user_name
rescue Aws::IAM::Errors::NoSuchEntity
  # User doesn't exist.
rescue StandardError => e
  puts 'Error while determining whether the user ' \
    "'#{user_name}' exists: #{e.message}"
end

# Creates a user in IAM.
#
# @param iam_client [Aws::IAM::Client] An initialized IAM client.
# @param user_name [String] The user's name.
# @return [AWS:IAM::Types::User] The new user.
# @example
#   iam_client = Aws::IAM::Client.new(region: 'us-west-2')
#   user = create_user(iam_client, 'my-user')
#   exit 1 unless user.user_name
def create_user(iam_client, user_name)
  response = iam_client.create_user(user_name: user_name)
  response.user
rescue StandardError => e
  puts "Error while creating the user '#{user_name}': #{e.message}"
end

# Gets a user in IAM.
#
# @param iam_client [Aws::IAM::Client] An initialized IAM client.
# @param user_name [String] The user's name.
# @return [AWS:IAM::Types::User] The existing user.
# @example
#   iam_client = Aws::IAM::Client.new(region: 'us-west-2')
#   user = get_user(iam_client, 'my-user')
#   exit 1 unless user.user_name
def get_user(iam_client, user_name)
  response = iam_client.get_user(user_name: user_name)
  response.user
rescue StandardError => e
  puts "Error while getting the user '#{user_name}': #{e.message}"
end

# Checks whether a role exists in IAM.
#
```

```
# @param iam_client [Aws::IAM::Client] An initialized IAM client.
# @param role_name [String] The role's name.
# @return [Boolean] true if the role exists; otherwise, false.
# @example
#   iam_client = Aws::IAM::Client.new(region: 'us-west-2')
#   exit 1 unless role_exists?(iam_client, 'my-role')
def role_exists?(iam_client, role_name)
  response = iam_client.get_role(role_name: role_name)
  return true if response.role.role_name
rescue StandardError => e
  puts 'Error while determining whether the role ' \
    "'#{role_name}' exists: #{e.message}"
end

# Gets credentials for a role in IAM.
#
# @param sts_client [Aws::STS::Client] An initialized AWS STS client.
# @param role_arn [String] The role's Amazon Resource Name (ARN).
# @param role_session_name [String] A name for this role's session.
# @param duration_seconds [Integer] The number of seconds this session is valid.
# @return [AWS::AssumeRoleCredentials] The credentials.
# @example
#   sts_client = Aws::STS::Client.new(region: 'us-west-2')
#   credentials = get_credentials(
#     sts_client,
#     'arn:aws:iam::123456789012:role/AmazonS3ReadOnly',
#     'ReadAmazonS3Bucket',
#     3600
#   )
#   exit 1 if credentials.nil?
def get_credentials(sts_client, role_arn, role_session_name, duration_seconds)
  Aws::AssumeRoleCredentials.new(
    client: sts_client,
    role_arn: role_arn,
    role_session_name: role_session_name,
    duration_seconds: duration_seconds
  )
rescue StandardError => e
  puts "Error while getting credentials: #{e.message}"
end

# Checks whether a bucket exists in Amazon S3.
#
# @param s3_client [Aws::S3::Client] An initialized Amazon S3 client.
```

```
# @param bucket_name [String] The name of the bucket.
# @return [Boolean] true if the bucket exists; otherwise, false.
# @example
#   s3_client = Aws::S3::Client.new(region: 'us-west-2')
#   exit 1 unless bucket_exists?(s3_client, 'amzn-s3-demo-bucket')
def bucket_exists?(s3_client, bucket_name)
  response = s3_client.list_buckets
  response.buckets.each do |bucket|
    return true if bucket.name == bucket_name
  end
rescue StandardError => e
  puts "Error while checking whether the bucket '#{bucket_name}' " \
    "exists: #{e.message}"
end

# Lists the keys and ETags for the objects in an Amazon S3 bucket.
#
# @param s3_client [Aws::S3::Client] An initialized Amazon S3 client.
# @param bucket_name [String] The bucket's name.
# @return [Boolean] true if the objects were listed; otherwise, false.
# @example
#   s3_client = Aws::S3::Client.new(region: 'us-west-2')
#   exit 1 unless list_objects_in_bucket?(s3_client, 'amzn-s3-demo-bucket')
def list_objects_in_bucket?(s3_client, bucket_name)
  puts "Accessing the contents of the bucket named '#{bucket_name}'..."
  response = s3_client.list_objects_v2(
    bucket: bucket_name,
    max_keys: 50
  )

  if response.count.positive?
    puts "Contents of the bucket named '#{bucket_name}' (first 50 objects):"
    puts 'Name => ETag'
    response.contents.each do |obj|
      puts "#{obj.key} => #{obj.etag}"
    end
  else
    puts "No objects in the bucket named '#{bucket_name}'."
  end
  true
rescue StandardError => e
  puts "Error while accessing the bucket named '#{bucket_name}': #{e.message}"
end
```

Making requests using federated user temporary credentials

You can request temporary security credentials and provide them to your federated users or applications who need to access your AWS resources. This section provides examples of how you can use the AWS SDK to obtain temporary security credentials for your federated users or applications and send authenticated requests to Amazon S3 using those credentials. For a list of available AWS SDKs, see Sample Code and Libraries.

> **Note**
>
> Both the AWS account and an IAM user can request temporary security credentials for federated users. However, for added security, only an IAM user with the necessary permissions should request these temporary credentials to ensure that the federated user gets at most the permissions of the requesting IAM user. In some applications, you might find it suitable to create an IAM user with specific permissions for the sole purpose of granting temporary security credentials to your federated users and applications.

Java

You can provide temporary security credentials for your federated users and applications so that they can send authenticated requests to access your AWS resources. When requesting these temporary credentials, you must provide a user name and an IAM policy that describes the resource permissions that you want to grant. By default, the session duration is one hour. You can explicitly set a different duration value when requesting the temporary security credentials for federated users and applications.

> **Note**
>
> For added security when requesting temporary security credentials for federated users and applications, we recommend that you use a dedicated IAM user with only the necessary access permissions. The temporary user you create can never get more permissions than the IAM user who requested the temporary security credentials. For more information, see AWS Identity and Access Management FAQs .

To provide security credentials and send authenticated request to access resources, do the following:

- Create an instance of the `AWSSecurityTokenServiceClient` class.
- Start a session by calling the `getFederationToken()` method of the Security Token Service (STS) client. Provide session information, including the user name and an IAM policy, that you want to attach to the temporary credentials. You can provide an optional session duration. This method returns your temporary security credentials.
- Package the temporary security credentials in an instance of the `BasicSessionCredentials` object. You use this object to provide the temporary security credentials to your Amazon S3 client.
- Create an instance of the `AmazonS3Client` class using the temporary security credentials. You send requests to Amazon S3 using this client. If you send requests using expired credentials, Amazon S3 returns an error.

Example

The example lists keys in the specified S3 bucket. In the example, you obtain temporary security credentials for a two-hour session for your federated user and use the credentials to send authenticated requests to Amazon S3. To run the example, you need to create an IAM user with an attached policy that allows the user to request temporary security credentials and list your AWS resources. The following policy accomplishes this:

```
{
  "Statement":[{
      "Action":["s3:ListBucket",
        "sts:GetFederationToken*"
      ],
      "Effect":"Allow",
      "Resource":"*"
    }
  ]
}
```

For more information about how to create an IAM user, see Creating Your First IAM user and Administrators Group in the *IAM User Guide*.

After creating an IAM user and attaching the preceding policy, you can run the following example. For instructions on creating and testing a working sample, see Getting Started in the AWS SDK for Java Developer Guide.

```
import com.amazonaws.AmazonServiceException;
import com.amazonaws.SdkClientException;
import com.amazonaws.auth.AWSStaticCredentialsProvider;
import com.amazonaws.auth.BasicSessionCredentials;
import com.amazonaws.auth.policy.Policy;
import com.amazonaws.auth.policy.Resource;
import com.amazonaws.auth.policy.Statement;
import com.amazonaws.auth.policy.Statement.Effect;
import com.amazonaws.auth.policy.actions.S3Actions;
import com.amazonaws.auth.profile.ProfileCredentialsProvider;
import com.amazonaws.regions.Regions;
import com.amazonaws.services.s3.AmazonS3;
import com.amazonaws.services.s3.AmazonS3ClientBuilder;
import com.amazonaws.services.s3.model.ObjectListing;
import com.amazonaws.services.securitytoken.AWSSecurityTokenService;
import com.amazonaws.services.securitytoken.AWSSecurityTokenServiceClientBuilder;
import com.amazonaws.services.securitytoken.model.Credentials;
import com.amazonaws.services.securitytoken.model.GetFederationTokenRequest;
import com.amazonaws.services.securitytoken.model.GetFederationTokenResult;

import java.io.IOException;

public class MakingRequestsWithFederatedTempCredentials {

    public static void main(String[] args) throws IOException {
        Regions clientRegion = Regions.DEFAULT_REGION;
        String bucketName = "*** Specify bucket name ***";
        String federatedUser = "*** Federated user name ***";
        String resourceARN = "arn:aws:s3:::" + bucketName;

        try {
            AWSSecurityTokenService stsClient = AWSSecurityTokenServiceClientBuilder
                    .standard()
                    .withCredentials(new ProfileCredentialsProvider())
                    .withRegion(clientRegion)
                    .build();

            GetFederationTokenRequest getFederationTokenRequest = new
 GetFederationTokenRequest();
            getFederationTokenRequest.setDurationSeconds(7200);
            getFederationTokenRequest.setName(federatedUser);
```

```
            // Define the policy and add it to the request.
            Policy policy = new Policy();
            policy.withStatements(new Statement(Effect.Allow)
                    .withActions(S3Actions.ListObjects)
                    .withResources(new Resource(resourceARN)));
            getFederationTokenRequest.setPolicy(policy.toJson());

            // Get the temporary security credentials.
            GetFederationTokenResult federationTokenResult =
 stsClient.getFederationToken(getFederationTokenRequest);
            Credentials sessionCredentials = federationTokenResult.getCredentials();

            // Package the session credentials as a BasicSessionCredentials
            // object for an Amazon S3 client object to use.
            BasicSessionCredentials basicSessionCredentials = new
 BasicSessionCredentials(
                    sessionCredentials.getAccessKeyId(),
                    sessionCredentials.getSecretAccessKey(),
                    sessionCredentials.getSessionToken());
            AmazonS3 s3Client = AmazonS3ClientBuilder.standard()
                    .withCredentials(new
 AWSStaticCredentialsProvider(basicSessionCredentials))
                    .withRegion(clientRegion)
                    .build();

            // To verify that the client works, send a listObjects request using
            // the temporary security credentials.
            ObjectListing objects = s3Client.listObjects(bucketName);
            System.out.println("No. of Objects = " +
 objects.getObjectSummaries().size());
        } catch (AmazonServiceException e) {
            // The call was transmitted successfully, but Amazon S3 couldn't process
            // it, so it returned an error response.
            e.printStackTrace();
        } catch (SdkClientException e) {
            // Amazon S3 couldn't be contacted for a response, or the client
            // couldn't parse the response from Amazon S3.
            e.printStackTrace();
        }
    }
}
```

.NET

You can provide temporary security credentials for your federated users and applications so that they can send authenticated requests to access your AWS resources. When requesting these temporary credentials, you must provide a user name and an IAM policy that describes the resource permissions that you want to grant. By default, the duration of a session is one hour. You can explicitly set a different duration value when requesting the temporary security credentials for federated users and applications. For information about sending authenticated requests, see Making requests.

> **Note**
>
> When requesting temporary security credentials for federated users and applications, for added security, we suggest that you use a dedicated IAM user with only the necessary access permissions. The temporary user you create can never get more permissions than the IAM user who requested the temporary security credentials. For more information, see AWS Identity and Access Management FAQs .

You do the following:

- Create an instance of the AWS Security Token Service client, `AmazonSecurityTokenServiceClient` class.
- Start a session by calling the `GetFederationToken` method of the STS client. You need to provide session information, including the user name and an IAM policy that you want to attach to the temporary credentials. Optionally, you can provide a session duration. This method returns your temporary security credentials.
- Package the temporary security credentials in an instance of the `SessionAWSCredentials` object. You use this object to provide the temporary security credentials to your Amazon S3 client.
- Create an instance of the `AmazonS3Client` class by passing the temporary security credentials. You use this client to send requests to Amazon S3. If you send requests using expired credentials, Amazon S3 returns an error.

Example

The following C# example lists the keys in the specified bucket. In the example, you obtain temporary security credentials for a two-hour session for your federated user (User1), and use the credentials to send authenticated requests to Amazon S3.

- For this exercise, you create an IAM user with minimal permissions. Using the credentials of this IAM user, you request temporary credentials for others. This example lists only the objects in a specific bucket. Create an IAM user with the following policy attached:

```
{
  "Statement":[{
      "Action":["s3:ListBucket",
        "sts:GetFederationToken*"
      ],
      "Effect":"Allow",
      "Resource":"*"
    }
  ]
}
```

  The policy allows the IAM user to request temporary security credentials and access permission only to list your AWS resources. For more information about how to create an IAM user, see Creating Your IAM user User and Administrators Group in the *IAM User Guide*.

- Use the IAM user security credentials to test the following example. The example sends authenticated request to Amazon S3 using temporary security credentials. The example specifies the following policy when requesting temporary security credentials for the federated user (User1), which restricts access to listing objects in a specific bucket (`YourBucketName`). You must update the policy and provide your own existing bucket name.

```
{
  "Statement":[
    {
      "Sid":"1",
      "Action":["s3:ListBucket"],
      "Effect":"Allow",
      "Resource":"arn:aws:s3:::YourBucketName"
    }
  ]
}
```

- **Example**

  Update the following sample and provide the bucket name that you specified in the preceding federated user access policy. For information about setting up and running the code examples, see Getting Started with the AWS SDK for .NET in the *AWS SDK for .NET Developer Guide*.

```
using Amazon;
using Amazon.Runtime;
using Amazon.S3;
using Amazon.S3.Model;
using Amazon.SecurityToken;
using Amazon.SecurityToken.Model;
using System;
using System.Collections.Generic;
using System.Threading.Tasks;

namespace Amazon.DocSamples.S3
{
    class TempFederatedCredentialsTest
    {
        private const string bucketName = "*** bucket name ***";
        // Specify your bucket region (an example region is shown).
        private static readonly RegionEndpoint bucketRegion =
 RegionEndpoint.USWest2;
        private static IAmazonS3 client;

        public static void Main()
        {
            ListObjectsAsync().Wait();
        }

        private static async Task ListObjectsAsync()
        {
            try
            {
                Console.WriteLine("Listing objects stored in a bucket");
                // Credentials use the default AWS SDK for .NET credential search
 chain.
                // On local development machines, this is your default profile.
                SessionAWSCredentials tempCredentials =
                    await GetTemporaryFederatedCredentialsAsync();
```

```
                // Create a client by providing temporary security credentials.
                using (client = new AmazonS3Client(bucketRegion))
                {
                    ListObjectsRequest listObjectRequest = new
ListObjectsRequest();
                    listObjectRequest.BucketName = bucketName;

                    ListObjectsResponse response = await
client.ListObjectsAsync(listObjectRequest);
                    List<S3Object> objects = response.S3Objects;
                    Console.WriteLine("Object count = {0}", objects.Count);

                    Console.WriteLine("Press any key to continue...");
                    Console.ReadKey();
                }
            }
            catch (AmazonS3Exception e)
            {
                Console.WriteLine("Error encountered ***. Message:'{0}' when
writing an object", e.Message);
            }
            catch (Exception e)
            {
                Console.WriteLine("Unknown encountered on server. Message:'{0}'
when writing an object", e.Message);
            }
        }

        private static async Task<SessionAWSCredentials>
GetTemporaryFederatedCredentialsAsync()
        {
            AmazonSecurityTokenServiceConfig config = new
AmazonSecurityTokenServiceConfig();
            AmazonSecurityTokenServiceClient stsClient =
                new AmazonSecurityTokenServiceClient(
                                                 config);

            GetFederationTokenRequest federationTokenRequest =
                                     new GetFederationTokenRequest();
            federationTokenRequest.DurationSeconds = 7200;
            federationTokenRequest.Name = "User1";
            federationTokenRequest.Policy = @"{
               ""Statement"":
               [
```

```
                  {
                    ""Sid"":""Stmt1311212314284"",
                    ""Action"":[""s3:ListBucket""],
                    ""Effect"":""Allow"",
                    ""Resource"":""arn:aws:s3:::" + bucketName + @"""
                   }
                ]
             }
            ";

            GetFederationTokenResponse federationTokenResponse =
                        await
 stsClient.GetFederationTokenAsync(federationTokenRequest);
            Credentials credentials = federationTokenResponse.Credentials;

            SessionAWSCredentials sessionCredentials =
                new SessionAWSCredentials(credentials.AccessKeyId,
                                          credentials.SecretAccessKey,
                                          credentials.SessionToken);
            return sessionCredentials;
        }
    }
}
```

PHP

This topic explains how to use classes from version 3 of the AWS SDK for PHP to request temporary security credentials for federated users and applications and use them to access resources stored in Amazon S3. For more information about the AWS SDK for Ruby API, go to AWS SDK for Ruby - Version 2.

You can provide temporary security credentials to your federated users and applications so they can send authenticated requests to access your AWS resources. When requesting these temporary credentials, you must provide a user name and an IAM policy that describes the resource permissions that you want to grant. These credentials expire when the session duration expires. By default, the session duration is one hour. You can explicitly set a different value for the duration when requesting the temporary security credentials for federated users and applications. For more information about temporary security credentials, see Temporary Security Credentials in the *IAM User Guide*. For information about providing temporary security credentials to your federated users and applications, see Making requests.

For added security when requesting temporary security credentials for federated users and applications, we recommend using a dedicated IAM user with only the necessary access permissions. The temporary user you create can never get more permissions than the IAM user who requested the temporary security credentials. For information about identity federation, see AWS Identity and Access Management FAQs.

For more information about the AWS SDK for Ruby API, go to AWS SDK for Ruby - Version 2.

Example

The following PHP example lists keys in the specified bucket. In the example, you obtain temporary security credentials for an hour session for your federated user (User1). Then you use the temporary security credentials to send authenticated requests to Amazon S3.

For added security when requesting temporary credentials for others, you use the security credentials of an IAM user who has permissions to request temporary security credentials. To ensure that the IAM user grants only the minimum application-specific permissions to the federated user, you can also limit the access permissions of this IAM user. This example lists only objects in a specific bucket. Create an IAM user with the following policy attached:

```
{
  "Statement":[{
      "Action":["s3:ListBucket",
        "sts:GetFederationToken*"
      ],
      "Effect":"Allow",
      "Resource":"*"
    }
  ]
}
```

The policy allows the IAM user to request temporary security credentials and access permission only to list your AWS resources. For more information about how to create an IAM user, see Creating Your First IAM user and Administrators Group in the *IAM User Guide*.

You can now use the IAM user security credentials to test the following example. The example sends an authenticated request to Amazon S3 using temporary security credentials. When requesting temporary security credentials for the federated user (User1), the example specifies the following policy, which restricts access to list objects in a specific bucket. Update the policy with your bucket name.

```
{
  "Statement":[
    {
      "Sid":"1",
      "Action":["s3:ListBucket"],
      "Effect":"Allow",
      "Resource":"arn:aws:s3:::YourBucketName"
    }
  ]
}
```

In the following example, when specifying the policy resource, replace `YourBucketName` with the name of your bucket.:

```
 require 'vendor/autoload.php';

use Aws\S3\Exception\S3Exception;
use Aws\S3\S3Client;
use Aws\Sts\StsClient;

$bucket = '*** Your Bucket Name ***';

// In real applications, the following code is part of your trusted code. It has
// the security credentials that you use to obtain temporary security credentials.
$sts = new StsClient([
    'version' => 'latest',
    'region' => 'us-east-1'
]);

// Fetch the federated credentials.
$sessionToken = $sts->getFederationToken([
    'Name'              => 'User1',
    'DurationSeconds'    => '3600',
    'Policy'            => json_encode([
        'Statement' => [
            'Sid'              => 'randomstatementid' . time(),
            'Action'           => ['s3:ListBucket'],
            'Effect'           => 'Allow',
            'Resource'         => 'arn:aws:s3:::' . $bucket
        ]
    ])
]);
```

```
// The following will be part of your less trusted code. You provide temporary
// security credentials so the code can send authenticated requests to Amazon S3.

$s3 = new S3Client([
    'region' => 'us-east-1',
    'version' => 'latest',
    'credentials' => [
        'key' => $sessionToken['Credentials']['AccessKeyId'],
        'secret' => $sessionToken['Credentials']['SecretAccessKey'],
        'token' => $sessionToken['Credentials']['SessionToken']
    ]
]);

try {
    $result = $s3->listObjects([
        'Bucket' => $bucket
    ]);
} catch (S3Exception $e) {
    echo $e->getMessage() . PHP_EOL;
}
```

Ruby

You can provide temporary security credentials for your federated users and applications so that they can send authenticated requests to access your AWS resources. When requesting temporary credentials from the IAM service, you must provide a user name and an IAM policy that describes the resource permissions that you want to grant. By default, the session duration is one hour. However, if you are requesting temporary credentials using IAM user credentials, you can explicitly set a different duration value when requesting the temporary security credentials for federated users and applications. For information about temporary security credentials for your federated users and applications, see Making requests.

> **Note**
>
> For added security when you request temporary security credentials for federated users and applications, you might want to use a dedicated IAM user with only the necessary access permissions. The temporary user you create can never get more permissions than the IAM user who requested the temporary security credentials. For more information, see AWS Identity and Access Management FAQs .

Example

The following Ruby code example allows a federated user with a limited set of permissions to lists keys in the specified bucket.

```
# Prerequisites:
#  - An existing Amazon S3 bucket.

require 'aws-sdk-s3'
require 'aws-sdk-iam'
require 'json'

# Checks to see whether a user exists in IAM; otherwise,
# creates the user.
#
# @param iam [Aws::IAM::Client] An initialized IAM client.
# @param user_name [String] The user's name.
# @return [Aws::IAM::Types::User] The existing or new user.
# @example
#   iam = Aws::IAM::Client.new(region: 'us-west-2')
#   user = get_user(iam, 'my-user')
#   exit 1 unless user.user_name
#   puts "User's name: #{user.user_name}"
def get_user(iam, user_name)
  puts "Checking for a user with the name '#{user_name}'..."
  response = iam.get_user(user_name: user_name)
  puts "A user with the name '#{user_name}' already exists."
  response.user
# If the user doesn't exist, create them.
rescue Aws::IAM::Errors::NoSuchEntity
  puts "A user with the name '#{user_name}' doesn't exist. Creating this user..."
  response = iam.create_user(user_name: user_name)
  iam.wait_until(:user_exists, user_name: user_name)
  puts "Created user with the name '#{user_name}'."
  response.user
rescue StandardError => e
  puts "Error while accessing or creating the user named '#{user_name}':
 #{e.message}"
end

# Gets temporary AWS credentials for an IAM user with the specified permissions.
#
# @param sts [Aws::STS::Client] An initialized AWS STS client.
# @param duration_seconds [Integer] The number of seconds for valid credentials.
```

```
# @param user_name [String] The user's name.
# @param policy [Hash] The access policy.
# @return [Aws::STS::Types::Credentials] AWS credentials for API authentication.
# @example
#   sts = Aws::STS::Client.new(region: 'us-west-2')
#   credentials = get_temporary_credentials(sts, duration_seconds, user_name,
#     {
#       'Version' => '2012-10-17',
#       'Statement' => [
#         'Sid' => 'Stmt1',
#         'Effect' => 'Allow',
#         'Action' => 's3:ListBucket',
#         'Resource' => 'arn:aws:s3:::amzn-s3-demo-bucket'
#       ]
#     }
#   )
#   exit 1 unless credentials.access_key_id
#   puts "Access key ID: #{credentials.access_key_id}"
def get_temporary_credentials(sts, duration_seconds, user_name, policy)
  response = sts.get_federation_token(
    duration_seconds: duration_seconds,
    name: user_name,
    policy: policy.to_json
  )
  response.credentials
rescue StandardError => e
  puts "Error while getting federation token: #{e.message}"
end

# Lists the keys and ETags for the objects in an Amazon S3 bucket.
#
# @param s3_client [Aws::S3::Client] An initialized Amazon S3 client.
# @param bucket_name [String] The bucket's name.
# @return [Boolean] true if the objects were listed; otherwise, false.
# @example
#   s3_client = Aws::S3::Client.new(region: 'us-west-2')
#   exit 1 unless list_objects_in_bucket?(s3_client, 'amzn-s3-demo-bucket')
def list_objects_in_bucket?(s3_client, bucket_name)
  puts "Accessing the contents of the bucket named '#{bucket_name}'..."
  response = s3_client.list_objects_v2(
    bucket: bucket_name,
    max_keys: 50
  )
```

```
  if response.count.positive?
    puts "Contents of the bucket named '#{bucket_name}' (first 50 objects):"
    puts 'Name => ETag'
    response.contents.each do |obj|
      puts "#{obj.key} => #{obj.etag}"
    end
  else
    puts "No objects in the bucket named '#{bucket_name}'."
  end
  true
rescue StandardError => e
  puts "Error while accessing the bucket named '#{bucket_name}': #{e.message}"
end

# Example usage:
def run_me
  region = "us-west-2"
  user_name = "my-user"
  bucket_name = "amzn-s3-demo-bucket"

  iam = Aws::IAM::Client.new(region: region)
  user = get_user(iam, user_name)

  exit 1 unless user.user_name

  puts "User's name: #{user.user_name}"
  sts = Aws::STS::Client.new(region: region)
  credentials = get_temporary_credentials(sts, 3600, user_name,
                                          {
                                            'Version' => '2012-10-17',
                                            'Statement' => [
                                              'Sid' => 'Stmt1',
                                              'Effect' => 'Allow',
                                              'Action' => 's3:ListBucket',
                                              'Resource' =>
 "arn:aws:s3:::#{bucket_name}"
                                            ]
                                          })

  exit 1 unless credentials.access_key_id

  puts "Access key ID: #{credentials.access_key_id}"
  s3_client = Aws::S3::Client.new(region: region, credentials: credentials)
```

```
  exit 1 unless list_objects_in_bucket?(s3_client, bucket_name)
end

run_me if $PROGRAM_NAME == __FILE__
```

Making requests using the REST API

This section contains information on how to make requests to Amazon S3 endpoints by using the REST API. For a list of Amazon S3 endpoints, see Regions and Endpoints in the *AWS General Reference*.

Constructing S3 hostnames for REST API requests

Amazon S3 endpoints follow the structure shown below:

```
s3.Region.amazonaws.com
```

Amazon S3 access points endpoints and dual-stack endpoints also follow the standard structure:

- **Amazon S3 access points** -`s3-accesspoint.`*`Region`*`.amazonaws.com`
- **Dual-stack** - `s3.dualstack.`*`Region`*`.amazonaws.com`

For a complete list of Amazon S3 Regions and endpoints, see Amazon S3 endpoints and quotas in the *Amazon Web Services General Reference*.

Virtual hosted-style and path-style requests

When making requests by using the REST API, you can use virtual hosted–style or path-style URIs for the Amazon S3 endpoints. For more information, see Path-style requests .

Example Virtual hosted–Style request

Following is an example of a virtual hosted–style request to delete the `puppy.jpg` file from the bucket named `examplebucket` in the US West (Oregon) Region. For more information about virtual hosted-style requests, see Path-style requests .

```
DELETE /puppy.jpg HTTP/1.1
Host: examplebucket.s3.us-west-2.amazonaws.com
Date: Mon, 11 Apr 2016 12:00:00 GMT
x-amz-date: Mon, 11 Apr 2016 12:00:00 GMT
```

```
Authorization: authorization string
```

Example Path-style request

Following is an example of a path-style version of the same request.

```
DELETE /examplebucket/puppy.jpg HTTP/1.1
Host: s3.us-west-2.amazonaws.com
Date: Mon, 11 Apr 2016 12:00:00 GMT
x-amz-date: Mon, 11 Apr 2016 12:00:00 GMT
Authorization: authorization string
```

You will receive an HTTP response code 307 Temporary Redirect error and a message indicating what the correct URI is for your resource if you try to access a bucket outside the US East (N. Virginia) region with path-style syntax that uses either of the following:

For more information about path-style requests, see Path-style requests .

> **Important**
>
> Update (September 23, 2020) – To make sure that customers have the time that they need to transition to virtual-hosted–style URLs, we have decided to delay the deprecation of path-style URLs. For more information, see Amazon S3 Path Deprecation Plan – The Rest of the Story in the *AWS News Blog*.

Making requests to dual-stack endpoints by using the REST API

When using the REST API, you can directly access a dual-stack endpoint by using a virtual hosted–style or a path style endpoint name (URI). All Amazon S3 dual-stack endpoint names include the region in the name. Unlike the standard IPv4-only endpoints, both virtual hosted–style and a path-style endpoints use region-specific endpoint names.

Example Virtual hosted–Style dual-stack endpoint request

You can use a virtual hosted–style endpoint in your REST request as shown in the following example that retrieves the `puppy.jpg` object from the bucket named `examplebucket` in the US West (Oregon) Region.

```
GET /puppy.jpg HTTP/1.1
```

```
Host: examplebucket.s3.dualstack.us-west-2.amazonaws.com
Date: Mon, 11 Apr 2016 12:00:00 GMT
x-amz-date: Mon, 11 Apr 2016 12:00:00 GMT
Authorization: authorization string
```

Example Path-style dual-stack endpoint request

Or you can use a path-style endpoint in your request as shown in the following example.

```
GET /examplebucket/puppy.jpg HTTP/1.1
Host: s3.dualstack.us-west-2.amazonaws.com
Date: Mon, 11 Apr 2016 12:00:00 GMT
x-amz-date: Mon, 11 Apr 2016 12:00:00 GMT
Authorization: authorization string
```

For more information about dual-stack endpoints, see Using Amazon S3 dual-stack endpoints.

For more information about making requests using the REST API, see the topics below.

Topics

- Request redirection and the REST API
- Request routing

Request redirection and the REST API

Topics

- Redirects and HTTP user-agents
- Redirects and 100-Continue
- Redirect example

This section describes how to handle HTTP redirects by using the Amazon S3 REST API. For general information about Amazon S3 redirects, see Making requests in the Amazon Simple Storage Service API Reference.

Redirects and HTTP user-agents

Programs that use the Amazon S3 REST API should handle redirects either at the application layer or the HTTP layer. Many HTTP client libraries and user agents can be configured to correctly

handle redirects automatically; however, many others have incorrect or incomplete redirect implementations.

Before you rely on a library to fulfill the redirect requirement, test the following cases:

- Verify all HTTP request headers are correctly included in the redirected request (the second request after receiving a redirect) including HTTP standards such as Authorization and Date.
- Verify non-GET redirects, such as PUT and DELETE, work correctly.
- Verify large PUT requests follow redirects correctly.
- Verify PUT requests follow redirects correctly if the 100-continue response takes a long time to arrive.

HTTP user-agents that strictly conform to RFC 2616 might require explicit confirmation before following a redirect when the HTTP request method is not GET or HEAD. It is generally safe to follow redirects generated by Amazon S3 automatically, as the system will issue redirects only to hosts within the amazonaws.com domain and the effect of the redirected request will be the same as that of the original request.

Redirects and 100-Continue

To simplify redirect handling, improve efficiencies, and avoid the costs associated with sending a redirected request body twice, configure your application to use 100-continues for PUT operations. When your application uses 100-continue, it does not send the request body until it receives an acknowledgement. If the message is rejected based on the headers, the body of the message is not sent. For more information about 100-continue, go to RFC 2616 Section 8.2.3

> **Note**
>
> According to RFC 2616, when using `Expect: Continue` with an unknown HTTP server, you should not wait an indefinite period before sending the request body. This is because some HTTP servers do not recognize 100-continue. However, Amazon S3 does recognize if your request contains an `Expect: Continue` and will respond with a provisional 100-continue status or a final status code. Additionally, no redirect error will occur after receiving the provisional 100 continue go-ahead. This will help you avoid receiving a redirect response while you are still writing the request body.

Redirect example

This section provides an example of client-server interaction using HTTP redirects and 100-continue.

Following is a sample PUT to the `quotes.s3.amazonaws.com` bucket.

```
PUT /nelson.txt HTTP/1.1
Host: quotes.s3.amazonaws.com
Date: Mon, 15 Oct 2007 22:18:46 +0000

Content-Length: 6
Expect: 100-continue
```

Amazon S3 returns the following:

```
HTTP/1.1 307 Temporary Redirect
Location: http://quotes.s3-4c25d83b.amazonaws.com/nelson.txt?rk=8d47490b
Content-Type: application/xml
Transfer-Encoding: chunked
Date: Mon, 15 Oct 2007 22:18:46 GMT

Server: AmazonS3

<?xml version="1.0" encoding="UTF-8"?>
<Error>
  <Code>TemporaryRedirect</Code>
  <Message>Please re-send this request to the
  specified temporary endpoint. Continue to use the
  original request endpoint for future requests.
  </Message>
  <Endpoint>quotes.s3-4c25d83b.amazonaws.com</Endpoint>
  <Bucket>quotes</Bucket>
</Error>
```

The client follows the redirect response and issues a new request to the `quotes.s3-4c25d83b.amazonaws.com` temporary endpoint.

```
PUT /nelson.txt?rk=8d47490b HTTP/1.1
Host: quotes.s3-4c25d83b.amazonaws.com
```

```
Date: Mon, 15 Oct 2007 22:18:46 +0000

Content-Length: 6
Expect: 100-continue
```

Amazon S3 returns a 100-continue indicating the client should proceed with sending the request body.

```
HTTP/1.1 100 Continue
```

The client sends the request body.

```
ha ha\n
```

Amazon S3 returns the final response.

```
HTTP/1.1 200 OK
Date: Mon, 15 Oct 2007 22:18:48 GMT

ETag: "a2c8d6b872054293afd41061e93bc289"
Content-Length: 0
Server: AmazonS3
```

Request routing

Programs that make requests against buckets created using the CreateBucket API that include a CreateBucketConfiguration must support redirects. Additionally, some clients that do not respect DNS TTLs might encounter issues.

This section describes routing and DNS issues to consider when designing your service or application for use with Amazon S3.

Request redirection and the REST API

Amazon S3 uses the Domain Name System (DNS) to route requests to facilities that can process them. This system works effectively, but temporary routing errors can occur. If a request arrives at the wrong Amazon S3 location, Amazon S3 responds with a temporary redirect that tells the requester to resend the request to a new endpoint. If a request is incorrectly formed, Amazon S3 uses permanent redirects to provide direction on how to perform the request correctly.

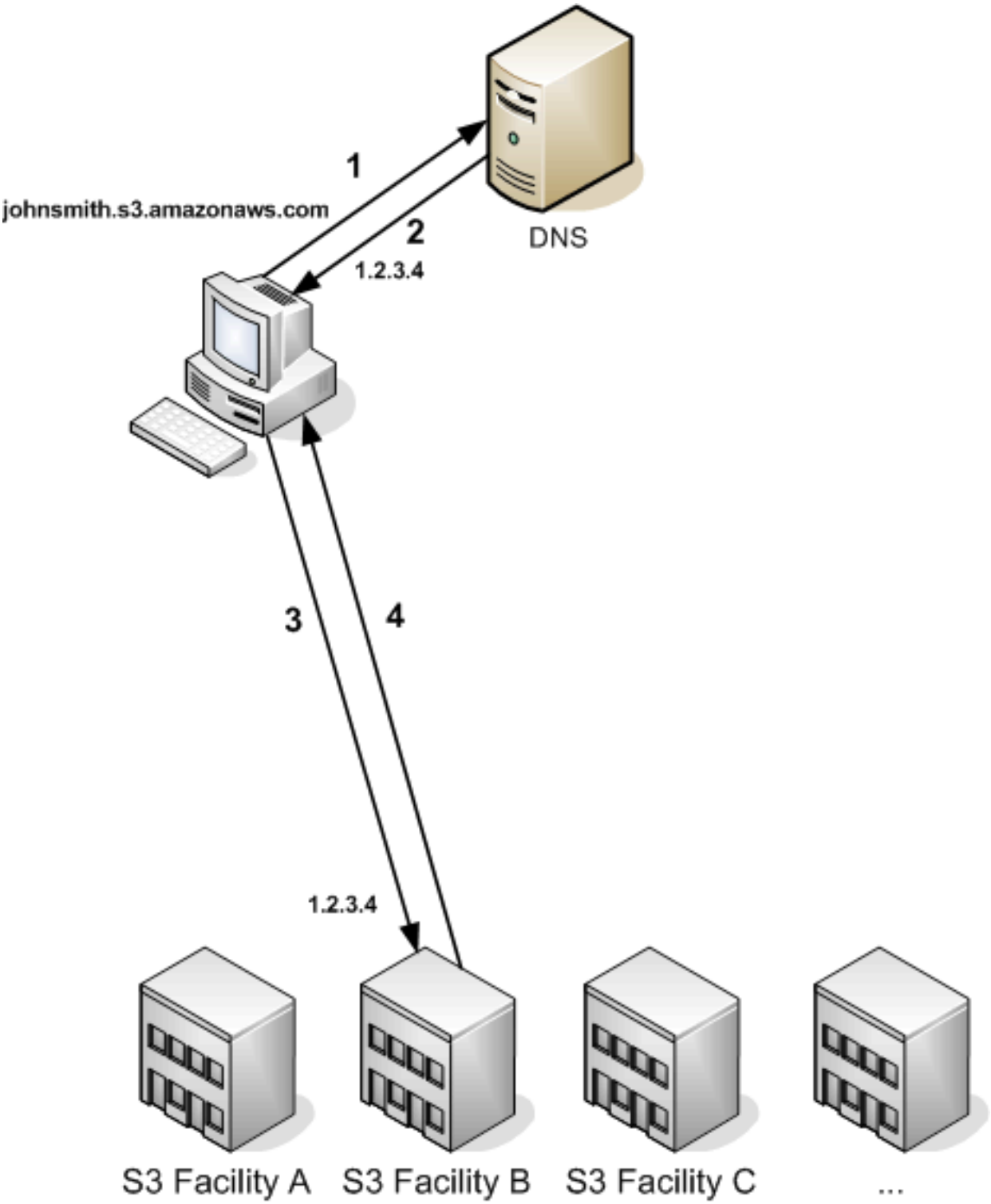
> **Important**
>
> To use this feature, you must have an application that can handle Amazon S3 redirect responses. The only exception is for applications that work exclusively with buckets that were created without `<CreateBucketConfiguration>`. For more information about location constraints, see Accessing and listing an Amazon S3 bucket .
>
> For all Regions that launched after March 20, 2019, if a request arrives at the wrong Amazon S3 location, Amazon S3 returns an HTTP 400 Bad Request error.
>
> For more information about enabling or disabling an AWS Region, see AWS Regions and Endpoints in the *AWS General Reference*.

Topics

- DNS routing
- Temporary request redirection
- Permanent request redirection
- Request redirection examples

DNS routing

DNS routing routes requests to appropriate Amazon S3 facilities. The following figure and procedure show an example of DNS routing.



DNS routing request steps

1. The client makes a DNS request to get an object stored on Amazon S3.

2. The client receives one or more IP addresses for facilities that can process the request. In this example, the IP address is for Facility B.
3. The client makes a request to Amazon S3 Facility B.
4. Facility B returns a copy of the object to the client.

Temporary request redirection

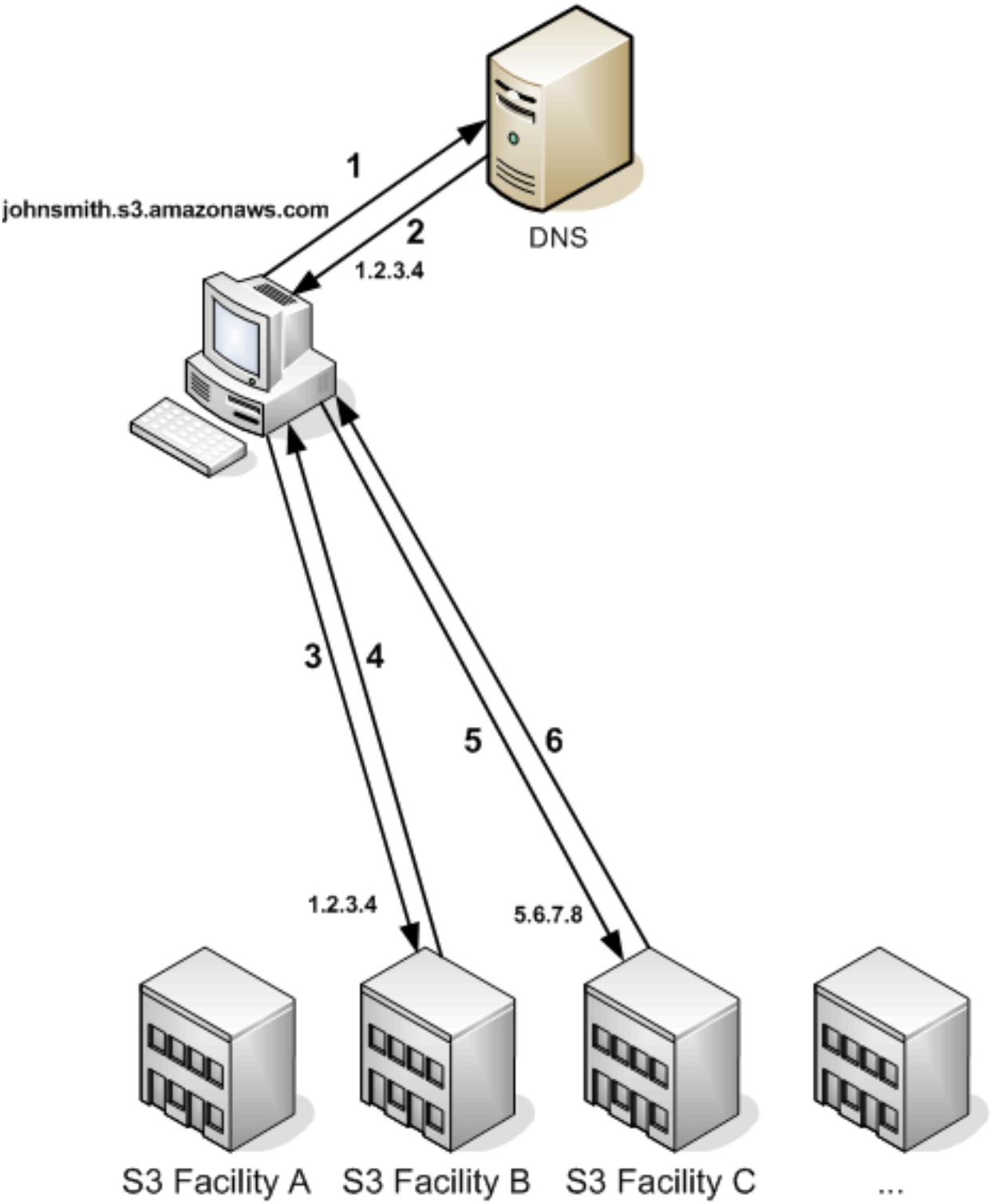
A temporary redirect is a type of error response that signals to the requester that they should resend the request to a different endpoint. Due to the distributed nature of Amazon S3, requests can be temporarily routed to the wrong facility. This is most likely to occur immediately after buckets are created or deleted.

For example, if you create a new bucket and immediately make a request to the bucket, you might receive a temporary redirect, depending on the location constraint of the bucket. If you created the bucket in the US East (N. Virginia) AWS Region, you will not see the redirect because this is also the default Amazon S3 endpoint.

However, if the bucket is created in any other Region, any requests for the bucket go to the default endpoint while the bucket's DNS entry is propagated. The default endpoint redirects the request to the correct endpoint with an HTTP 302 response. Temporary redirects contain a URI to the correct facility, which you can use to immediately resend the request.

> **Important**
>
> Don't reuse an endpoint provided by a previous redirect response. It might appear to work (even for long periods of time), but it might provide unpredictable results and will eventually fail without notice.

The following figure and procedure shows an example of a temporary redirect.



Temporary request redirection steps

1. The client makes a DNS request to get an object stored on Amazon S3.
2. The client receives one or more IP addresses for facilities that can process the request.

3. The client makes a request to Amazon S3 Facility B.
4. Facility B returns a redirect indicating the object is available from Location C.
5. The client resends the request to Facility C.
6. Facility C returns a copy of the object.

Permanent request redirection

A permanent redirect indicates that your request addressed a resource inappropriately. For example, permanent redirects occur if you use a path-style request to access a bucket that was created using `<CreateBucketConfiguration>`. For more information, see Accessing and listing an Amazon S3 bucket .

To help you find these errors during development, this type of redirect does not contain a Location HTTP header that allows you to automatically follow the request to the correct location. Consult the resulting XML error document for help using the correct Amazon S3 endpoint.

Request redirection examples

The following are examples of temporary request redirection responses.

REST API temporary redirect response

```
HTTP/1.1 307 Temporary Redirect
Location: http://awsexamplebucket1.s3-gztb4pa9sq.amazonaws.com/photos/puppy.jpg?
rk=e2c69a31
Content-Type: application/xml
Transfer-Encoding: chunked
Date: Fri, 12 Oct 2007 01:12:56 GMT
Server: AmazonS3

<?xml version="1.0" encoding="UTF-8"?>
<Error>
  <Code>TemporaryRedirect</Code>
  <Message>Please re-send this request to the specified temporary endpoint.
  Continue to use the original request endpoint for future requests.</Message>
  <Endpoint>awsexamplebucket1.s3-gztb4pa9sq.amazonaws.com</Endpoint>
</Error>
```

SOAP API temporary redirect response

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

```
<soapenv:Body>
  <soapenv:Fault>
    <Faultcode>soapenv:Client.TemporaryRedirect</Faultcode>
    <Faultstring>Please re-send this request to the specified temporary endpoint.
    Continue to use the original request endpoint for future requests.</Faultstring>
    <Detail>
      <Bucket>images</Bucket>
      <Endpoint>s3-gztb4pa9sq.amazonaws.com</Endpoint>
    </Detail>
  </soapenv:Fault>
</soapenv:Body>
```

DNS considerations

One of the design requirements of Amazon S3 is extremely high availability. One of the ways we meet this requirement is by updating the IP addresses associated with the Amazon S3 endpoint in DNS as needed. These changes are automatically reflected in short-lived clients, but not in some long-lived clients. Long-lived clients will need to take special action to re-resolve the Amazon S3 endpoint periodically to benefit from these changes. For more information about virtual machines (VMs), refer to the following:

- For Java, Sun's JVM caches DNS lookups forever by default; go to the "InetAddress Caching" section of the InetAddress documentation for information on how to change this behavior.
- For PHP, the persistent PHP VM that runs in the most popular deployment configurations caches DNS lookups until the VM is restarted. Go to the getHostByName PHP docs.

Developing with Amazon S3 using the AWS CLI

The Amazon S3 AWS CLI commands are organized into different sets in AWS CLI Command Reference and each has it's own available commands. If you don't find the command that you're looking for in one set, check one of the other sets. The different sets are as follows:

- `s3` – Describes high-level commands for working with objects and buckets. These include copy, list and move actions. For a complete list of commands in this set, see s3 in the AWS CLI Command Reference.
- `s3api` – Describes low-level commands that manage S3 resources such as buckets, objects, sessions and multipart uploads. These commands correspond to the Amazon S3 API operations. For a complete list of CLI commands in this set, see s3api in the AWS CLI Command Reference.
- `s3control` – Describes low-level commands that manage all other S3 resources such as Access Grants, Storage Lens groups, and Amazon S3 on Outposts buckets. These commands correspond to the Amazon S3 Control API operations. For a complete list of CLI commands in this set, see s3control in the AWS CLI Command Reference.

If you are having issues setting up the AWS CLI, see see How do I resolve the "Unable to locate credentials" error in Amazon S3 in the AWS re:Post Knowledge Center.

> **Note**
>
> Services in AWS, such as Amazon S3, require that you provide credentials when you access them. The service can then determine whether you have permissions to access the resources that it owns. The console requires your password. You can create access keys for your AWS account to access the AWS CLI or API. However, we don't recommend that you access AWS using the credentials for your AWS account. Instead, we recommend that you use AWS Identity and Access Management (IAM). Create an IAM user, add the user to an IAM group with administrative permissions, and then grant administrative permissions to the IAM user that you created. You can then access AWS using a special URL and the credentials of that IAM user. For instructions, go to Creating Your First IAM user and Administrators Group in the *IAM User Guide*.

Learn more about the AWS CLI

To learn more about the AWS, see the following resources:

- AWS Command Line Interface
- AWS Command Line Interface User Guide for Version 2

Developing with Amazon S3 using the AWS SDKs

AWS software development kits (SDKs) are available for many popular programming languages. Each SDK provides an API, code examples, and documentation that make it easier for developers to build applications in their preferred language.

> **Note**
>
> You can use AWS Amplify for end-to-end fullstack development of web and mobile apps. Amplify Storage seamlessly integrates file storage and management capabilities into frontend web and mobile apps, built on top of Amazon S3. For more information, see Storage in the Amplify user guide.

SDK documentation	Code examples
AWS SDK for C++	AWS SDK for C++ code examples
AWS CLI	AWS CLI code examples
AWS SDK for Go	AWS SDK for Go code examples
AWS SDK for Java	AWS SDK for Java code examples
AWS SDK for JavaScript	AWS SDK for JavaScript code examples
AWS SDK for Kotlin	AWS SDK for Kotlin code examples
AWS SDK for .NET	AWS SDK for .NET code examples
AWS SDK for PHP	AWS SDK for PHP code examples
AWS Tools for PowerShell	Tools for PowerShell code examples
AWS SDK for Python (Boto3)	AWS SDK for Python (Boto3) code examples

SDK documentation	Code examples
AWS SDK for Ruby	AWS SDK for Ruby code examples
AWS SDK for Rust	AWS SDK for Rust code examples
AWS SDK for SAP ABAP	AWS SDK for SAP ABAP code examples
AWS SDK for Swift	AWS SDK for Swift code examples

For specific examples, see Code examples for Amazon S3 using AWS SDKs.

SDK Programming interfaces

Each AWS SDK provides one or more programmatic interfaces for working with Amazon S3. Each SDK provides a low-level interface for Amazon S3, with methods that closely resemble API operations. Some SDKs provide high-level interfaces for Amazon S3, that are abstractions intended to simplify common use cases.

For example, when you perform a multipart upload by using the low-level API operations, you use an operation to initiate the upload, another operation to upload parts, and a final operation to complete the upload. A high-level multipart upload API operation lets you to do all of the operations required for upload in a single API call. For examples, see Uploading an object using multipart upload in the *Amazon S3 User Guide*.

Low-level API operations allow greater control over the upload. We recommend that you use the low-level API operations if you need to pause and resume uploads, vary part sizes during the upload, or begin uploads when you don't know the size of the data in advance.

Specifying the Signature Version in request authentication

Amazon S3 supports only AWS Signature Version 4 in most AWS Regions. In some of the older AWS Regions, Amazon S3 supports both Signature Version 4 and Signature Version 2. However, Signature Version 2 is being turned off (deprecated). For more information about the end of support for Signature Version 2, see AWS Signature Version 2 turned off (deprecated) for Amazon S3.

For a list of all the Amazon S3 Regions and the signature versions they support, see Regions and Endpoints in the *AWS General Reference*.

For all AWS Regions, AWS SDKs use Signature Version 4 by default to authenticate requests. When using AWS SDKs that were released before May 2016, you might be required to request Signature Version 4, as shown in the following table.

SDK	Requesting Signature Version 4 for Request Authentication

AWS CLI	For the default profile, run the following command:
	`$ aws configure set default.s3.signature_version s3v4`
	For a custom profile, run the following command:
	`$ aws configure set profile.your_profile_name.s3.signature_version s3v4`

Java SDK	Add the following in your code:
	`System.setProperty(SDKGlobalConfiguration.ENABLE_S3_SIGV4_SYSTEM_PROPERTY, "true");`
	Or, on the command line, specify the following:
	`-Dcom.amazonaws.services.s3.enableV4`

JavaScript SDK	Set the `signatureVersion` parameter to `v4` when constructing the client: `var s3 = new AWS.S3({signatureVersion: 'v4'});`

PHP SDK	Set the `signature` parameter to `v4` when constructing the Amazon S3 service client for PHP SDK v2:
	`<?php`
	`$client = S3Client::factory([`
	`'region' => 'YOUR-REGION',`
	`'version' => 'latest',`
	`'signature' => 'v4'`

SDK	Requesting Signature Version 4 for Request Authentication

	`]);`
	
	When using the PHP SDK v3, set the `signature_version` parameter to `v4` during construction of the Amazon S3 service client:
	
	`<?php`
	`$s3 = new Aws\S3\S3Client([`
	`  'version' => '2006-03-01',`
	`  'region' => 'YOUR-REGION',`
	`  'signature_version' => 'v4'`
	`]);`

Python-Boto SDK	Specify the following in the boto default config file: `[s3] use-sigv4 = True`

Ruby SDK	Ruby SDK - Version 1: Set the `:s3_signature_version` parameter to `:v4` when constructing the client:
	
	`s3 = AWS::S3::Client.new(:s3_signature_version`
	`  => :v4)`
	
	Ruby SDK - Version 3: Set the `signature_version` parameter to `v4` when constructing the client:
	
	`s3 = Aws::S3::Client.new(signature_version: 'v4')`

SDK	Requesting Signature Version 4 for Request Authentication

.NET SDK	Add the following to the code before creating the Amazon S3 client:
	`AWSConfigsS3.UseSignatureVersion4 = true;`
	Or, add the following to the config file:
	`<appSettings>`
	`  <add key="AWS.S3.UseSignatureVersion4" value="true" />`
	`</appSettings>`

AWS Signature Version 2 turned off (deprecated) for Amazon S3

Signature Version 2 is being turned off (deprecated) in Amazon S3. Amazon S3 will then only accept API requests that are signed using Signature Version 4.

This section provides answers to common questions regarding the end of support for Signature Version 2.

What is Signature Version 2/4, and What Does It Mean to Sign Requests?

The Signature Version 2 or Signature Version 4 signing process is used to authenticate your Amazon S3 API requests. Signing requests enables Amazon S3 to identify who is sending the request and protects your requests from bad actors.

For more information about signing AWS requests, see Signing AWS API Requests in the *AWS General Reference*.

What Update Are You Making?

We currently support Amazon S3 API requests that are signed using Signature Version 2 and Signature Version 4 processes. After that, Amazon S3 will only accept requests that are signed using Signature Version 4.

For more information about signing AWS requests, see Changes in Signature Version 4 in the *AWS General Reference*.

Why Are You Making the Update?

Signature Version 4 provides improved security by using a signing key instead of your secret access key. Signature Version 4 is currently supported in all AWS Regions, whereas Signature Version 2 is only supported in Regions that were launched before January 2014. This update allows us to provide a more consistent experience across all Regions.

How Do I Ensure That I'm Using Signature Version 4, and What Updates Do I Need?

The signature version that is used to sign your requests is usually set by the tool or the SDK on the client side. By default, the latest versions of our AWS SDKs use Signature Version 4. For third-party software, contact the appropriate support team for your software to confirm what version you need. If you are sending direct REST calls to Amazon S3, you must modify your application to use the Signature Version 4 signing process.

For information about which version of the AWS SDKs to use when moving to Signature Version 4, see Moving from Signature Version 2 to Signature Version 4.

For information about using Signature Version 4 with the Amazon S3 REST API, see Authenticating Requests (AWS Signature Version 4) in the *Amazon Simple Storage Service API Reference*.

What Happens if I Don't Make Updates?

Requests signed with Signature Version 2 that are made after that will fail to authenticate with Amazon S3. Requesters will see errors stating that the request must be signed with Signature Version 4.

Should I Make Changes Even if I'm Using a Presigned URL That Requires Me to Sign for More than 7 Days?

If you are using a presigned URL that requires you to sign for more than 7 days, no action is currently needed. You can continue to use AWS Signature Version 2 to sign and authenticate the presigned URL. We will follow up and provide more details on how to migrate to Signature Version 4 for a presigned URL scenario.

More Info

- For more information about using Signature Version 4, see Signing AWS API Requests.

- View the list of changes between Signature Version 2 and Signature Version 4 in Changes in Signature Version 4.
- View the post AWS Signature Version 4 to replace AWS Signature Version 2 for signing Amazon S3 API requests in the AWS forums.
- If you have any questions or concerns, contact Support.

Moving from Signature Version 2 to Signature Version 4

If you currently use Signature Version 2 for Amazon S3 API request authentication, you should move to using Signature Version 4. Support is ending for Signature Version 2, as described in AWS Signature Version 2 turned off (deprecated) for Amazon S3.

For information about using Signature Version 4 with the Amazon S3 REST API, see Authenticating Requests (AWS Signature Version 4) in the *Amazon Simple Storage Service API Reference*.

The following table lists the SDKs with the necessary minimum version to use Signature Version 4 (SigV4). If you are using presigned URLs with the AWS Java, JavaScript (Node.js), or Python (Boto/CLI) SDKs, you must set the correct AWS Region and set Signature Version 4 in the client configuration. For information about setting `SigV4` in the client configuration, see Specifying the Signature Version in request authentication.

If you use this SDK/ Product	Upgrade to this SDK version	Code change needed to the client to use Sigv4?	Link to SDK documentation
AWS SDK for Java v1	Upgrade to Java 1.11.201+ or v2.	Yes	Specifying the Signature Version in request authentication
AWS SDK for Java v2	No SDK upgrade is needed.	No	AWS SDK for Java

If you use this SDK/ Product	Upgrade to this SDK version	Code change needed to the client to use Sigv4?	Link to SDK documentation
AWS SDK for .NET v1	Upgrade to 3.1.10 or later.	Yes	AWS SDK for .NET
AWS SDK for .NET v2	Upgrade to 3.1.10 or later.	No	AWS SDK for .NET v2
AWS SDK for .NET v3	Upgrade to 3.3.0.0 or later.	Yes	AWS SDK for .NET v3
AWS SDK for JavaScript v1	Upgrade to 2.68.0 or later.	Yes	AWS SDK for JavaScript
AWS SDK for JavaScript v2	Upgrade to 2.68.0 or later.	Yes	AWS SDK for JavaScript
AWS SDK for JavaScript v3	No action is currently needed. Upgrade to major version V3 in Q3 2019.	No	AWS SDK for JavaScript

If you use this SDK/ Product	Upgrade to this SDK version	Code change needed to the client to use Sigv4?	Link to SDK documentation
AWS SDK for PHP v1	Recommend to upgrade to the most recent version of PHP or, at least to v2.7.4 with the signature parameter set to v4 in the S3 client's configura tion.	Yes	AWS SDK for PHP
AWS SDK for PHP v2	Recommend to upgrade to the most recent version of PHP or, at least to v2.7.4 with the signature parameter set to v4 in the S3 client's configura tion.	No	AWS SDK for PHP

If you use this SDK/ Product	Upgrade to this SDK version	Code change needed to the client to use Sigv4?	Link to SDK documentation
AWS SDK for PHP v3	No SDK upgrade is needed.	No	AWS SDK for PHP
Boto2	Upgrade to Boto2 v2.49.0.	Yes	Boto 2 Upgrade
Boto3	Upgrade to 1.5.71 (Botocore), 1.4.6 (Boto3).	Yes	Boto 3 - AWS SDK for Python
AWS CLI	Upgrade to 1.11.108.	Yes	AWS Command Line Interface
AWS CLI v2 (preview)	No SDK upgrade is needed.	No	AWS Command Line Interface version 2
AWS SDK for Ruby v1	Upgrade to Ruby V3.	Yes	Ruby V3 for AWS
AWS SDK for Ruby v2	Upgrade to Ruby V3.	Yes	Ruby V3 for AWS
AWS SDK for Ruby v3	No SDK upgrade is needed.	No	Ruby V3 for AWS
Go	No SDK upgrade is needed.	No	AWS SDK for Go

If you use this SDK/ Product	Upgrade to this SDK version	Code change needed to the client to use Sigv4?	Link to SDK documentation
C++	No SDK upgrade is needed.	No	AWS SDK for C++

AWS Tools for Windows PowerShell or AWS Tools for PowerShell Core

If you are using module versions *earlier* than 3.3.0.0, you must upgrade to 3.3.0.0.

To get the version information, use the `Get-Module` cmdlet:

```
Get-Module -Name AWSPowershell
Get-Module -Name AWSPowershell.NetCore
```

To update the 3.3.0.0 version, use the `Update-Module` cmdlet:

```
Update-Module -Name AWSPowershell
Update-Module -Name AWSPowershell.NetCore
```

You can use presigned URLs that are valid for more than 7 days that you will send Signature Version 2 traffic on.

Getting Amazon S3 request IDs for AWS Support

Whenever you contact AWS Support because you've encountered errors or unexpected behavior in Amazon S3, you must provide the request IDs associated with the failed action. AWS Support uses these request IDs to help resolve the problems that you're experiencing.

Request IDs come in pairs, are returned in every response that Amazon S3 processes (even the erroneous ones), and can be accessed through verbose logs. There are a number of common

methods for getting your request IDs, including S3 server access logs and AWS CloudTrail events or data events.

After you've recovered these logs, copy and retain those two values, because you'll need them when you contact AWS Support. For information about contacting AWS Support, see Contact AWS or the AWS Support Documentation.

Topics

- Using the AWS CLI to obtain request IDs
- Using Windows PowerShell to obtain request IDs
- Using AWS CloudTrail data events to obtain request IDs
- Using S3 server access logging to obtain request IDs
- Using HTTP to obtain request IDs
- Using a web browser to obtain request IDs
- Using the AWS SDKs to obtain request IDs

Using the AWS CLI to obtain request IDs

To get your request IDs when using the AWS Command Line Interface (AWS CLI), add `--debug` to your command. For example you should see `x-amz-request-id` and `x-amz-id-2` in the debug log as shown below:

```
...
2025-04-30 14:35:28,572 - MainThread - botocore.parsers - DEBUG - Response headers:
 {'x-amz-id-2': 'a+zm50vDJH3LLmCiXvwEo0u0PtPS/qCJaBvB2ZMH9dzyzTiJhiLZkBFFoRfsPfOKztUKT/
garCI=', 'x-amz-request-id': 'N4NMN0MJ4VDFZMX9', 'Date': 'Wed, 30 Apr 2025 21:35:29
 GMT', 'Content-Type': 'application/xml', 'Transfer-Encoding': 'chunked', 'Server':
 'AmazonS3'}
...
```

Using Windows PowerShell to obtain request IDs

For information on recovering logs with Windows PowerShell, see the Response Logging in AWS Tools for Windows PowerShell in the *AWS Developer Tools Blog*.

Using AWS CloudTrail data events to obtain request IDs

An Amazon S3 bucket that is configured with CloudTrail data events to log S3 object-level API operations provides detailed information about actions that are taken by a user, role, or an AWS service in Amazon S3. You can identify S3 request IDs by querying CloudTrail events with Athena.

For more information, see Identifying Amazon S3 requests using CloudTrail in the *Amazon Simple Storage Service User Guide*.

Using S3 server access logging to obtain request IDs

An Amazon S3 bucket configured for S3 server access logging provides detailed records for each request that is made to the bucket. You can identify S3 request IDs by querying the server access logs using Athena.

For more information, see Querying access logs for requests by using Amazon Athena in the *Amazon Simple Storage Service User Guide*.

Using HTTP to obtain request IDs

You can obtain your request IDs, `x-amz-request-id` and `x-amz-id-2` by logging the bits of an HTTP request before it reaches the target application. There are a variety of third-party tools that can be used to recover verbose logs for HTTP requests. Choose one that you trust, and then run the tool to listen on the port that your Amazon S3 traffic travels on, as you send out another Amazon S3 HTTP request.

For HTTP requests, the pair of request IDs will look like the following:

```
x-amz-request-id: 79104EXAMPLEB723
x-amz-id-2: IOWQ4fDEXAMPLEQM+ey7N9WgVhSnQ6JEXAMPLEZb7hSQDASK+Jd1vEXAMPLEa3Km
```

> **Note**
>
> HTTPS requests are encrypted and hidden in most packet captures.

Using a web browser to obtain request IDs

Most web browsers have developer tools that you can use to view request headers.

For web browser-based requests that return an error, the pair of requests IDs will look like the following examples.

```
<Error><Code>AccessDenied</Code><Message>Access Denied</Message>
<RequestId>79104EXAMPLEB723</RequestId><HostId>IOWQ4fDEXAMPLEQM
+ey7N9WgVhSnQ6JEXAMPLEZb7hSQDASK+Jd1vEXAMPLEa3Km</HostId></Error>
```

To obtain the request ID pair from successful requests, use your browser's developer tools to look at the HTTP response headers.

Using the AWS SDKs to obtain request IDs

The following sections include information for configuring logging by using different AWS SDKs.

> **Note**
>
> Although you can enable verbose logging on every request and response, we don't recommend enabling logging in production systems, because large requests or responses can significantly slow down an application.

For AWS SDK requests, the pair of request IDs will look like the following:

```
Status Code: 403, AWS Service: Amazon S3, AWS Request ID: 79104EXAMPLEB723
AWS Error Code: AccessDenied  AWS Error Message: Access Denied
S3 Extended Request ID: IOWQ4fDEXAMPLEQM+ey7N9WgVhSnQ6JEXAMPLEZb7hSQDASK
+Jd1vEXAMPLEa3Km
```

C++

The type of logger and the verbosity are specified during the SDK initialization in the `SDKOptions` argument. The following example specifies the verbosity level as `LogLevel::Debug`.

The default logger will write to the filesystem and the file is named using the following convention `aws_sdk_YYYY-MM-DD-HH.log`. The logger creates a new file on the hour.

```
Aws::SDKOptions options;
options.loggingOptions.logLevel = Aws::Utils::Logging::LogLevel::Debug;
Aws::InitAPI(options);
```

```
// ...
Aws::ShutdownAPI(options);
```

For more information, see How do I turn on logging? in the *AWS SDK for C++ wiki on GitHub*.

Go

You can configure logging by using SDK for Go. For more information, see Logging in the *AWS SDK for Go v2 Developer Guide*.

Java

You can enable logging for specific requests or responses to catch and return only relevant headers. To do this, import the `com.amazonaws.services.s3.S3ResponseMetadata` class. Afterward, you can store the request in a variable before performing the actual request. To get the logged request or response, call `getCachedResponseMetadata(AmazonWebServiceRequest request).getRequestID()`.

```
PutObjectRequest req = new PutObjectRequest(bucketName, key, createSampleFile());
s3.putObject(req);
S3ResponseMetadata md = s3.getCachedResponseMetadata(req);
System.out.println("Host ID: " + md.getHostId() + " RequestID: " +
 md.getRequestId());
```

Alternatively, you can use verbose logging of every Java request and response. For more information, see Verbose Wire Logging in the *AWS SDK for Java Developer Guide*.

JavaScript

The AWS SDK for JavaScript has a built-in logger so you can log API calls you make with it. To turn on the logger and print log entries in the console, add the following statement to your code:

```
AWS.config.logger = console;
```

For more information, see Logging AWS SDK for JavaScript Calls in the *AWS SDK for JavaScript Developer Guide*.

Kotlin

With the AWS SDK for Kotlin, you can specify log mode for wire-level messages using code or environment settings. You can set log mode for HTTP requests and HTTP responses.

To opt into additional logging, set the `logMode` property when you construct a service client:

```
import aws.smithy.kotlin.runtime.client.LogMode

// ...

val client = DynamoDbClient {
    // ...
    logMode = LogMode.LogRequestWithBody + LogMode.LogResponse
}
```

Alternatively, you can set log mode using an environment variable:

```
export SDK_LOG_MODE=LogRequestWithBody|LogResponse
```

For more information, see Logging in the *AWS SDK for Kotlin Developer Guide*.

.NET

You can configure logging with the SDK for .NET by using the built-in `System.Diagnostics` logging tool. For more information, see the Logging with the SDK for .NET *AWS Developer Blog* post.

> **Note**
>
> By default, the returned log contains only error information. To get the request IDs, the config file must have `AWSLogMetrics` (and optionally, `AWSResponseLogging`) added.

PHP

You can get debug information, including the data sent over the wire, by setting the debug option to `true` in a client constructor.

```
$s3Client = new Aws\S3\S3Client([
    'region'  => 'us-standard',
    'version' => '2006-03-01',
    'debug'   => true
]);
```

For more information, see How can I see what data is sent over the wire? in the *AWS SDK for PHP Developer Guide*.

Python (Boto3)

With the AWS SDK for Python (Boto3), you can log specific responses. You can use this feature to capture only the relevant headers. The following code shows how to log parts of the response to a file:

```
import logging
import boto3
logging.basicConfig(filename='logfile.txt', level=logging.INFO)
logger = logging.getLogger(__name__)
s3 = boto3.resource('s3')
response = s3.Bucket(bucket_name).Object(object_key).put()
logger.info("HTTPStatusCode: %s", response['ResponseMetadata']['HTTPStatusCode'])
logger.info("RequestId: %s", response['ResponseMetadata']['RequestId'])
logger.info("HostId: %s", response['ResponseMetadata']['HostId'])
logger.info("Date: %s", response['ResponseMetadata']['HTTPHeaders']['date'])
```

You can also catch exceptions and log relevant information when an exception is raised. For more information, see Discerning useful information from error responses in the *AWS SDK for Python (Boto) API Reference*.

Additionally, you can configure Boto3 to output verbose debugging logs by using the following code:

```
import logging
import boto3
boto3.set_stream_logger('', logging.DEBUG)
```

For more information, see set_stream_logger in the *AWS SDK for Python (Boto) API Reference*.

Ruby

You can get your request IDs using the SDK for Ruby Version 3. You can enable HTTP wire logging in your client using the following code:

```
s3 = Aws::S3::Client.new(http_wire_trace: true)
```

> **Note**
>
> Wire logging can include sensitive information, such as your access key ID. Sensitive information should be sanitized before sharing it with AWS Support.

You can also find the request ID of the request context object in the request response or error:

```
# Finding the request ID from an error:
begin
  s3.put_object(bucket: 'bucket', key: 'key', body: 'test')
rescue Aws::S3::Errors::ServiceError => e
  puts e.context[:request_id]
  puts e.context[:s3_host_id]
end

# Finding the request ID from a successful call:
resp = s3.put_object(bucket: 'bucket', key: 'key', body: 'test')
puts resp.context[:request_id]
puts resp.context[:s3_host_id]
```

For more information, see Debugging using wire trace information from an AWS SDK for Ruby client in the *AWS SDK for Ruby Developer Guide*.

Rust

To enable logging, add the `tracing-subscriber` crate and initialize it in your Rust application.

Add the tracing library to your `Cargo.toml` file:

```
tracing-subscriber = { version = "0.3", features = ["env-filter"] }
```

Then, in your Rust code, initialize the logger in the main function before you call any SDK operation:

```
tracing_subscriber::fmt::init();
```

For more information, see Configuring and using logging in the AWS SDK for Rust in the *AWS SDK for Rust Developer Guide*.

Supported Amazon S3 object-level API operations for S3 Tables

The following table includes supported S3 object-level API operations and corresponding headers for S3 Tables. For a list of Amazon S3 Tables APIs, see Amazon S3 Tables. For more information about Amazon S3 Tables, see Working with Amazon S3 Tables and table buckets in the *Amazon S3 User Guide*.

Object-level API	Supported headers	Notes
AbortMultipartUpload	`x-amz-expected-bucket-owner`	None
CompleteMultipartUpload	`x-amz-checksum-crc32`	None
	`x-amz-checksum-crc32c`	None
	`x-amz-checksum-sha1`	None
	`x-amz-checksum-sha256`	None
	`x-amz-expected-bucket-owner`	None
	`If-Match`	None
	`If-None-Match`	None
CreateMultipartUpload	`x-amz-acl: ACL`	For S3 Tables, the default value is `bucket-owner-full-control` and it can't be changed.

Object-level API	Supported headers	Notes
	`Cache-Control`	None
	`Content-Disposition`	None
	`Content-Encoding`	None
	`Content-Language`	None
	`Content-Type`	None
	`Expires`	None
	`x-amz-checksum-algorithm`	None
	`x-amz-storage-class`	For S3 Tables, the default value is `STANDARD` and it can't be changed.
	`x-amz-server-side-encryption`	For S3 Tables, the default value is (`SSE-S3`) (`AES256`) and it can't be changed.
`GetObject`	`If-Match`	None
	`If-Modified-Since`	None
	`If-None-Match`	None
	`If-Unmodified-Since`	None
	`Range`	None

Object-level API	Supported headers	Notes
	`x-amz-expected-bucket-owner`	None
	`x-amz-checksum-mode`	None
HeadObject	`If-Match`	None
	`If-Modified-Since`	None
	`If-None-Match`	None
	`If-Unmodified-Since`	None
	`Range`	None
	`x-amz-checksum-mode`	None
	`x-amz-expected-bucket-owner`	None
ListParts	`x-amz-expected-bucket-owner`	None
PutObject	`x-amz-acl: ACL`	For S3 Tables, the default value is `bucket-owner-full-control` and it can't be changed.
	`Cache-Control`	None
	`Content-Disposition`	None

Object-level API	Supported headers	Notes
	`Content-Encoding`	None
	`Content-Language`	None
	`Content-Length`	None
	`Content-MD5`	None
	`Content-Type`	None
	`x-amz-sdk-checksum-algorithm`	None
	`x-amz-checksum-crc32`	None
	`x-amz-checksum-crc32c`	None
	`x-amz-checksum-sha1`	None
	`x-amz-checksum-sha256`	None
	`Expires`	None
	`If-None-Match`	None
	`x-amz-expected-bucket-owner`	None
	`x-amz-storage-class`	For S3 Tables, the default value is `STANDARD` and it can't be changed.

Object-level API	Supported headers	Notes
	`x-amz-server-side-encryption`	For S3 Tables, the default value is (`SSE-S3`) (`AES256`) and it can't be changed.
UploadPart	`Content-Length`	None
	`Content-MD5`	None
	`x-amz-checksum-crc32`	None
	`x-amz-checksum-crc32c`	None
	`x-amz-checksum-sha1`	None
	`x-amz-checksum-sha256`	None
	`x-amz-expected-bucket-owner`	None

Code examples for Amazon S3 using AWS SDKs

The following code examples show how to use Amazon S3 with an AWS software development kit (SDK).

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

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Code examples for Amazon S3 using AWS SDKs

The following code examples show how to use Amazon S3 with an AWS software development kit (SDK).

Basics are code examples that show you how to perform the essential operations within a service.

Actions are code excerpts from larger programs and must be run in context. While actions show you how to call individual service functions, you can see actions in context in their related scenarios.

Scenarios are code examples that show you how to accomplish specific tasks by calling multiple functions within a service or combined with other AWS services.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Get started

Hello Amazon S3

The following code examples show how to get started using Amazon S3.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Code for the CMakeLists.txt CMake file.

```
# Set the minimum required version of CMake for this project.
cmake_minimum_required(VERSION 3.13)

# Set the AWS service components used by this project.
set(SERVICE_COMPONENTS s3)

# Set this project's name.
project("hello_s3")

# Set the C++ standard to use to build this target.
# At least C++ 11 is required for the AWS SDK for C++.
set(CMAKE_CXX_STANDARD 11)

# Use the MSVC variable to determine if this is a Windows build.
set(WINDOWS_BUILD ${MSVC})

if (WINDOWS_BUILD) # Set the location where CMake can find the installed
 libraries for the AWS SDK.
    string(REPLACE ";" "/aws-cpp-sdk-all;" SYSTEM_MODULE_PATH
 "${CMAKE_SYSTEM_PREFIX_PATH}/aws-cpp-sdk-all")
    list(APPEND CMAKE_PREFIX_PATH ${SYSTEM_MODULE_PATH})
endif ()

# Find the AWS SDK for C++ package.
find_package(AWSSDK REQUIRED COMPONENTS ${SERVICE_COMPONENTS})

if (WINDOWS_BUILD AND AWSSDK_INSTALL_AS_SHARED_LIBS)
    # Copy relevant AWS SDK for C++ libraries into the current binary directory
 for running and debugging.

    # set(BIN_SUB_DIR "/Debug") # if you are building from the command line you
 may need to uncomment this
    # and set the proper subdirectory to the executables' location.

    AWSSDK_CPY_DYN_LIBS(SERVICE_COMPONENTS ""
 ${CMAKE_CURRENT_BINARY_DIR}${BIN_SUB_DIR})
endif ()

add_executable(${PROJECT_NAME}
        hello_s3.cpp)

target_link_libraries(${PROJECT_NAME}
        ${AWSSDK_LINK_LIBRARIES})
```

Code for the hello_s3.cpp source file.

```
#include <aws/core/Aws.h>
#include <aws/s3/S3Client.h>
#include <iostream>
#include <aws/core/auth/AWSCredentialsProviderChain.h>
using namespace Aws;
using namespace Aws::Auth;

/*
 *  A "Hello S3" starter application which initializes an Amazon Simple Storage
 Service (Amazon S3) client
 *  and lists the Amazon S3 buckets in the selected region.
 *
 *  main function
 *
 *  Usage: 'hello_s3'
 *
 */

int main(int argc, char **argv) {
    Aws::SDKOptions options;
    // Optionally change the log level for debugging.
//   options.loggingOptions.logLevel = Utils::Logging::LogLevel::Debug;
    Aws::InitAPI(options); // Should only be called once.
    int result = 0;
    {
        Aws::Client::ClientConfiguration clientConfig;
        // Optional: Set to the AWS Region (overrides config file).
        // clientConfig.region = "us-east-1";

        // You don't normally have to test that you are authenticated. But the
 S3 service permits anonymous requests, thus the s3Client will return "success"
 and 0 buckets even if you are unauthenticated, which can be confusing to a new
 user.
        auto provider =
 Aws::MakeShared<DefaultAWSCredentialsProviderChain>("alloc-tag");
        auto creds = provider->GetAWSCredentials();
        if (creds.IsEmpty()) {
            std::cerr << "Failed authentication" << std::endl;
        }
```

```
        Aws::S3::S3Client s3Client(clientConfig);
        auto outcome = s3Client.ListBuckets();

        if (!outcome.IsSuccess()) {
            std::cerr << "Failed with error: " << outcome.GetError() <<
 std::endl;
            result = 1;
        } else {
            std::cout << "Found " << outcome.GetResult().GetBuckets().size()
                      << " buckets\n";
            for (auto &bucket: outcome.GetResult().GetBuckets()) {
                std::cout << bucket.GetName() << std::endl;
            }
        }
    }

    Aws::ShutdownAPI(options); // Should only be called once.
    return result;
}
```

- For API details, see ListBuckets in *AWS SDK for C++ API Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
package main

import (
 "context"
 "errors"
 "fmt"
```

```
 "github.com/aws/aws-sdk-go-v2/config"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/smithy-go"
)

// main uses the AWS SDK for Go V2 to create an Amazon Simple Storage Service
// (Amazon S3) client and list up to 10 buckets in your account.
// This example uses the default settings specified in your shared credentials
// and config files.
func main() {
 ctx := context.Background()
 sdkConfig, err := config.LoadDefaultConfig(ctx)
 if err != nil {
  fmt.Println("Couldn't load default configuration. Have you set up your AWS
 account?")
  fmt.Println(err)
  return
 }
 s3Client := s3.NewFromConfig(sdkConfig)
 count := 10
 fmt.Printf("Let's list up to %v buckets for your account.\n", count)
 result, err := s3Client.ListBuckets(ctx, &s3.ListBucketsInput{})
 if err != nil {
  var ae smithy.APIError
  if errors.As(err, &ae) && ae.ErrorCode() == "AccessDenied" {
   fmt.Println("You don't have permission to list buckets for this account.")
  } else {
   fmt.Printf("Couldn't list buckets for your account. Here's why: %v\n", err)
  }
  return
 }
 if len(result.Buckets) == 0 {
  fmt.Println("You don't have any buckets!")
 } else {
  if count > len(result.Buckets) {
   count = len(result.Buckets)
  }
  for _, bucket := range result.Buckets[:count] {
   fmt.Printf("\t%v\n", *bucket.Name)
  }
 }
}
```

- For API details, see ListBuckets in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.Bucket;
import software.amazon.awssdk.services.s3.model.ListBucketsResponse;
import software.amazon.awssdk.services.s3.model.S3Exception;
import java.util.List;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */
public class HelloS3 {
    public static void main(String[] args) {
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        listBuckets(s3);
    }

    /**
```

```
     * Lists all the S3 buckets associated with the provided AWS S3 client.
     *
     * @param s3 the S3Client instance used to interact with the AWS S3 service
     */
    public static void listBuckets(S3Client s3) {
        try {
            ListBucketsResponse response = s3.listBuckets();
            List<Bucket> bucketList = response.buckets();
            bucketList.forEach(bucket -> {
                System.out.println("Bucket Name: " + bucket.name());
            });

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }
}
```

- For API details, see ListBuckets in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import {
  paginateListBuckets,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * List the S3 buckets in your configured AWS account.
 */
export const helloS3 = async () => {
```

```
  // When no region or credentials are provided, the SDK will use the
  // region and credentials from the local AWS config.
  const client = new S3Client({});

  try {
    /**
     * @type { import("@aws-sdk/client-s3").Bucket[] }
     */
    const buckets = [];

    for await (const page of paginateListBuckets({ client }, {})) {
      buckets.push(...page.Buckets);
    }
    console.log("Buckets: ");
    console.log(buckets.map((bucket) => bucket.Name).join("\n"));
    return buckets;
  } catch (caught) {
    // ListBuckets does not throw any modeled errors. Any error caught
    // here will be something generic like `AccessDenied`.
    if (caught instanceof S3ServiceException) {
      console.error(`${caught.name}: ${caught.message}`);
    } else {
      // Something besides S3 failed.
      throw caught;
    }
  }
};
```

- For API details, see ListBuckets in *AWS SDK for JavaScript API Reference*.

PHP

SDK for PHP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
use Aws\S3\S3Client;
```

```
$client = new S3Client(['region' => 'us-west-2']);
$results = $client->listBuckets();
var_dump($results);
```

- For API details, see ListBuckets in *AWS SDK for PHP API Reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import boto3


def hello_s3():
    """
    Use the AWS SDK for Python (Boto3) to create an Amazon Simple Storage Service
    (Amazon S3) client and list the buckets in your account.
    This example uses the default settings specified in your shared credentials
    and config files.
    """

    # Create an S3 client.
    s3_client = boto3.client("s3")

    print("Hello, Amazon S3! Let's list your buckets:")

    # Create a paginator for the list_buckets operation.
    paginator = s3_client.get_paginator("list_buckets")

    # Use the paginator to get a list of all buckets.
    response_iterator = paginator.paginate(
        PaginationConfig={
            "PageSize": 50,  # Adjust PageSize as needed.
            "StartingToken": None,
```

```
        }
    )

    # Iterate through the pages of the response.
    buckets_found = False
    for page in response_iterator:
        if "Buckets" in page and page["Buckets"]:
            buckets_found = True
            for bucket in page["Buckets"]:
                print(f"\t{bucket['Name']}")

    if not buckets_found:
        print("No buckets found!")


if __name__ == "__main__":
    hello_s3()
```

- For API details, see ListBuckets in *AWS SDK for Python (Boto3) API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
# frozen_string_literal: true

# S3Manager is a class responsible for managing S3 operations
# such as listing all S3 buckets in the current AWS account.
class S3Manager
  def initialize(client)
    @client = client
    @logger = Logger.new($stdout)
  end
```

```
  # Lists and prints all S3 buckets in the current AWS account.
  def list_buckets
    @logger.info('Here are the buckets in your account:')

    response = @client.list_buckets

    if response.buckets.empty?
      @logger.info("You don't have any S3 buckets yet.")
    else
      response.buckets.each do |bucket|
        @logger.info("- #{bucket.name}")
      end
    end
  rescue Aws::Errors::ServiceError => e
    @logger.error("Encountered an error while listing buckets: #{e.message}")
  end
end

if $PROGRAM_NAME == __FILE__
  s3_client = Aws::S3::Client.new
  manager = S3Manager.new(s3_client)
  manager.list_buckets
end
```

- For API details, see ListBuckets in *AWS SDK for Ruby API Reference*.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
/// S3 Hello World Example using the AWS SDK for Rust.
///
/// This example lists the objects in a bucket, uploads an object to that bucket,
```

```
/// and then retrieves the object and prints some S3 information about the
 object.
/// This shows a number of S3 features, including how to use built-in paginators
/// for large data sets.
///
/// # Arguments
///
/// * `client` - an S3 client configured appropriately for the environment.
/// * `bucket` - the bucket name that the object will be uploaded to. Must be
 present in the region the `client` is configured to use.
/// * `filename` - a reference to a path that will be read and uploaded to S3.
/// * `key` - the string key that the object will be uploaded as inside the
 bucket.
async fn list_bucket_and_upload_object(
    client: &aws_sdk_s3::Client,
    bucket: &str,
    filepath: &Path,
    key: &str,
) -> Result<(), S3ExampleError> {
    // List the buckets in this account
    let mut objects = client
        .list_objects_v2()
        .bucket(bucket)
        .into_paginator()
        .send();

    println!("key\tetag\tlast_modified\tstorage_class");
    while let Some(Ok(object)) = objects.next().await {
        for item in object.contents() {
            println!(
                "{}\t{}\t{}\t{}",
                item.key().unwrap_or_default(),
                item.e_tag().unwrap_or_default(),
                item.last_modified()
                    .map(|lm| format!("{lm}"))
                    .unwrap_or_default(),
                item.storage_class()
                    .map(|sc| format!("{sc}"))
                    .unwrap_or_default()
            );
        }
    }
```

```
    // Prepare a ByteStream around the file, and upload the object using that
 ByteStream.
    let body = aws_sdk_s3::primitives::ByteStream::from_path(filepath)
        .await
        .map_err(|err| {
            S3ExampleError::new(format!(
                "Failed to create bytestream for {filepath:?} ({err:?})"
            ))
        })?;
    let resp = client
        .put_object()
        .bucket(bucket)
        .key(key)
        .body(body)
        .send()
        .await?;

    println!(
        "Upload success. Version: {:?}",
        resp.version_id()
            .expect("S3 Object upload missing version ID")
    );

    // Retrieve the just-uploaded object.
    let resp = client.get_object().bucket(bucket).key(key).send().await?;
    println!("etag: {}", resp.e_tag().unwrap_or("(missing)"));
    println!("version: {}", resp.version_id().unwrap_or("(missing)"));

    Ok(())
}
```

S3ExampleError utilities.

```
/// S3ExampleError provides a From<T: ProvideErrorMetadata> impl to extract
/// client-specific error details. This serves as a consistent backup to handling
/// specific service errors, depending on what is needed by the scenario.
/// It is used throughout the code examples for the AWS SDK for Rust.
#[derive(Debug)]
pub struct S3ExampleError(String);
impl S3ExampleError {
    pub fn new(value: impl Into<String>) -> Self {
        S3ExampleError(value.into())
```

```
    }

    pub fn add_message(self, message: impl Into<String>) -> Self {
        S3ExampleError(format!("{}: {}", message.into(), self.0))
    }
}

impl<T: aws_sdk_s3::error::ProvideErrorMetadata> From<T> for S3ExampleError {
    fn from(value: T) -> Self {
        S3ExampleError(format!(
            "{}: {}",
            value
                .code()
                .map(String::from)
                .unwrap_or("unknown code".into()),
            value
                .message()
                .map(String::from)
                .unwrap_or("missing reason".into()),
        ))
    }
}

impl std::error::Error for S3ExampleError {}

impl std::fmt::Display for S3ExampleError {
    fn fmt(&self, f: &mut std::fmt::Formatter<'_>) -> std::fmt::Result {
        write!(f, "{}", self.0)
    }
}
```

- For API details, see ListBuckets in *AWS SDK for Rust API reference*.

Code examples

- Basic examples for Amazon S3 using AWS SDKs
  - Hello Amazon S3
  - Learn the basics of Amazon S3 with an AWS SDK
  - Actions for Amazon S3 using AWS SDKs
    - Use AbortMultipartUpload with an AWS SDK or CLI

- Use CompleteMultipartUpload with an AWS SDK or CLI
- Use CopyObject with an AWS SDK or CLI
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- Scenarios for Amazon S3 using AWS SDKs
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  - Convert text to speech and back to text using an AWS SDK
  - Create a presigned URL for Amazon S3 using an AWS SDK
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  - A web page that lists Amazon S3 objects using an AWS SDK
  - Create an Amazon Textract explorer application
  - Delete all objects in a given Amazon S3 bucket using an AWS SDK
  - Delete incomplete multipart uploads to Amazon S3 using an AWS SDK
  - Detect PPE in images with Amazon Rekognition using an AWS SDK

  - Detect entities in text extracted from an image using an AWS SDK

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- Download S3 'directories' from an Amazon Simple Storage Service (Amazon S3) bucket
- Download all objects in an Amazon Simple Storage Service (Amazon S3) bucket to a local directory
- Download a stream of unknown size from an Amazon S3 object using an AWS SDK
- Get an Amazon S3 object from a Multi-Region Access Point by using an AWS SDK
- Get an object from an Amazon S3 bucket using an AWS SDK, specifying an If-Modified-Since header
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- Manage versioned Amazon S3 objects in batches with a Lambda function using an AWS SDK
- Parse Amazon S3 URIs using an AWS SDK
- Perform a multipart copy of an Amazon S3 object using an AWS SDK
- Receive and process Amazon S3 event notifications by using an AWS SDK
- Save EXIF and other image information using an AWS SDK
- Send S3 event notifications to Amazon EventBridge using an AWS SDK
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- Recursively upload a local directory to an Amazon Simple Storage Service (Amazon S3) bucket
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- Work with Amazon S3 object integrity features using an AWS SDK

- Work with Amazon S3 versioned objects using an AWS SDK
- Serverless examples for Amazon S3
  - Invoke a Lambda function from an Amazon S3 trigger

Basic examples for Amazon S3 using AWS SDKs

The following code examples show how to use the basics of Amazon Simple Storage Service with AWS SDKs.

Examples

- Hello Amazon S3
- Learn the basics of Amazon S3 with an AWS SDK
- Actions for Amazon S3 using AWS SDKs
  - Use AbortMultipartUpload with an AWS SDK or CLI
  - Use CompleteMultipartUpload with an AWS SDK or CLI
  - Use CopyObject with an AWS SDK or CLI
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- Use SelectObjectContent with an AWS SDK or CLI

- Use UploadPart with an AWS SDK or CLI

- Use UploadPartCopy with an AWS SDK or CLI

Hello Amazon S3

The following code examples show how to get started using Amazon S3.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Code for the CMakeLists.txt CMake file.

```
# Set the minimum required version of CMake for this project.
cmake_minimum_required(VERSION 3.13)

# Set the AWS service components used by this project.
set(SERVICE_COMPONENTS s3)

# Set this project's name.
project("hello_s3")

# Set the C++ standard to use to build this target.
# At least C++ 11 is required for the AWS SDK for C++.
set(CMAKE_CXX_STANDARD 11)

# Use the MSVC variable to determine if this is a Windows build.
set(WINDOWS_BUILD ${MSVC})

if (WINDOWS_BUILD) # Set the location where CMake can find the installed
 libraries for the AWS SDK.
    string(REPLACE ";" "/aws-cpp-sdk-all;" SYSTEM_MODULE_PATH
 "${CMAKE_SYSTEM_PREFIX_PATH}/aws-cpp-sdk-all")
    list(APPEND CMAKE_PREFIX_PATH ${SYSTEM_MODULE_PATH})
endif ()

# Find the AWS SDK for C++ package.
```

```
find_package(AWSSDK REQUIRED COMPONENTS ${SERVICE_COMPONENTS})

if (WINDOWS_BUILD AND AWSSDK_INSTALL_AS_SHARED_LIBS)
    # Copy relevant AWS SDK for C++ libraries into the current binary directory
 for running and debugging.

    # set(BIN_SUB_DIR "/Debug") # if you are building from the command line you
 may need to uncomment this
    # and set the proper subdirectory to the executables' location.

    AWSSDK_CPY_DYN_LIBS(SERVICE_COMPONENTS ""
 ${CMAKE_CURRENT_BINARY_DIR}${BIN_SUB_DIR})
endif ()

add_executable(${PROJECT_NAME}
        hello_s3.cpp)

target_link_libraries(${PROJECT_NAME}
        ${AWSSDK_LINK_LIBRARIES})
```

Code for the hello_s3.cpp source file.

```
#include <aws/core/Aws.h>
#include <aws/s3/S3Client.h>
#include <iostream>
#include <aws/core/auth/AWSCredentialsProviderChain.h>
using namespace Aws;
using namespace Aws::Auth;

/*
 *  A "Hello S3" starter application which initializes an Amazon Simple Storage
 Service (Amazon S3) client
 *  and lists the Amazon S3 buckets in the selected region.
 *
 *  main function
 *
 *  Usage: 'hello_s3'
 *
 */

int main(int argc, char **argv) {
    Aws::SDKOptions options;
```

```
    // Optionally change the log level for debugging.
//   options.loggingOptions.logLevel = Utils::Logging::LogLevel::Debug;
    Aws::InitAPI(options); // Should only be called once.
    int result = 0;
    {
        Aws::Client::ClientConfiguration clientConfig;
        // Optional: Set to the AWS Region (overrides config file).
        // clientConfig.region = "us-east-1";

        // You don't normally have to test that you are authenticated. But the
 S3 service permits anonymous requests, thus the s3Client will return "success"
 and 0 buckets even if you are unauthenticated, which can be confusing to a new
 user.
        auto provider =
 Aws::MakeShared<DefaultAWSCredentialsProviderChain>("alloc-tag");
        auto creds = provider->GetAWSCredentials();
        if (creds.IsEmpty()) {
            std::cerr << "Failed authentication" << std::endl;
        }

        Aws::S3::S3Client s3Client(clientConfig);
        auto outcome = s3Client.ListBuckets();

        if (!outcome.IsSuccess()) {
            std::cerr << "Failed with error: " << outcome.GetError() <<
 std::endl;
            result = 1;
        } else {
            std::cout << "Found " << outcome.GetResult().GetBuckets().size()
                      << " buckets\n";
            for (auto &bucket: outcome.GetResult().GetBuckets()) {
                std::cout << bucket.GetName() << std::endl;
            }
        }
    }

    Aws::ShutdownAPI(options); // Should only be called once.
    return result;
}
```

- For API details, see ListBuckets in *AWS SDK for C++ API Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
package main

import (
 "context"
 "errors"
 "fmt"

 "github.com/aws/aws-sdk-go-v2/config"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/smithy-go"
)

// main uses the AWS SDK for Go V2 to create an Amazon Simple Storage Service
// (Amazon S3) client and list up to 10 buckets in your account.
// This example uses the default settings specified in your shared credentials
// and config files.
func main() {
 ctx := context.Background()
 sdkConfig, err := config.LoadDefaultConfig(ctx)
 if err != nil {
  fmt.Println("Couldn't load default configuration. Have you set up your AWS
 account?")
  fmt.Println(err)
  return
 }
 s3Client := s3.NewFromConfig(sdkConfig)
 count := 10
 fmt.Printf("Let's list up to %v buckets for your account.\n", count)
 result, err := s3Client.ListBuckets(ctx, &s3.ListBucketsInput{})
 if err != nil {
  var ae smithy.APIError
```

```
  if errors.As(err, &ae) && ae.ErrorCode() == "AccessDenied" {
   fmt.Println("You don't have permission to list buckets for this account.")
  } else {
   fmt.Printf("Couldn't list buckets for your account. Here's why: %v\n", err)
  }
  return
 }
 if len(result.Buckets) == 0 {
  fmt.Println("You don't have any buckets!")
 } else {
  if count > len(result.Buckets) {
   count = len(result.Buckets)
  }
  for _, bucket := range result.Buckets[:count] {
   fmt.Printf("\t%v\n", *bucket.Name)
  }
 }
}
```

- For API details, see ListBuckets in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.Bucket;
import software.amazon.awssdk.services.s3.model.ListBucketsResponse;
import software.amazon.awssdk.services.s3.model.S3Exception;
import java.util.List;

/**
```

```
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */
public class HelloS3 {
    public static void main(String[] args) {
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        listBuckets(s3);
    }

    /**
     * Lists all the S3 buckets associated with the provided AWS S3 client.
     *
     * @param s3 the S3Client instance used to interact with the AWS S3 service
     */
    public static void listBuckets(S3Client s3) {
        try {
            ListBucketsResponse response = s3.listBuckets();
            List<Bucket> bucketList = response.buckets();
            bucketList.forEach(bucket -> {
                System.out.println("Bucket Name: " + bucket.name());
            });

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }
}
```

- For API details, see ListBuckets in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import {
  paginateListBuckets,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * List the S3 buckets in your configured AWS account.
 */
export const helloS3 = async () => {
  // When no region or credentials are provided, the SDK will use the
  // region and credentials from the local AWS config.
  const client = new S3Client({});

  try {
    /**
     * @type { import("@aws-sdk/client-s3").Bucket[] }
     */
    const buckets = [];

    for await (const page of paginateListBuckets({ client }, {})) {
      buckets.push(...page.Buckets);
    }
    console.log("Buckets: ");
    console.log(buckets.map((bucket) => bucket.Name).join("\n"));
    return buckets;
  } catch (caught) {
    // ListBuckets does not throw any modeled errors. Any error caught
    // here will be something generic like `AccessDenied`.
    if (caught instanceof S3ServiceException) {
      console.error(`${caught.name}: ${caught.message}`);
    } else {
```

```
      // Something besides S3 failed.
      throw caught;
    }
  }
};
```

- For API details, see ListBuckets in *AWS SDK for JavaScript API Reference*.

PHP

SDK for PHP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
use Aws\S3\S3Client;

$client = new S3Client(['region' => 'us-west-2']);
$results = $client->listBuckets();
var_dump($results);
```

- For API details, see ListBuckets in *AWS SDK for PHP API Reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import boto3
```

```
def hello_s3():
    """
    Use the AWS SDK for Python (Boto3) to create an Amazon Simple Storage Service
    (Amazon S3) client and list the buckets in your account.
    This example uses the default settings specified in your shared credentials
    and config files.
    """

    # Create an S3 client.
    s3_client = boto3.client("s3")

    print("Hello, Amazon S3! Let's list your buckets:")

    # Create a paginator for the list_buckets operation.
    paginator = s3_client.get_paginator("list_buckets")

    # Use the paginator to get a list of all buckets.
    response_iterator = paginator.paginate(
        PaginationConfig={
            "PageSize": 50,  # Adjust PageSize as needed.
            "StartingToken": None,
        }
    )

    # Iterate through the pages of the response.
    buckets_found = False
    for page in response_iterator:
        if "Buckets" in page and page["Buckets"]:
            buckets_found = True
            for bucket in page["Buckets"]:
                print(f"\t{bucket['Name']}")

    if not buckets_found:
        print("No buckets found!")


if __name__ == "__main__":
    hello_s3()
```

- For API details, see ListBuckets in *AWS SDK for Python (Boto3) API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
# frozen_string_literal: true

# S3Manager is a class responsible for managing S3 operations
# such as listing all S3 buckets in the current AWS account.
class S3Manager
  def initialize(client)
    @client = client
    @logger = Logger.new($stdout)
  end

  # Lists and prints all S3 buckets in the current AWS account.
  def list_buckets
    @logger.info('Here are the buckets in your account:')

    response = @client.list_buckets

    if response.buckets.empty?
      @logger.info("You don't have any S3 buckets yet.")
    else
      response.buckets.each do |bucket|
        @logger.info("- #{bucket.name}")
      end
    end
  rescue Aws::Errors::ServiceError => e
    @logger.error("Encountered an error while listing buckets: #{e.message}")
  end
end

if $PROGRAM_NAME == __FILE__
  s3_client = Aws::S3::Client.new
  manager = S3Manager.new(s3_client)
```

```
  manager.list_buckets
end
```

- For API details, see ListBuckets in *AWS SDK for Ruby API Reference*.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
/// S3 Hello World Example using the AWS SDK for Rust.
///
/// This example lists the objects in a bucket, uploads an object to that bucket,
/// and then retrieves the object and prints some S3 information about the
 object.
/// This shows a number of S3 features, including how to use built-in paginators
/// for large data sets.
///
/// # Arguments
///
/// * `client` - an S3 client configured appropriately for the environment.
/// * `bucket` - the bucket name that the object will be uploaded to. Must be
 present in the region the `client` is configured to use.
/// * `filename` - a reference to a path that will be read and uploaded to S3.
/// * `key` - the string key that the object will be uploaded as inside the
 bucket.
async fn list_bucket_and_upload_object(
    client: &aws_sdk_s3::Client,
    bucket: &str,
    filepath: &Path,
    key: &str,
) -> Result<(), S3ExampleError> {
    // List the buckets in this account
    let mut objects = client
        .list_objects_v2()
```

```
        .bucket(bucket)
        .into_paginator()
        .send();

    println!("key\tetag\tlast_modified\tstorage_class");
    while let Some(Ok(object)) = objects.next().await {
        for item in object.contents() {
            println!(
                "{}\t{}\t{}\t{}",
                item.key().unwrap_or_default(),
                item.e_tag().unwrap_or_default(),
                item.last_modified()
                    .map(|lm| format!("{lm}"))
                    .unwrap_or_default(),
                item.storage_class()
                    .map(|sc| format!("{sc}"))
                    .unwrap_or_default()
            );
        }
    }

    // Prepare a ByteStream around the file, and upload the object using that
ByteStream.
    let body = aws_sdk_s3::primitives::ByteStream::from_path(filepath)
        .await
        .map_err(|err| {
            S3ExampleError::new(format!(
                "Failed to create bytestream for {filepath:?} ({err:?})"
            ))
        })?;
    let resp = client
        .put_object()
        .bucket(bucket)
        .key(key)
        .body(body)
        .send()
        .await?;

    println!(
        "Upload success. Version: {:?}",
        resp.version_id()
            .expect("S3 Object upload missing version ID")
    );
```

```
    // Retrieve the just-uploaded object.
    let resp = client.get_object().bucket(bucket).key(key).send().await?;
    println!("etag: {}", resp.e_tag().unwrap_or("(missing)"));
    println!("version: {}", resp.version_id().unwrap_or("(missing)"));

    Ok(())
}
```

S3ExampleError utilities.

```
/// S3ExampleError provides a From<T: ProvideErrorMetadata> impl to extract
/// client-specific error details. This serves as a consistent backup to handling
/// specific service errors, depending on what is needed by the scenario.
/// It is used throughout the code examples for the AWS SDK for Rust.
#[derive(Debug)]
pub struct S3ExampleError(String);
impl S3ExampleError {
    pub fn new(value: impl Into<String>) -> Self {
        S3ExampleError(value.into())
    }

    pub fn add_message(self, message: impl Into<String>) -> Self {
        S3ExampleError(format!("{}: {}", message.into(), self.0))
    }
}

impl<T: aws_sdk_s3::error::ProvideErrorMetadata> From<T> for S3ExampleError {
    fn from(value: T) -> Self {
        S3ExampleError(format!(
            "{}: {}",
            value
                .code()
                .map(String::from)
                .unwrap_or("unknown code".into()),
            value
                .message()
                .map(String::from)
                .unwrap_or("missing reason".into()),
        ))
    }
}
```

```
impl std::error::Error for S3ExampleError {}

impl std::fmt::Display for S3ExampleError {
    fn fmt(&self, f: &mut std::fmt::Formatter<'_>) -> std::fmt::Result {
        write!(f, "{}", self.0)
    }
}
```

- For API details, see ListBuckets in *AWS SDK for Rust API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Learn the basics of Amazon S3 with an AWS SDK

The following code examples show how to:

- Create a bucket and upload a file to it.
- Download an object from a bucket.
- Copy an object to a subfolder in a bucket.
- List the objects in a bucket.
- Delete the bucket objects and the bucket.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    public class S3_Basics
    {
        public static async Task Main()
        {
```

```
            // Create an Amazon S3 client object. The constructor uses the
            // default user installed on the system. To work with Amazon S3
            // features in a different AWS Region, pass the AWS Region as a
            // parameter to the client constructor.
            IAmazonS3 client = new AmazonS3Client();
            string bucketName = string.Empty;
            string filePath = string.Empty;
            string keyName = string.Empty;

            var sepBar = new string('-', Console.WindowWidth);

            Console.WriteLine(sepBar);
            Console.WriteLine("Amazon Simple Storage Service (Amazon S3) basic");
            Console.WriteLine("procedures. This application will:");
            Console.WriteLine("\n\t1. Create a bucket");
            Console.WriteLine("\n\t2. Upload an object to the new bucket");
            Console.WriteLine("\n\t3. Copy the uploaded object to a folder in the
 bucket");
            Console.WriteLine("\n\t4. List the items in the new bucket");
            Console.WriteLine("\n\t5. Delete all the items in the bucket");
            Console.WriteLine("\n\t6. Delete the bucket");
            Console.WriteLine(sepBar);

            // Create a bucket.
            Console.WriteLine($"\n{sepBar}");
            Console.WriteLine("\nCreate a new Amazon S3 bucket.\n");
            Console.WriteLine(sepBar);

            Console.Write("Please enter a name for the new bucket: ");
            bucketName = Console.ReadLine();

            var success = await S3Bucket.CreateBucketAsync(client, bucketName);
            if (success)
            {
                Console.WriteLine($"Successfully created bucket: {bucketName}.
\n");
            }
            else
            {
                Console.WriteLine($"Could not create bucket: {bucketName}.\n");
            }

            Console.WriteLine(sepBar);
            Console.WriteLine("Upload a file to the new bucket.");
```

```
            Console.WriteLine(sepBar);

            // Get the local path and filename for the file to upload.
            while (string.IsNullOrEmpty(filePath))
            {
                Console.Write("Please enter the path and filename of the file to
upload: ");
                filePath = Console.ReadLine();

                // Confirm that the file exists on the local computer.
                if (!File.Exists(filePath))
                {
                    Console.WriteLine($"Couldn't find {filePath}. Try again.\n");
                    filePath = string.Empty;
                }
            }

            // Get the file name from the full path.
            keyName = Path.GetFileName(filePath);

            success = await S3Bucket.UploadFileAsync(client, bucketName, keyName,
filePath);

            if (success)
            {
                Console.WriteLine($"Successfully uploaded {keyName} from
{filePath} to {bucketName}.\n");
            }
            else
            {
                Console.WriteLine($"Could not upload {keyName}.\n");
            }

            // Set the file path to an empty string to avoid overwriting the
            // file we just uploaded to the bucket.
            filePath = string.Empty;

            // Now get a new location where we can save the file.
            while (string.IsNullOrEmpty(filePath))
            {
                // First get the path to which the file will be downloaded.
                Console.Write("Please enter the path where the file will be
downloaded: ");
                filePath = Console.ReadLine();
```

```
                // Confirm that the file exists on the local computer.
                if (File.Exists($"{filePath}\\{keyName}"))
                {
                    Console.WriteLine($"Sorry, the file already exists in that
location.\n");
                    filePath = string.Empty;
                }
            }

            // Download an object from a bucket.
            success = await S3Bucket.DownloadObjectFromBucketAsync(client,
bucketName, keyName, filePath);

            if (success)
            {
                Console.WriteLine($"Successfully downloaded {keyName}.\n");
            }
            else
            {
                Console.WriteLine($"Sorry, could not download {keyName}.\n");
            }

            // Copy the object to a different folder in the bucket.
            string folderName = string.Empty;

            while (string.IsNullOrEmpty(folderName))
            {
                Console.Write("Please enter the name of the folder to copy your
object to: ");
                folderName = Console.ReadLine();
            }

            while (string.IsNullOrEmpty(keyName))
            {
                // Get the name to give to the object once uploaded.
                Console.Write("Enter the name of the object to copy: ");
                keyName = Console.ReadLine();
            }

            await S3Bucket.CopyObjectInBucketAsync(client, bucketName, keyName,
folderName);

            // List the objects in the bucket.
```

```
            await S3Bucket.ListBucketContentsAsync(client, bucketName);

            // Delete the contents of the bucket.
            await S3Bucket.DeleteBucketContentsAsync(client, bucketName);

            // Deleting the bucket too quickly after deleting its contents will
            // cause an error that the bucket isn't empty. So...
            Console.WriteLine("Press <Enter> when you are ready to delete the
bucket.");
            _ = Console.ReadLine();

            // Delete the bucket.
            await S3Bucket.DeleteBucketAsync(client, bucketName);
        }
    }
```

- For API details, see the following topics in *AWS SDK for .NET API Reference*.
  - CopyObject
  - CreateBucket
  - DeleteBucket
  - DeleteObjects
  - GetObject
  - ListObjectsV2
  - PutObject

Bash

AWS CLI with Bash script

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
###############################################################################
```

```
# function s3_getting_started
#
# This function creates, copies, and deletes S3 buckets and objects.
#
# Returns:
#       0 - If successful.
#       1 - If an error occurred.
################################################################################
function s3_getting_started() {
  {
    if [ "$BUCKET_OPERATIONS_SOURCED" != "True" ]; then
      cd bucket-lifecycle-operations || exit

      source ./bucket_operations.sh
      cd ..
    fi
  }

  echo_repeat "*" 88
  echo "Welcome to the Amazon S3 getting started demo."
  echo_repeat "*" 88
    echo "A unique bucket will be created by appending a Universally Unique
 Identifier to a bucket name prefix."
    echo -n "Enter a prefix for the S3 bucket that will be used in this demo: "
    get_input
    bucket_name_prefix=$get_input_result
  local bucket_name
  bucket_name=$(generate_random_name "$bucket_name_prefix")

  local region_code
  region_code=$(aws configure get region)

  if create_bucket -b "$bucket_name" -r "$region_code"; then
    echo "Created demo bucket named $bucket_name"
  else
    errecho "The bucket failed to create. This demo will exit."
    return 1
  fi

  local file_name
  while [ -z "$file_name" ]; do
    echo -n "Enter a file you want to upload to your bucket: "
    get_input
    file_name=$get_input_result
```

```
    if [ ! -f "$file_name" ]; then
      echo "Could not find file $file_name. Are you sure it exists?"
      file_name=""
    fi
  done

  local key
  key="$(basename "$file_name")"

  local result=0
  if copy_file_to_bucket "$bucket_name" "$file_name" "$key"; then
    echo "Uploaded file $file_name into bucket $bucket_name with key $key."
  else
    result=1
  fi

  local destination_file
  destination_file="$file_name.download"
  if yes_no_input "Would you like to download $key to the file $destination_file?
(y/n) "; then
    if download_object_from_bucket "$bucket_name" "$destination_file" "$key";
then
      echo "Downloaded $key in the bucket $bucket_name to the file
$destination_file."
    else
      result=1
    fi
  fi

  if yes_no_input "Would you like to copy $key a new object key in your bucket?
(y/n) "; then
    local to_key
    to_key="demo/$key"
    if copy_item_in_bucket "$bucket_name" "$key" "$to_key"; then
      echo "Copied $key in the bucket $bucket_name to the  $to_key."
    else
      result=1
    fi
  fi

  local bucket_items
  bucket_items=$(list_items_in_bucket "$bucket_name")
```

```
  # shellcheck disable=SC2181
  if [[ $? -ne 0 ]]; then
    result=1
  fi

  echo "Your bucket contains the following items."
  echo -e "Name\t\tSize"
  echo "$bucket_items"

  if yes_no_input "Delete the bucket, $bucket_name, as well as the objects in it?
 (y/n) "; then
    bucket_items=$(echo "$bucket_items" | cut -f 1)

    if delete_items_in_bucket "$bucket_name" "$bucket_items"; then
      echo "The following items were deleted from the bucket $bucket_name"
      echo "$bucket_items"
    else
      result=1
    fi

    if delete_bucket "$bucket_name"; then
      echo "Deleted the bucket $bucket_name"
    else
      result=1
    fi
  fi

  return $result
}
```

The Amazon S3 functions used in this scenario.

```
###############################################################################
# function create-bucket
#
# This function creates the specified bucket in the specified AWS Region, unless
# it already exists.
#
# Parameters:
#       -b bucket_name  -- The name of the bucket to create.
#       -r region_code  -- The code for an AWS Region in which to
#                          create the bucket.
```

```
#
# Returns:
#       The URL of the bucket that was created.
#     And:
#       0 - If successful.
#       1 - If it fails.
###############################################################################
function create_bucket() {
  local bucket_name region_code response
  local option OPTARG # Required to use getopts command in a function.

  # bashsupport disable=BP5008
  function usage() {
    echo "function create_bucket"
    echo "Creates an Amazon S3 bucket. You must supply a bucket name:"
    echo "  -b bucket_name    The name of the bucket. It must be globally
 unique."
    echo "  [-r region_code]    The code for an AWS Region in which the bucket is
 created."
    echo ""
  }

  # Retrieve the calling parameters.
  while getopts "b:r:h" option; do
    case "${option}" in
      b) bucket_name="${OPTARG}" ;;
      r) region_code="${OPTARG}" ;;
      h)
        usage
        return 0
        ;;
      \?)
        echo "Invalid parameter"
        usage
        return 1
        ;;
    esac
  done

  if [[ -z "$bucket_name" ]]; then
    errecho "ERROR: You must provide a bucket name with the -b parameter."
    usage
    return 1
  fi
```

```
  local bucket_config_arg
  # A location constraint for "us-east-1" returns an error.
  if [[ -n "$region_code" ]] && [[ "$region_code" != "us-east-1" ]]; then
    bucket_config_arg="--create-bucket-configuration LocationConstraint=
$region_code"
  fi

  iecho "Parameters:\n"
  iecho "    Bucket name:   $bucket_name"
  iecho "    Region code:   $region_code"
  iecho ""

  # If the bucket already exists, we don't want to try to create it.
  if (bucket_exists "$bucket_name"); then
    errecho "ERROR: A bucket with that name already exists. Try again."
    return 1
  fi

  # shellcheck disable=SC2086
  response=$(aws s3api create-bucket \
    --bucket "$bucket_name" \
    $bucket_config_arg)

  # shellcheck disable=SC2181
  if [[ ${?} -ne 0 ]]; then
    errecho "ERROR: AWS reports create-bucket operation failed.\n$response"
    return 1
  fi
}

###############################################################################
# function copy_file_to_bucket
#
# This function creates a file in the specified bucket.
#
# Parameters:
#       $1 - The name of the bucket to copy the file to.
#       $2 - The path and file name of the local file to copy to the bucket.
#       $3 - The key (name) to call the copy of the file in the bucket.
#
# Returns:
#       0 - If successful.
#       1 - If it fails.
```

```
##############################################################################
function copy_file_to_bucket() {
  local response bucket_name source_file destination_file_name
  bucket_name=$1
  source_file=$2
  destination_file_name=$3

  response=$(aws s3api put-object \
    --bucket "$bucket_name" \
    --body "$source_file" \
    --key "$destination_file_name")

  # shellcheck disable=SC2181
  if [[ ${?} -ne 0 ]]; then
    errecho "ERROR: AWS reports put-object operation failed.\n$response"
    return 1
  fi
}

##############################################################################
# function download_object_from_bucket
#
# This function downloads an object in a bucket to a file.
#
# Parameters:
#       $1 - The name of the bucket to download the object from.
#       $2 - The path and file name to store the downloaded bucket.
#       $3 - The key (name) of the object in the bucket.
#
# Returns:
#       0 - If successful.
#       1 - If it fails.
##############################################################################
function download_object_from_bucket() {
  local bucket_name=$1
  local destination_file_name=$2
  local object_name=$3
  local response

  response=$(aws s3api get-object \
    --bucket "$bucket_name" \
    --key "$object_name" \
    "$destination_file_name")
```

```
  # shellcheck disable=SC2181
  if [[ ${?} -ne 0 ]]; then
    errecho "ERROR: AWS reports put-object operation failed.\n$response"
    return 1
  fi
}

###############################################################################
# function copy_item_in_bucket
#
# This function creates a copy of the specified file in the same bucket.
#
# Parameters:
#       $1 - The name of the bucket to copy the file from and to.
#       $2 - The key of the source file to copy.
#       $3 - The key of the destination file.
#
# Returns:
#       0 - If successful.
#       1 - If it fails.
###############################################################################
function copy_item_in_bucket() {
  local bucket_name=$1
  local source_key=$2
  local destination_key=$3
  local response

  response=$(aws s3api copy-object \
    --bucket "$bucket_name" \
    --copy-source "$bucket_name/$source_key" \
    --key "$destination_key")

  # shellcheck disable=SC2181
  if [[ $? -ne 0 ]]; then
    errecho "ERROR:  AWS reports s3api copy-object operation failed.\n$response"
    return 1
  fi
}

###############################################################################
# function list_items_in_bucket
#
# This function displays a list of the files in the bucket with each file's
# size. The function uses the --query parameter to retrieve only the key and
```

```
# size fields from the Contents collection.
#
# Parameters:
#       $1 - The name of the bucket.
#
# Returns:
#       The list of files in text format.
#     And:
#       0 - If successful.
#       1 - If it fails.
###############################################################################
function list_items_in_bucket() {
  local bucket_name=$1
  local response

  response=$(aws s3api list-objects \
    --bucket "$bucket_name" \
    --output text \
    --query 'Contents[].{Key: Key, Size: Size}')

  # shellcheck disable=SC2181
  if [[ ${?} -eq 0 ]]; then
    echo "$response"
  else
    errecho "ERROR: AWS reports s3api list-objects operation failed.\n$response"
    return 1
  fi
}

###############################################################################
# function delete_items_in_bucket
#
# This function deletes the specified list of keys from the specified bucket.
#
# Parameters:
#       $1 - The name of the bucket.
#       $2 - A list of keys in the bucket to delete.

# Returns:
#       0 - If successful.
#       1 - If it fails.
###############################################################################
function delete_items_in_bucket() {
  local bucket_name=$1
```

```
  local keys=$2
  local response

  # Create the JSON for the items to delete.
  local delete_items
  delete_items="{\"Objects\":["
  for key in $keys; do
    delete_items="$delete_items{\"Key\": \"$key\"},"
  done
  delete_items=${delete_items%?} # Remove the final comma.
  delete_items="$delete_items]}"

  response=$(aws s3api delete-objects \
    --bucket "$bucket_name" \
    --delete "$delete_items")

  # shellcheck disable=SC2181
  if [[ $? -ne 0 ]]; then
    errecho "ERROR:  AWS reports s3api delete-object operation failed.\n
$response"
    return 1
  fi
}

##############################################################################
# function delete_bucket
#
# This function deletes the specified bucket.
#
# Parameters:
#       $1 - The name of the bucket.

# Returns:
#       0 - If successful.
#       1 - If it fails.
##############################################################################
function delete_bucket() {
  local bucket_name=$1
  local response

  response=$(aws s3api delete-bucket \
    --bucket "$bucket_name")

  # shellcheck disable=SC2181
```

```
  if [[ $? -ne 0 ]]; then
    errecho "ERROR: AWS reports s3api delete-bucket failed.\n$response"
    return 1
  fi
}
```

- For API details, see the following topics in *AWS CLI Command Reference*.
  - CopyObject
  - CreateBucket
  - DeleteBucket
  - DeleteObjects
  - GetObject
  - ListObjectsV2
  - PutObject

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
#include <iostream>
#include <aws/core/Aws.h>
#include <aws/s3/S3Client.h>
#include <aws/s3/model/CopyObjectRequest.h>
#include <aws/s3/model/CreateBucketRequest.h>
#include <aws/s3/model/DeleteBucketRequest.h>
#include <aws/s3/model/DeleteObjectRequest.h>
#include <aws/s3/model/GetObjectRequest.h>
#include <aws/s3/model/ListObjectsV2Request.h>
#include <aws/s3/model/PutObjectRequest.h>
#include <aws/s3/model/BucketLocationConstraint.h>
#include <aws/s3/model/CreateBucketConfiguration.h>
```

```
#include <aws/core/utils/UUID.h>
#include <aws/core/utils/StringUtils.h>
#include <aws/core/utils/memory/stl/AWSAllocator.h>
#include <fstream>
#include "s3_examples.h"

namespace AwsDoc {
    namespace S3 {

        //! Delete an S3 bucket.
        /*!
          \param bucketName: The S3 bucket's name.
          \param client: An S3 client.
          \return bool: Function succeeded.
        */
        static bool
        deleteBucket(const Aws::String &bucketName, Aws::S3::S3Client &client);

        //! Delete an object in an S3 bucket.
        /*!
          \param bucketName: The S3 bucket's name.
          \param key: The key for the object in the S3 bucket.
          \param client: An S3 client.
          \return bool: Function succeeded.
         */
        static bool
        deleteObjectFromBucket(const Aws::String &bucketName, const Aws::String
 &key,
                               Aws::S3::S3Client &client);
    }
}


//! Scenario to create, copy, and delete S3 buckets and objects.
/*!
  \param bucketNamePrefix: A prefix for a bucket name.
  \param uploadFilePath: Path to file to upload to an Amazon S3 bucket.
  \param saveFilePath: Path for saving a downloaded S3 object.
  \param clientConfig: Aws client configuration.
  \return bool: Function succeeded.
 */
bool AwsDoc::S3::S3_GettingStartedScenario(const Aws::String &bucketNamePrefix,
        const Aws::String &uploadFilePath,
                                           const Aws::String &saveFilePath,
```

```
                                                const Aws::Client::ClientConfiguration
&clientConfig) {

   Aws::S3::S3Client client(clientConfig);

   // Create a unique bucket name which is only temporary and will be deleted.
   // Format: <bucketNamePrefix> + "-" + lowercase UUID.
   Aws::String uuid = Aws::Utils::UUID::RandomUUID();
   Aws::String bucketName = bucketNamePrefix +
                            Aws::Utils::StringUtils::ToLower(uuid.c_str());

   // 1. Create a bucket.
   {
       Aws::S3::Model::CreateBucketRequest request;
       request.SetBucket(bucketName);

       if (clientConfig.region != Aws::Region::US_EAST_1) {
           Aws::S3::Model::CreateBucketConfiguration createBucketConfiguration;
           createBucketConfiguration.WithLocationConstraint(

Aws::S3::Model::BucketLocationConstraintMapper::GetBucketLocationConstraintForName(
                            clientConfig.region));
           request.WithCreateBucketConfiguration(createBucketConfiguration);
       }

       Aws::S3::Model::CreateBucketOutcome outcome =
client.CreateBucket(request);

       if (!outcome.IsSuccess()) {
           const Aws::S3::S3Error &err = outcome.GetError();
           std::cerr << "Error: createBucket: " <<
                     err.GetExceptionName() << ": " << err.GetMessage() <<
std::endl;
           return false;
       } else {
           std::cout << "Created the bucket, '" << bucketName <<
                     "', in the region, '" << clientConfig.region << "'." <<
std::endl;
       }
   }

   // 2. Upload a local file to the bucket.
   Aws::String key = "key-for-test";
   {
```

```
        Aws::S3::Model::PutObjectRequest request;
        request.SetBucket(bucketName);
        request.SetKey(key);

        std::shared_ptr<Aws::FStream> input_data =
                Aws::MakeShared<Aws::FStream>("SampleAllocationTag",
                                              uploadFilePath,
                                              std::ios_base::in |
                                              std::ios_base::binary);

        if (!input_data->is_open()) {
            std::cerr << "Error: unable to open file, '" << uploadFilePath <<
"'."
                      << std::endl;
            AwsDoc::S3::deleteBucket(bucketName, client);
            return false;
        }

        request.SetBody(input_data);

        Aws::S3::Model::PutObjectOutcome outcome =
                client.PutObject(request);

        if (!outcome.IsSuccess()) {
            std::cerr << "Error: putObject: " <<
                      outcome.GetError().GetMessage() << std::endl;
            AwsDoc::S3::deleteObjectFromBucket(bucketName, key, client);
            AwsDoc::S3::deleteBucket(bucketName, client);
            return false;
        } else {
            std::cout << "Added the object with the key, '" << key
                      << "', to the bucket, '"
                      << bucketName << "'." << std::endl;
        }
    }

    // 3. Download the object to a local file.
    {
        Aws::S3::Model::GetObjectRequest request;
        request.SetBucket(bucketName);
        request.SetKey(key);

        Aws::S3::Model::GetObjectOutcome outcome =
                client.GetObject(request);
```

```
        if (!outcome.IsSuccess()) {
            const Aws::S3::S3Error &err = outcome.GetError();
            std::cerr << "Error: getObject: " <<
                      err.GetExceptionName() << ": " << err.GetMessage() <<
std::endl;
        } else {
            std::cout << "Downloaded the object with the key, '" << key
                      << "', in the bucket, '"
                      << bucketName << "'." << std::endl;

            Aws::IOStream &ioStream = outcome.GetResultWithOwnership().
                    GetBody();
            Aws::OFStream outStream(saveFilePath,
                                    std::ios_base::out | std::ios_base::binary);
            if (!outStream.is_open()) {
                std::cout << "Error: unable to open file, '" << saveFilePath <<
"'."
                          << std::endl;
            } else {
                outStream << ioStream.rdbuf();
                std::cout << "Wrote the downloaded object to the file '"
                          << saveFilePath << "'." << std::endl;
            }
        }
    }

    // 4. Copy the object to a different "folder" in the bucket.
    Aws::String copiedToKey = "test-folder/" + key;
    {
        Aws::S3::Model::CopyObjectRequest request;
        request.WithBucket(bucketName)
                .WithKey(copiedToKey)
                .WithCopySource(bucketName + "/" + key);

        Aws::S3::Model::CopyObjectOutcome outcome =
                client.CopyObject(request);
        if (!outcome.IsSuccess()) {
            std::cerr << "Error: copyObject: " <<
                      outcome.GetError().GetMessage() << std::endl;
        } else {
            std::cout << "Copied the object with the key, '" << key
                      << "', to the key, '" << copiedToKey
                      << ", in the bucket, '" << bucketName << "'." << std::endl;
```

```
        }
    }

    // 5. List objects in the bucket.
    {
        Aws::S3::Model::ListObjectsV2Request request;
        request.WithBucket(bucketName);

        Aws::String continuationToken;
        Aws::Vector<Aws::S3::Model::Object> allObjects;

        do {
            if (!continuationToken.empty()) {
                request.SetContinuationToken(continuationToken);
            }
            Aws::S3::Model::ListObjectsV2Outcome outcome = client.ListObjectsV2(
                    request);

            if (!outcome.IsSuccess()) {
                std::cerr << "Error: ListObjects: " <<
                          outcome.GetError().GetMessage() << std::endl;
                break;
            } else {
                Aws::Vector<Aws::S3::Model::Object> objects =
                        outcome.GetResult().GetContents();
                allObjects.insert(allObjects.end(), objects.begin(),
objects.end());
                continuationToken = outcome.GetResult().GetContinuationToken();
            }
        } while (!continuationToken.empty());

        std::cout << allObjects.size() << " objects in the bucket, '" <<
bucketName
                  << "':" << std::endl;

        for (Aws::S3::Model::Object &object: allObjects) {
            std::cout << "     '" << object.GetKey() << "'" << std::endl;
        }
    }

    // 6. Delete all objects in the bucket.
    // All objects in the bucket must be deleted before deleting the bucket.
    AwsDoc::S3::deleteObjectFromBucket(bucketName, copiedToKey, client);
    AwsDoc::S3::deleteObjectFromBucket(bucketName, key, client);
```

```
    // 7. Delete the bucket.
    return AwsDoc::S3::deleteBucket(bucketName, client);
}

bool AwsDoc::S3::deleteObjectFromBucket(const Aws::String &bucketName,
                                        const Aws::String &key,
                                        Aws::S3::S3Client &client) {
    Aws::S3::Model::DeleteObjectRequest request;
    request.SetBucket(bucketName);
    request.SetKey(key);

    Aws::S3::Model::DeleteObjectOutcome outcome =
            client.DeleteObject(request);

    if (!outcome.IsSuccess()) {
        std::cerr << "Error: deleteObject: " <<
                  outcome.GetError().GetMessage() << std::endl;
    } else {
        std::cout << "Deleted the object with the key, '" << key
                  << "', from the bucket, '"
                  << bucketName << "'." << std::endl;
    }

    return outcome.IsSuccess();
}

bool
AwsDoc::S3::deleteBucket(const Aws::String &bucketName, Aws::S3::S3Client
 &client) {
    Aws::S3::Model::DeleteBucketRequest request;
    request.SetBucket(bucketName);

    Aws::S3::Model::DeleteBucketOutcome outcome =
            client.DeleteBucket(request);

    if (!outcome.IsSuccess()) {
        const Aws::S3::S3Error &err = outcome.GetError();
        std::cerr << "Error: deleteBucket: " <<
                  err.GetExceptionName() << ": " << err.GetMessage() <<
 std::endl;
    } else {
        std::cout << "Deleted the bucket, '" << bucketName << "'." << std::endl;
    }
```

```
    return outcome.IsSuccess();
}
```

- For API details, see the following topics in *AWS SDK for C++ API Reference*.
  - CopyObject
  - CreateBucket
  - DeleteBucket
  - DeleteObjects
  - GetObject
  - ListObjectsV2
  - PutObject

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Define a struct that wraps bucket and object actions used by the scenario.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "io"
 "log"
 "os"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
```

```
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// BucketBasics encapsulates the Amazon Simple Storage Service (Amazon S3)
 actions
// used in the examples.
// It contains S3Client, an Amazon S3 service client that is used to perform
 bucket
// and object actions.
type BucketBasics struct {
 S3Client *s3.Client
}



// ListBuckets lists the buckets in the current account.
func (basics BucketBasics) ListBuckets(ctx context.Context) ([]types.Bucket,
 error) {
 var err error
 var output *s3.ListBucketsOutput
 var buckets []types.Bucket
 bucketPaginator := s3.NewListBucketsPaginator(basics.S3Client,
 &s3.ListBucketsInput{})
 for bucketPaginator.HasMorePages() {
  output, err = bucketPaginator.NextPage(ctx)
  if err != nil {
   var apiErr smithy.APIError
   if errors.As(err, &apiErr) && apiErr.ErrorCode() == "AccessDenied" {
    fmt.Println("You don't have permission to list buckets for this account.")
    err = apiErr
   } else {
    log.Printf("Couldn't list buckets for your account. Here's why: %v\n", err)
   }
   break
  } else {
   buckets = append(buckets, output.Buckets...)
  }
 }
 return buckets, err
}
```

```
// BucketExists checks whether a bucket exists in the current account.
func (basics BucketBasics) BucketExists(ctx context.Context, bucketName string)
 (bool, error) {
 _, err := basics.S3Client.HeadBucket(ctx, &s3.HeadBucketInput{
  Bucket: aws.String(bucketName),
 })
 exists := true
 if err != nil {
  var apiError smithy.APIError
  if errors.As(err, &apiError) {
   switch apiError.(type) {
   case *types.NotFound:
    log.Printf("Bucket %v is available.\n", bucketName)
    exists = false
    err = nil
   default:
    log.Printf("Either you don't have access to bucket %v or another error
 occurred. "+
     "Here's what happened: %v\n", bucketName, err)
   }
  }
 } else {
  log.Printf("Bucket %v exists and you already own it.", bucketName)
 }

 return exists, err
}



// CreateBucket creates a bucket with the specified name in the specified Region.
func (basics BucketBasics) CreateBucket(ctx context.Context, name string, region
 string) error {
 _, err := basics.S3Client.CreateBucket(ctx, &s3.CreateBucketInput{
  Bucket: aws.String(name),
  CreateBucketConfiguration: &types.CreateBucketConfiguration{
   LocationConstraint: types.BucketLocationConstraint(region),
  },
 })
 if err != nil {
  var owned *types.BucketAlreadyOwnedByYou
  var exists *types.BucketAlreadyExists
  if errors.As(err, &owned) {
   log.Printf("You already own bucket %s.\n", name)
```

```
    err = owned
   } else if errors.As(err, &exists) {
    log.Printf("Bucket %s already exists.\n", name)
    err = exists
   }
  } else {
   err = s3.NewBucketExistsWaiter(basics.S3Client).Wait(
    ctx, &s3.HeadBucketInput{Bucket: aws.String(name)}, time.Minute)
   if err != nil {
    log.Printf("Failed attempt to wait for bucket %s to exist.\n", name)
   }
  }
  return err
}



// UploadFile reads from a file and puts the data into an object in a bucket.
func (basics BucketBasics) UploadFile(ctx context.Context, bucketName string,
 objectKey string, fileName string) error {
 file, err := os.Open(fileName)
 if err != nil {
  log.Printf("Couldn't open file %v to upload. Here's why: %v\n", fileName, err)
 } else {
  defer file.Close()
  _, err = basics.S3Client.PutObject(ctx, &s3.PutObjectInput{
   Bucket: aws.String(bucketName),
   Key:    aws.String(objectKey),
   Body:   file,
  })
  if err != nil {
   var apiErr smithy.APIError
   if errors.As(err, &apiErr) && apiErr.ErrorCode() == "EntityTooLarge" {
    log.Printf("Error while uploading object to %s. The object is too large.\n"+
     "To upload objects larger than 5GB, use the S3 console (160GB max)\n"+
     "or the multipart upload API (5TB max).", bucketName)
   } else {
    log.Printf("Couldn't upload file %v to %v:%v. Here's why: %v\n",
     fileName, bucketName, objectKey, err)
   }
  } else {
   err = s3.NewObjectExistsWaiter(basics.S3Client).Wait(
    ctx, &s3.HeadObjectInput{Bucket: aws.String(bucketName), Key:
 aws.String(objectKey)}, time.Minute)
```

```
    if err != nil {
     log.Printf("Failed attempt to wait for object %s to exist.\n", objectKey)
    }
   }
  }
  return err
}



// UploadLargeObject uses an upload manager to upload data to an object in a
 bucket.
// The upload manager breaks large data into parts and uploads the parts
 concurrently.
func (basics BucketBasics) UploadLargeObject(ctx context.Context, bucketName
 string, objectKey string, largeObject []byte) error {
 largeBuffer := bytes.NewReader(largeObject)
 var partMiBs int64 = 10
 uploader := manager.NewUploader(basics.S3Client, func(u *manager.Uploader) {
  u.PartSize = partMiBs * 1024 * 1024
 })
 _, err := uploader.Upload(ctx, &s3.PutObjectInput{
  Bucket: aws.String(bucketName),
  Key:    aws.String(objectKey),
  Body:   largeBuffer,
 })
 if err != nil {
  var apiErr smithy.APIError
  if errors.As(err, &apiErr) && apiErr.ErrorCode() == "EntityTooLarge" {
   log.Printf("Error while uploading object to %s. The object is too large.\n"+
    "The maximum size for a multipart upload is 5TB.", bucketName)
  } else {
   log.Printf("Couldn't upload large object to %v:%v. Here's why: %v\n",
    bucketName, objectKey, err)
  }
 } else {
  err = s3.NewObjectExistsWaiter(basics.S3Client).Wait(
   ctx, &s3.HeadObjectInput{Bucket: aws.String(bucketName), Key:
 aws.String(objectKey)}, time.Minute)
  if err != nil {
   log.Printf("Failed attempt to wait for object %s to exist.\n", objectKey)
  }
 }
```

```
 return err
}



// DownloadFile gets an object from a bucket and stores it in a local file.
func (basics BucketBasics) DownloadFile(ctx context.Context, bucketName string,
 objectKey string, fileName string) error {
 result, err := basics.S3Client.GetObject(ctx, &s3.GetObjectInput{
  Bucket: aws.String(bucketName),
  Key:    aws.String(objectKey),
 })
 if err != nil {
  var noKey *types.NoSuchKey
  if errors.As(err, &noKey) {
   log.Printf("Can't get object %s from bucket %s. No such key exists.\n",
 objectKey, bucketName)
   err = noKey
  } else {
   log.Printf("Couldn't get object %v:%v. Here's why: %v\n", bucketName,
 objectKey, err)
  }
  return err
 }
 defer result.Body.Close()
 file, err := os.Create(fileName)
 if err != nil {
  log.Printf("Couldn't create file %v. Here's why: %v\n", fileName, err)
  return err
 }
 defer file.Close()
 body, err := io.ReadAll(result.Body)
 if err != nil {
  log.Printf("Couldn't read object body from %v. Here's why: %v\n", objectKey,
 err)
 }
 _, err = file.Write(body)
 return err
}



// DownloadLargeObject uses a download manager to download an object from a
 bucket.
```

```
// The download manager gets the data in parts and writes them to a buffer until
 all of
// the data has been downloaded.
func (basics BucketBasics) DownloadLargeObject(ctx context.Context, bucketName
 string, objectKey string) ([]byte, error) {
 var partMiBs int64 = 10
 downloader := manager.NewDownloader(basics.S3Client, func(d *manager.Downloader)
 {
  d.PartSize = partMiBs * 1024 * 1024
 })
 buffer := manager.NewWriteAtBuffer([]byte{})
 _, err := downloader.Download(ctx, buffer, &s3.GetObjectInput{
  Bucket: aws.String(bucketName),
  Key:    aws.String(objectKey),
 })
 if err != nil {
  log.Printf("Couldn't download large object from %v:%v. Here's why: %v\n",
   bucketName, objectKey, err)
 }
 return buffer.Bytes(), err
}



// CopyToFolder copies an object in a bucket to a subfolder in the same bucket.
func (basics BucketBasics) CopyToFolder(ctx context.Context, bucketName string,
 objectKey string, folderName string) error {
 objectDest := fmt.Sprintf("%v/%v", folderName, objectKey)
 _, err := basics.S3Client.CopyObject(ctx, &s3.CopyObjectInput{
  Bucket:     aws.String(bucketName),
  CopySource: aws.String(fmt.Sprintf("%v/%v", bucketName, objectKey)),
  Key:        aws.String(objectDest),
 })
 if err != nil {
  var notActive *types.ObjectNotInActiveTierError
  if errors.As(err, &notActive) {
   log.Printf("Couldn't copy object %s from %s because the object isn't in the
 active tier.\n",
    objectKey, bucketName)
   err = notActive
  }
 } else {
  err = s3.NewObjectExistsWaiter(basics.S3Client).Wait(
```

```
    ctx, &s3.HeadObjectInput{Bucket: aws.String(bucketName), Key:
 aws.String(objectDest)}, time.Minute)
  if err != nil {
   log.Printf("Failed attempt to wait for object %s to exist.\n", objectDest)
  }
 }
 return err
}



// CopyToBucket copies an object in a bucket to another bucket.
func (basics BucketBasics) CopyToBucket(ctx context.Context, sourceBucket string,
 destinationBucket string, objectKey string) error {
 _, err := basics.S3Client.CopyObject(ctx, &s3.CopyObjectInput{
  Bucket:     aws.String(destinationBucket),
  CopySource: aws.String(fmt.Sprintf("%v/%v", sourceBucket, objectKey)),
  Key:        aws.String(objectKey),
 })
 if err != nil {
  var notActive *types.ObjectNotInActiveTierError
  if errors.As(err, &notActive) {
   log.Printf("Couldn't copy object %s from %s because the object isn't in the
 active tier.\n",
    objectKey, sourceBucket)
   err = notActive
  }
 } else {
  err = s3.NewObjectExistsWaiter(basics.S3Client).Wait(
   ctx, &s3.HeadObjectInput{Bucket: aws.String(destinationBucket), Key:
 aws.String(objectKey)}, time.Minute)
  if err != nil {
   log.Printf("Failed attempt to wait for object %s to exist.\n", objectKey)
  }
 }
 return err
}



// ListObjects lists the objects in a bucket.
func (basics BucketBasics) ListObjects(ctx context.Context, bucketName string)
 ([]types.Object, error) {
 var err error
```

```
 var output *s3.ListObjectsV2Output
 input := &s3.ListObjectsV2Input{
  Bucket: aws.String(bucketName),
 }
 var objects []types.Object
 objectPaginator := s3.NewListObjectsV2Paginator(basics.S3Client, input)
 for objectPaginator.HasMorePages() {
  output, err = objectPaginator.NextPage(ctx)
  if err != nil {
   var noBucket *types.NoSuchBucket
   if errors.As(err, &noBucket) {
    log.Printf("Bucket %s does not exist.\n", bucketName)
    err = noBucket
   }
   break
  } else {
   objects = append(objects, output.Contents...)
  }
 }
 return objects, err
}



// DeleteObjects deletes a list of objects from a bucket.
func (basics BucketBasics) DeleteObjects(ctx context.Context, bucketName string,
 objectKeys []string) error {
 var objectIds []types.ObjectIdentifier
 for _, key := range objectKeys {
  objectIds = append(objectIds, types.ObjectIdentifier{Key: aws.String(key)})
 }
 output, err := basics.S3Client.DeleteObjects(ctx, &s3.DeleteObjectsInput{
  Bucket: aws.String(bucketName),
  Delete: &types.Delete{Objects: objectIds, Quiet: aws.Bool(true)},
 })
 if err != nil || len(output.Errors) > 0 {
  log.Printf("Error deleting objects from bucket %s.\n", bucketName)
  if err != nil {
   var noBucket *types.NoSuchBucket
   if errors.As(err, &noBucket) {
    log.Printf("Bucket %s does not exist.\n", bucketName)
    err = noBucket
   }
  } else if len(output.Errors) > 0 {
```

```
    for _, outErr := range output.Errors {
     log.Printf("%s: %s\n", *outErr.Key, *outErr.Message)
    }
    err = fmt.Errorf("%s", *output.Errors[0].Message)
   }
  } else {
   for _, delObjs := range output.Deleted {
    err = s3.NewObjectNotExistsWaiter(basics.S3Client).Wait(
     ctx, &s3.HeadObjectInput{Bucket: aws.String(bucketName), Key: delObjs.Key},
  time.Minute)
    if err != nil {
     log.Printf("Failed attempt to wait for object %s to be deleted.\n",
  *delObjs.Key)
    } else {
     log.Printf("Deleted %s.\n", *delObjs.Key)
    }
   }
  }
  return err
}



// DeleteBucket deletes a bucket. The bucket must be empty or an error is
 returned.
func (basics BucketBasics) DeleteBucket(ctx context.Context, bucketName string)
 error {
 _, err := basics.S3Client.DeleteBucket(ctx, &s3.DeleteBucketInput{
  Bucket: aws.String(bucketName)})
 if err != nil {
  var noBucket *types.NoSuchBucket
  if errors.As(err, &noBucket) {
   log.Printf("Bucket %s does not exist.\n", bucketName)
   err = noBucket
  } else {
   log.Printf("Couldn't delete bucket %v. Here's why: %v\n", bucketName, err)
  }
 } else {
  err = s3.NewBucketNotExistsWaiter(basics.S3Client).Wait(
   ctx, &s3.HeadBucketInput{Bucket: aws.String(bucketName)}, time.Minute)
  if err != nil {
   log.Printf("Failed attempt to wait for bucket %s to be deleted.\n",
  bucketName)
  } else {
```

```
    log.Printf("Deleted %s.\n", bucketName)
   }
  }
  return err
}
```

Run an interactive scenario that shows you how to work with S3 buckets and objects.

```
import (
 "context"
 "fmt"
 "log"
 "os"
 "strings"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/awsdocs/aws-doc-sdk-examples/gov2/demotools"
 "github.com/awsdocs/aws-doc-sdk-examples/gov2/s3/actions"
)

// RunGetStartedScenario is an interactive example that shows you how to use
 Amazon
// Simple Storage Service (Amazon S3) to create an S3 bucket and use it to store
 objects.
//
// 1. Create a bucket.
// 2. Upload a local file to the bucket.
// 3. Download an object to a local file.
// 4. Copy an object to a different folder in the bucket.
// 5. List objects in the bucket.
// 6. Delete all objects in the bucket.
// 7. Delete the bucket.
//
// This example creates an Amazon S3 service client from the specified sdkConfig
 so that
// you can replace it with a mocked or stubbed config for unit testing.
//
// It uses a questioner from the `demotools` package to get input during the
 example.
```

```
// This package can be found in the ..\..\demotools folder of this repo.
func RunGetStartedScenario(ctx context.Context, sdkConfig aws.Config, questioner
 demotools.IQuestioner) {
 defer func() {
  if r := recover(); r != nil {
   log.Println("Something went wrong with the demo.")
   _, isMock := questioner.(*demotools.MockQuestioner)
   if isMock || questioner.AskBool("Do you want to see the full error message (y/
n)?", "y") {
    log.Println(r)
   }
  }
 }()

 log.Println(strings.Repeat("-", 88))
 log.Println("Welcome to the Amazon S3 getting started demo.")
 log.Println(strings.Repeat("-", 88))

 s3Client := s3.NewFromConfig(sdkConfig)
 bucketBasics := actions.BucketBasics{S3Client: s3Client}

 count := 10
 log.Printf("Let's list up to %v buckets for your account:", count)
 buckets, err := bucketBasics.ListBuckets(ctx)
 if err != nil {
  panic(err)
 }
 if len(buckets) == 0 {
  log.Println("You don't have any buckets!")
 } else {
  if count > len(buckets) {
   count = len(buckets)
  }
  for _, bucket := range buckets[:count] {
   log.Printf("\t%v\n", *bucket.Name)
  }
 }

 bucketName := questioner.Ask("Let's create a bucket. Enter a name for your
 bucket:",
  demotools.NotEmpty{})
 bucketExists, err := bucketBasics.BucketExists(ctx, bucketName)
 if err != nil {
  panic(err)
```

```
}
if !bucketExists {
 err = bucketBasics.CreateBucket(ctx, bucketName, sdkConfig.Region)
 if err != nil {
  panic(err)
 } else {
  log.Println("Bucket created.")
 }
}
log.Println(strings.Repeat("-", 88))

fmt.Println("Let's upload a file to your bucket.")
smallFile := questioner.Ask("Enter the path to a file you want to upload:",
 demotools.NotEmpty{})
const smallKey = "doc-example-key"
err = bucketBasics.UploadFile(ctx, bucketName, smallKey, smallFile)
if err != nil {
 panic(err)
}
log.Printf("Uploaded %v as %v.\n", smallFile, smallKey)
log.Println(strings.Repeat("-", 88))

log.Printf("Let's download %v to a file.", smallKey)
downloadFileName := questioner.Ask("Enter a name for the downloaded file:",
demotools.NotEmpty{})
err = bucketBasics.DownloadFile(ctx, bucketName, smallKey, downloadFileName)
if err != nil {
 panic(err)
}
log.Printf("File %v downloaded.", downloadFileName)
log.Println(strings.Repeat("-", 88))

log.Printf("Let's copy %v to a folder in the same bucket.", smallKey)
folderName := questioner.Ask("Enter a folder name: ", demotools.NotEmpty{})
err = bucketBasics.CopyToFolder(ctx, bucketName, smallKey, folderName)
if err != nil {
 panic(err)
}
log.Printf("Copied %v to %v/%v.\n", smallKey, folderName, smallKey)
log.Println(strings.Repeat("-", 88))

log.Println("Let's list the objects in your bucket.")
questioner.Ask("Press Enter when you're ready.")
objects, err := bucketBasics.ListObjects(ctx, bucketName)
```

```
 if err != nil {
  panic(err)
 }
 log.Printf("Found %v objects.\n", len(objects))
 var objKeys []string
 for _, object := range objects {
  objKeys = append(objKeys, *object.Key)
  log.Printf("\t%v\n", *object.Key)
 }
 log.Println(strings.Repeat("-", 88))

 if questioner.AskBool("Do you want to delete your bucket and all of its "+
  "contents? (y/n)", "y") {
  log.Println("Deleting objects.")
  err = bucketBasics.DeleteObjects(ctx, bucketName, objKeys)
  if err != nil {
   panic(err)
  }
  log.Println("Deleting bucket.")
  err = bucketBasics.DeleteBucket(ctx, bucketName)
  if err != nil {
   panic(err)
  }
  log.Printf("Deleting downloaded file %v.\n", downloadFileName)
  err = os.Remove(downloadFileName)
  if err != nil {
   panic(err)
  }
 } else {
  log.Println("Okay. Don't forget to delete objects from your bucket to avoid
 charges.")
 }
 log.Println(strings.Repeat("-", 88))

 log.Println("Thanks for watching!")
 log.Println(strings.Repeat("-", 88))
}
```

- For API details, see the following topics in *AWS SDK for Go API Reference*.
  - CopyObject
  - CreateBucket

- DeleteBucket
- DeleteObjects
- GetObject
- ListObjectsV2
- PutObject

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

A scenario example.

```
import java.io.IOException;
import java.util.Scanner;
import java.util.UUID;
import java.util.concurrent.CompletableFuture;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.services.s3.model.PutObjectResponse;
import software.amazon.awssdk.services.s3.model.S3Exception;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 *
 * For more information, see the following documentation topic:
 *
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 *
 * This Java code example performs the following tasks:
 *
 * 1. Creates an Amazon S3 bucket.
```

```
 * 2. Uploads an object to the bucket.
 * 3. Downloads the object to another local file.
 * 4. Uploads an object using multipart upload.
 * 5. List all objects located in the Amazon S3 bucket.
 * 6. Copies the object to another Amazon S3 bucket.
 * 7. Copy the object to another Amazon S3 bucket using multi copy.
 * 8. Deletes the object from the Amazon S3 bucket.
 * 9. Deletes the Amazon S3 bucket.
 */

public class S3Scenario {

    public static Scanner scanner = new Scanner(System.in);
    static S3Actions s3Actions = new S3Actions();
    public static final String DASHES = new String(new char[80]).replace("\0",
 "-");
    private static final Logger logger =
 LoggerFactory.getLogger(S3Scenario.class);
    public static void main(String[] args) throws IOException {
        final String usage = """
            Usage:
               <bucketName> <key> <objectPath> <savePath> <toBucket>

            Where:
                bucketName - The name of the  S3 bucket.
                key - The unique identifier for the object stored in the S3
 bucket.
                objectPath - The full file path of the object within the S3
 bucket (e.g., "documents/reports/annual_report.pdf").
                savePath - The local file path where the object will be
 downloaded and saved (e.g., "C:/Users/username/Downloads/annual_report.pdf").
                toBucket - The name of the S3 bucket to which the object will be
 copied.
            """;

        if (args.length != 5) {
            logger.info(usage);
            return;
        }

        String bucketName = args[0];
        String key = args[1];
        String objectPath = args[2];
        String savePath = args[3];
```

```
        String toBucket = args[4];

        logger.info(DASHES);
        logger.info("Welcome to the Amazon Simple Storage Service (S3) example
scenario.");
        logger.info("""
            Amazon S3 is a highly scalable and durable object storage
            service provided by Amazon Web Services (AWS). It is designed to
store and retrieve
            any amount of data, from anywhere on the web, at any time.

            The `S3AsyncClient` interface in the AWS SDK for Java 2.x provides a
set of methods to
            programmatically interact with the Amazon S3 (Simple Storage Service)
service. This allows
            developers to automate the management and manipulation of S3 buckets
and objects as
            part of their application deployment pipelines. With S3, teams can
focus on building
            and deploying their applications without having to worry about the
underlying storage
            infrastructure required to host and manage large amounts of data.

            This scenario walks you through how to perform key operations for
this service.
            Let's get started...
            """);
        waitForInputToContinue(scanner);
        logger.info(DASHES);

        try {
            // Run the methods that belong to this scenario.
            runScenario(bucketName, key, objectPath, savePath, toBucket);

        } catch (Throwable rt) {
            Throwable cause = rt.getCause();
            if (cause instanceof S3Exception kmsEx) {
                logger.info("KMS error occurred: Error message: {}, Error code
{}", kmsEx.getMessage(), kmsEx.awsErrorDetails().errorCode());
            } else {
                logger.info("An unexpected error occurred: " + rt.getMessage());
            }
        }
    }
```

```
   private static void runScenario(String bucketName, String key, String
objectPath, String savePath, String toBucket) throws Throwable {
       logger.info(DASHES);
       logger.info("1. Create an Amazon S3 bucket.");
       try {
           CompletableFuture<Void> future =
s3Actions.createBucketAsync(bucketName);
           future.join();
           waitForInputToContinue(scanner);

       } catch (RuntimeException rt) {
           Throwable cause = rt.getCause();
           if (cause instanceof S3Exception s3Ex) {
               logger.info("S3 error occurred: Error message: {}, Error code
{}", s3Ex.getMessage(), s3Ex.awsErrorDetails().errorCode());
           } else {
               logger.info("An unexpected error occurred: " + rt.getMessage());
           }
           throw cause;

       }
       logger.info(DASHES);

       logger.info(DASHES);
       logger.info("2. Upload a local file to the Amazon S3 bucket.");
       waitForInputToContinue(scanner);
       try {
           CompletableFuture<PutObjectResponse> future =
s3Actions.uploadLocalFileAsync(bucketName, key, objectPath);
           future.join();
           logger.info("File uploaded successfully to {}/{}", bucketName, key);

       } catch (RuntimeException rt) {
           Throwable cause = rt.getCause();
           if (cause instanceof S3Exception s3Ex) {
               logger.info("S3 error occurred: Error message: {}, Error code
{}", s3Ex.getMessage(), s3Ex.awsErrorDetails().errorCode());
           } else {
               logger.info("An unexpected error occurred: " + rt.getMessage());
           }
           throw cause;
       }
       waitForInputToContinue(scanner);
```

```
        logger.info(DASHES);


        logger.info(DASHES);
        logger.info("3. Download the object to another local file.");
        waitForInputToContinue(scanner);
        try {
            CompletableFuture<Void> future =
s3Actions.getObjectBytesAsync(bucketName, key, savePath);
            future.join();
            logger.info("Successfully obtained bytes from S3 object and wrote to
file {}", savePath);

        } catch (RuntimeException rt) {
            Throwable cause = rt.getCause();
            if (cause instanceof S3Exception s3Ex) {
                logger.info("S3 error occurred: Error message: {}, Error code
{}", s3Ex.getMessage(), s3Ex.awsErrorDetails().errorCode());
            } else {
                logger.info("An unexpected error occurred: " + rt.getMessage());
            }
            throw cause;
        }
        waitForInputToContinue(scanner);
        logger.info(DASHES);

        logger.info(DASHES);
        logger.info("4. Perform a multipart upload.");
        waitForInputToContinue(scanner);
        String multipartKey = "multiPartKey";
        try {
            // Call the multipartUpload method
            CompletableFuture<Void> future =
s3Actions.multipartUpload(bucketName, multipartKey);
            future.join();
            logger.info("Multipart upload completed successfully for bucket '{}'
and key '{}'", bucketName, multipartKey);

        } catch (RuntimeException rt) {
            Throwable cause = rt.getCause();
            if (cause instanceof S3Exception s3Ex) {
                logger.info("S3 error occurred: Error message: {}, Error code
{}", s3Ex.getMessage(), s3Ex.awsErrorDetails().errorCode());
            } else {
```

```
                logger.info("An unexpected error occurred: " + rt.getMessage());
            }
            throw cause;
        }
        waitForInputToContinue(scanner);
        logger.info(DASHES);

        logger.info(DASHES);
        logger.info("5. List all objects located in the Amazon S3 bucket.");
        waitForInputToContinue(scanner);
        try {
            CompletableFuture<Void> future =
s3Actions.listAllObjectsAsync(bucketName);
            future.join();
            logger.info("Object listing completed successfully.");

        } catch (RuntimeException rt) {
            Throwable cause = rt.getCause();
            if (cause instanceof S3Exception s3Ex) {
                logger.info("S3 error occurred: Error message: {}, Error code
{}", s3Ex.getMessage(), s3Ex.awsErrorDetails().errorCode());
            } else {
                logger.info("An unexpected error occurred: " + rt.getMessage());
            }
            throw cause;
        }
        waitForInputToContinue(scanner);
        logger.info(DASHES);

        logger.info(DASHES);
        logger.info("6. Copy the object to another Amazon S3 bucket.");
        waitForInputToContinue(scanner);
        try {
            CompletableFuture<String> future =
s3Actions.copyBucketObjectAsync(bucketName, key, toBucket);
            String result = future.join();
            logger.info("Copy operation result: {}", result);

        } catch (RuntimeException rt) {
            Throwable cause = rt.getCause();
            if (cause instanceof S3Exception s3Ex) {
                logger.info("S3 error occurred: Error message: {}, Error code
{}", s3Ex.getMessage(), s3Ex.awsErrorDetails().errorCode());
            } else {
```

```
                logger.info("An unexpected error occurred: " + rt.getMessage());
            }
            throw cause;
        }
        waitForInputToContinue(scanner);
        logger.info(DASHES);

        logger.info(DASHES);
        logger.info("7. Copy the object to another Amazon S3 bucket using multi
copy.");
        waitForInputToContinue(scanner);

        try {
            CompletableFuture<String> future =
s3Actions.performMultiCopy(toBucket, bucketName, key);
            String result = future.join();
            logger.info("Copy operation result: {}", result);

        } catch (RuntimeException rt) {
            Throwable cause = rt.getCause();
            if (cause instanceof S3Exception s3Ex) {
                logger.info("KMS error occurred: Error message: {}, Error code
{}", s3Ex.getMessage(), s3Ex.awsErrorDetails().errorCode());
            } else {
                logger.info("An unexpected error occurred: " + rt.getMessage());
            }
        }
        waitForInputToContinue(scanner);
        logger.info(DASHES);


        logger.info(DASHES);
        logger.info("8. Delete objects from the Amazon S3 bucket.");
        waitForInputToContinue(scanner);
        try {
            CompletableFuture<Void> future =
s3Actions.deleteObjectFromBucketAsync(bucketName, key);
            future.join();

        } catch (RuntimeException rt) {
            Throwable cause = rt.getCause();
            if (cause instanceof S3Exception s3Ex) {
                logger.info("S3 error occurred: Error message: {}, Error code
{}", s3Ex.getMessage(), s3Ex.awsErrorDetails().errorCode());
```

```
            } else {
                logger.info("An unexpected error occurred: " + rt.getMessage());
            }
            throw cause;
        }
        try {
            CompletableFuture<Void> future =
s3Actions.deleteObjectFromBucketAsync(bucketName, "multiPartKey");
            future.join();

        } catch (RuntimeException rt) {
            Throwable cause = rt.getCause();
            if (cause instanceof S3Exception s3Ex) {
                logger.info("S3 error occurred: Error message: {}, Error code
{}", s3Ex.getMessage(), s3Ex.awsErrorDetails().errorCode());
            } else {
                logger.info("An unexpected error occurred: " + rt.getMessage());
            }
            throw cause;
        }
        waitForInputToContinue(scanner);
        logger.info(DASHES);

        logger.info(DASHES);
        logger.info("9. Delete the Amazon S3 bucket.");
        waitForInputToContinue(scanner);
        try {
            CompletableFuture<Void> future =
s3Actions.deleteBucketAsync(bucketName);
            future.join();

        } catch (RuntimeException rt) {
            Throwable cause = rt.getCause();
            if (cause instanceof S3Exception s3Ex) {
                logger.info("S3 error occurred: Error message: {}, Error code
{}", s3Ex.getMessage(), s3Ex.awsErrorDetails().errorCode());
            } else {
                logger.info("An unexpected error occurred: " + rt.getMessage());
            }
            throw cause;
        }
        waitForInputToContinue(scanner);
        logger.info(DASHES);
```

```
        logger.info(DASHES);
        logger.info("You successfully completed the Amazon S3 scenario.");
        logger.info(DASHES);
    }

    private static void waitForInputToContinue(Scanner scanner) {
        while (true) {
            logger.info("");
            logger.info("Enter 'c' followed by <ENTER> to continue:");
            String input = scanner.nextLine();

            if (input.trim().equalsIgnoreCase("c")) {
                logger.info("Continuing with the program...");
                logger.info("");
                break;
            } else {
                // Handle invalid input.
                logger.info("Invalid input. Please try again.");
            }
        }
    }
}
```

A wrapper class that contains the operations.

```
public class S3Actions {

    private static final Logger logger =
 LoggerFactory.getLogger(S3Actions.class);
    private static S3AsyncClient s3AsyncClient;

    public static S3AsyncClient getAsyncClient() {
        if (s3AsyncClient == null) {
            /*
            The `NettyNioAsyncHttpClient` class is part of the AWS SDK for Java,
 version 2,
            and it is designed to provide a high-performance, asynchronous HTTP
 client for interacting with AWS services.
             It uses the Netty framework to handle the underlying network
 communication and the Java NIO API to
             provide a non-blocking, event-driven approach to HTTP requests and
 responses.
```

```
             */

           SdkAsyncHttpClient httpClient = NettyNioAsyncHttpClient.builder()
               .maxConcurrency(50)  // Adjust as needed.
               .connectionTimeout(Duration.ofSeconds(60))  // Set the connection
timeout.
               .readTimeout(Duration.ofSeconds(60))  // Set the read timeout.
               .writeTimeout(Duration.ofSeconds(60))  // Set the write timeout.
               .build();

           ClientOverrideConfiguration overrideConfig =
ClientOverrideConfiguration.builder()
               .apiCallTimeout(Duration.ofMinutes(2))  // Set the overall API
call timeout.
               .apiCallAttemptTimeout(Duration.ofSeconds(90))  // Set the
individual call attempt timeout.
               .retryStrategy(RetryMode.STANDARD)
               .build();

           s3AsyncClient = S3AsyncClient.builder()
               .region(Region.US_EAST_1)
               .httpClient(httpClient)
               .overrideConfiguration(overrideConfig)
               .build();
       }
       return s3AsyncClient;
   }


   /**
    * Creates an S3 bucket asynchronously.
    *
    * @param bucketName the name of the S3 bucket to create
    * @return a {@link CompletableFuture} that completes when the bucket is
created and ready
    * @throws RuntimeException if there is a failure while creating the bucket
    */
   public CompletableFuture<Void> createBucketAsync(String bucketName) {
       CreateBucketRequest bucketRequest = CreateBucketRequest.builder()
           .bucket(bucketName)
           .build();

       CompletableFuture<CreateBucketResponse> response =
getAsyncClient().createBucket(bucketRequest);
```

```
        return response.thenCompose(resp -> {
            S3AsyncWaiter s3Waiter = getAsyncClient().waiter();
            HeadBucketRequest bucketRequestWait = HeadBucketRequest.builder()
                .bucket(bucketName)
                .build();

            CompletableFuture<WaiterResponse<HeadBucketResponse>>
waiterResponseFuture =
                s3Waiter.waitUntilBucketExists(bucketRequestWait);
            return waiterResponseFuture.thenAccept(waiterResponse -> {
                waiterResponse.matched().response().ifPresent(headBucketResponse
-> {
                    logger.info(bucketName + " is ready");
                });
            });
        }).whenComplete((resp, ex) -> {
            if (ex != null) {
                throw new RuntimeException("Failed to create bucket", ex);
            }
        });
    }


    /**
     * Uploads a local file to an AWS S3 bucket asynchronously.
     *
     * @param bucketName the name of the S3 bucket to upload the file to
     * @param key        the key (object name) to use for the uploaded file
     * @param objectPath the local file path of the file to be uploaded
     * @return a {@link CompletableFuture} that completes with the {@link
PutObjectResponse} when the upload is successful, or throws a {@link
RuntimeException} if the upload fails
     */
    public CompletableFuture<PutObjectResponse> uploadLocalFileAsync(String
bucketName, String key, String objectPath) {
        PutObjectRequest objectRequest = PutObjectRequest.builder()
            .bucket(bucketName)
            .key(key)
            .build();

        CompletableFuture<PutObjectResponse> response =
getAsyncClient().putObject(objectRequest,
AsyncRequestBody.fromFile(Paths.get(objectPath)));
        return response.whenComplete((resp, ex) -> {
```

```
            if (ex != null) {
                throw new RuntimeException("Failed to upload file", ex);
            }
        });
    }


    /**
     * Asynchronously retrieves the bytes of an object from an Amazon S3 bucket
and writes them to a local file.
     *
     * @param bucketName the name of the S3 bucket containing the object
     * @param keyName    the key (or name) of the S3 object to retrieve
     * @param path       the local file path where the object's bytes will be
written
     * @return a {@link CompletableFuture} that completes when the object bytes
have been written to the local file
     */
    public CompletableFuture<Void> getObjectBytesAsync(String bucketName, String
keyName, String path) {
        GetObjectRequest objectRequest = GetObjectRequest.builder()
            .key(keyName)
            .bucket(bucketName)
            .build();

        CompletableFuture<ResponseBytes<GetObjectResponse>> response =
getAsyncClient().getObject(objectRequest, AsyncResponseTransformer.toBytes());
        return response.thenAccept(objectBytes -> {
            try {
                byte[] data = objectBytes.asByteArray();
                Path filePath = Paths.get(path);
                Files.write(filePath, data);
                logger.info("Successfully obtained bytes from an S3 object");
            } catch (IOException ex) {
                throw new RuntimeException("Failed to write data to file", ex);
            }
        }).whenComplete((resp, ex) -> {
            if (ex != null) {
                throw new RuntimeException("Failed to get object bytes from S3",
ex);
            }
        });
    }
```

```
   /**
    * Asynchronously lists all objects in the specified S3 bucket.
    *
    * @param bucketName the name of the S3 bucket to list objects for
    * @return a {@link CompletableFuture} that completes when all objects have
been listed
    */
   public CompletableFuture<Void> listAllObjectsAsync(String bucketName) {
       ListObjectsV2Request initialRequest = ListObjectsV2Request.builder()
           .bucket(bucketName)
           .maxKeys(1)
           .build();

       ListObjectsV2Publisher paginator =
getAsyncClient().listObjectsV2Paginator(initialRequest);
       return paginator.subscribe(response -> {
           response.contents().forEach(s3Object -> {
               logger.info("Object key: " + s3Object.key());
           });
       }).thenRun(() -> {
           logger.info("Successfully listed all objects in the bucket: " +
bucketName);
       }).exceptionally(ex -> {
           throw new RuntimeException("Failed to list objects", ex);
       });
   }


   /**
    * Asynchronously copies an object from one S3 bucket to another.
    *
    * @param fromBucket the name of the source S3 bucket
    * @param objectKey  the key (name) of the object to be copied
    * @param toBucket   the name of the destination S3 bucket
    * @return a {@link CompletableFuture} that completes with the copy result as
a {@link String}
    * @throws RuntimeException if the URL could not be encoded or an S3
exception occurred during the copy
    */
   public CompletableFuture<String> copyBucketObjectAsync(String fromBucket,
String objectKey, String toBucket) {
       CopyObjectRequest copyReq = CopyObjectRequest.builder()
           .sourceBucket(fromBucket)
```

```
            .sourceKey(objectKey)
            .destinationBucket(toBucket)
            .destinationKey(objectKey)
            .build();

        CompletableFuture<CopyObjectResponse> response =
getAsyncClient().copyObject(copyReq);
        response.whenComplete((copyRes, ex) -> {
            if (copyRes != null) {
                logger.info("The " + objectKey + " was copied to " + toBucket);
            } else {
                throw new RuntimeException("An S3 exception occurred during
copy", ex);
            }
        });

        return response.thenApply(CopyObjectResponse::copyObjectResult)
            .thenApply(Object::toString);
    }

    /**
     * Performs a multipart upload to an Amazon S3 bucket.
     *
     * @param bucketName the name of the S3 bucket to upload the file to
     * @param key        the key (name) of the file to be uploaded
     * @return a {@link CompletableFuture} that completes when the multipart
upload is successful
     */
    public CompletableFuture<Void> multipartUpload(String bucketName, String key)
{
        int mB = 1024 * 1024;

        CreateMultipartUploadRequest createMultipartUploadRequest =
CreateMultipartUploadRequest.builder()
            .bucket(bucketName)
            .key(key)
            .build();

        return
getAsyncClient().createMultipartUpload(createMultipartUploadRequest)
            .thenCompose(createResponse -> {
                String uploadId = createResponse.uploadId();
                System.out.println("Upload ID: " + uploadId);
```

```
                // Upload part 1.
                UploadPartRequest uploadPartRequest1 =
UploadPartRequest.builder()
                    .bucket(bucketName)
                    .key(key)
                    .uploadId(uploadId)
                    .partNumber(1)
                    .contentLength((long) (5 * mB)) // Specify the content length
                    .build();

                CompletableFuture<CompletedPart> part1Future =
getAsyncClient().uploadPart(uploadPartRequest1,
                        AsyncRequestBody.fromByteBuffer(getRandomByteBuffer(5 *
mB)))
                    .thenApply(uploadPartResponse -> CompletedPart.builder()
                        .partNumber(1)
                        .eTag(uploadPartResponse.eTag())
                        .build());

                // Upload part 2.
                UploadPartRequest uploadPartRequest2 =
UploadPartRequest.builder()
                    .bucket(bucketName)
                    .key(key)
                    .uploadId(uploadId)
                    .partNumber(2)
                    .contentLength((long) (3 * mB))
                    .build();

                CompletableFuture<CompletedPart> part2Future =
getAsyncClient().uploadPart(uploadPartRequest2,
                        AsyncRequestBody.fromByteBuffer(getRandomByteBuffer(3 *
mB)))
                    .thenApply(uploadPartResponse -> CompletedPart.builder()
                        .partNumber(2)
                        .eTag(uploadPartResponse.eTag())
                        .build());

                // Combine the results of both parts.
                return CompletableFuture.allOf(part1Future, part2Future)
                    .thenCompose(v -> {
                        CompletedPart part1 = part1Future.join();
                        CompletedPart part2 = part2Future.join();
```

```
                        CompletedMultipartUpload completedMultipartUpload =
CompletedMultipartUpload.builder()
                            .parts(part1, part2)
                            .build();

                        CompleteMultipartUploadRequest
completeMultipartUploadRequest = CompleteMultipartUploadRequest.builder()
                            .bucket(bucketName)
                            .key(key)
                            .uploadId(uploadId)
                            .multipartUpload(completedMultipartUpload)
                            .build();

                        // Complete the multipart upload
                        return
getAsyncClient().completeMultipartUpload(completeMultipartUploadRequest);
                    });
           })
           .thenAccept(response -> System.out.println("Multipart upload
completed successfully"))
           .exceptionally(ex -> {
               System.err.println("Failed to complete multipart upload: " +
ex.getMessage());
               throw new RuntimeException(ex);
           });
   }


   /**
    * Deletes an object from an S3 bucket asynchronously.
    *
    * @param bucketName the name of the S3 bucket
    * @param key        the key (file name) of the object to be deleted
    * @return a {@link CompletableFuture} that completes when the object has
been deleted
    */
   public CompletableFuture<Void> deleteObjectFromBucketAsync(String bucketName,
String key) {
       DeleteObjectRequest deleteObjectRequest = DeleteObjectRequest.builder()
           .bucket(bucketName)
           .key(key)
           .build();
```

```
        CompletableFuture<DeleteObjectResponse> response =
getAsyncClient().deleteObject(deleteObjectRequest);
        response.whenComplete((deleteRes, ex) -> {
            if (deleteRes != null) {
                logger.info(key + " was deleted");
            } else {
                throw new RuntimeException("An S3 exception occurred during
delete", ex);
            }
        });

        return response.thenApply(r -> null);
    }


    /**
     * Deletes an S3 bucket asynchronously.
     *
     * @param bucket the name of the bucket to be deleted
     * @return a {@link CompletableFuture} that completes when the bucket
deletion is successful, or throws a {@link RuntimeException}
     * if an error occurs during the deletion process
     */
    public CompletableFuture<Void> deleteBucketAsync(String bucket) {
        DeleteBucketRequest deleteBucketRequest = DeleteBucketRequest.builder()
            .bucket(bucket)
            .build();

        CompletableFuture<DeleteBucketResponse> response =
getAsyncClient().deleteBucket(deleteBucketRequest);
        response.whenComplete((deleteRes, ex) -> {
            if (deleteRes != null) {
                logger.info(bucket + " was deleted.");
            } else {
                throw new RuntimeException("An S3 exception occurred during
bucket deletion", ex);
            }
        });
        return response.thenApply(r -> null);
    }

    public CompletableFuture<String> performMultiCopy(String toBucket, String
bucketName, String key) {
```

```
        CreateMultipartUploadRequest createMultipartUploadRequest =
CreateMultipartUploadRequest.builder()
            .bucket(toBucket)
            .key(key)
            .build();

        getAsyncClient().createMultipartUpload(createMultipartUploadRequest)
            .thenApply(createMultipartUploadResponse -> {
                String uploadId = createMultipartUploadResponse.uploadId();
                System.out.println("Upload ID: " + uploadId);

                UploadPartCopyRequest uploadPartCopyRequest =
UploadPartCopyRequest.builder()
                    .sourceBucket(bucketName)
                    .destinationBucket(toBucket)
                    .sourceKey(key)
                    .destinationKey(key)
                    .uploadId(uploadId)  // Use the valid uploadId.
                    .partNumber(1)  // Ensure the part number is correct.
                    .copySourceRange("bytes=0-1023")  // Adjust range as needed
                    .build();

                return getAsyncClient().uploadPartCopy(uploadPartCopyRequest);
            })
            .thenCompose(uploadPartCopyFuture -> uploadPartCopyFuture)
            .whenComplete((uploadPartCopyResponse, exception) -> {
                if (exception != null) {
                    // Handle any exceptions.
                    logger.error("Error during upload part copy: " +
exception.getMessage());
                } else {
                    // Successfully completed the upload part copy.
                    System.out.println("Upload Part Copy completed successfully.
ETag: " + uploadPartCopyResponse.copyPartResult().eTag());
                }
            });
        return null;
    }

    private static ByteBuffer getRandomByteBuffer(int size) {
        ByteBuffer buffer = ByteBuffer.allocate(size);
        for (int i = 0; i < size; i++) {
            buffer.put((byte) (Math.random() * 256));
        }
```

```
        buffer.flip();
        return buffer;
    }
}
```

- For API details, see the following topics in *AWS SDK for Java 2.x API Reference*.
  - CopyObject
  - CreateBucket
  - DeleteBucket
  - DeleteObjects
  - GetObject
  - ListObjectsV2
  - PutObject

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

First, import all the necessary modules.

```
// Used to check if currently running file is this file.
import { fileURLToPath } from "node:url";
import { readdirSync, readFileSync, writeFileSync } from "node:fs";

// Local helper utils.
import { dirnameFromMetaUrl } from "@aws-doc-sdk-examples/lib/utils/util-fs.js";
import { Prompter } from "@aws-doc-sdk-examples/lib/prompter.js";
import { wrapText } from "@aws-doc-sdk-examples/lib/utils/util-string.js";

import {
  S3Client,
  CreateBucketCommand,
```

```
  PutObjectCommand,
  ListObjectsCommand,
  CopyObjectCommand,
  GetObjectCommand,
  DeleteObjectsCommand,
  DeleteBucketCommand,
} from "@aws-sdk/client-s3";
```

The preceding imports reference some helper utilities. These utilities are local to the GitHub repository linked at the start of this section. For your reference, see the following implementations of those utilities.

```
export const dirnameFromMetaUrl = (metaUrl) =>
  fileURLToPath(new URL(".", metaUrl));

import { select, input, confirm, checkbox, password } from "@inquirer/prompts";

export class Prompter {
  /**
   * @param {{ message: string, choices: { name: string, value: string }[]}}
 options
   */
  select(options) {
    return select(options);
  }

  /**
   * @param {{ message: string }} options
   */
  input(options) {
    return input(options);
  }

  /**
   * @param {{ message: string }} options
   */
  password(options) {
    return password({ ...options, mask: true });
  }

  /**
   * @param {string} prompt
```

```
   */
  checkContinue = async (prompt = "") => {
    const prefix = prompt && `${prompt} `;
    const ok = await this.confirm({
      message: `${prefix}Continue?`,
    });
    if (!ok) throw new Error("Exiting...");
  };

  /**
   * @param {{ message: string }} options
   */
  confirm(options) {
    return confirm(options);
  }

  /**
   * @param {{ message: string, choices: { name: string, value: string }[]}}
 options
   */
  checkbox(options) {
    return checkbox(options);
  }
}

export const wrapText = (text, char = "=") => {
  const rule = char.repeat(80);
  return `${rule}\n    ${text}\n${rule}\n`;
};
```

Objects in S3 are stored in 'buckets'. Let's define a function for creating a new bucket.

```
export const createBucket = async () => {
  const bucketName = await prompter.input({
    message: "Enter a bucket name. Bucket names must be globally unique:",
  });
  const command = new CreateBucketCommand({ Bucket: bucketName });
  await s3Client.send(command);
  console.log("Bucket created successfully.\n");
  return bucketName;
};
```

Buckets contain 'objects'. This function uploads the contents of a directory to your bucket as objects.

```
export const uploadFilesToBucket = async ({ bucketName, folderPath }) => {
  console.log(`Uploading files from ${folderPath}\n`);
  const keys = readdirSync(folderPath);
  const files = keys.map((key) => {
    const filePath = `${folderPath}/${key}`;
    const fileContent = readFileSync(filePath);
    return {
      Key: key,
      Body: fileContent,
    };
  });

  for (const file of files) {
    await s3Client.send(
      new PutObjectCommand({
        Bucket: bucketName,
        Body: file.Body,
        Key: file.Key,
      }),
    );
    console.log(`${file.Key} uploaded successfully.`);
  }
};
```

After uploading objects, check to confirm that they were uploaded correctly. You can use ListObjects for that. You'll be using the 'Key' property, but there are other useful properties in the response also.

```
export const listFilesInBucket = async ({ bucketName }) => {
  const command = new ListObjectsCommand({ Bucket: bucketName });
  const { Contents } = await s3Client.send(command);
  const contentsList = Contents.map((c) => ` • ${c.Key}`).join("\n");
  console.log("\nHere's a list of files in the bucket:");
  console.log(`${contentsList}\n`);
};
```

Sometimes you might want to copy an object from one bucket to another. Use the CopyObject command for that.

```
export const copyFileFromBucket = async ({ destinationBucket }) => {
  const proceed = await prompter.confirm({
    message: "Would you like to copy an object from another bucket?",
  });

  if (!proceed) {
    return;
  }
  const copy = async () => {
    try {
      const sourceBucket = await prompter.input({
        message: "Enter source bucket name:",
      });
      const sourceKey = await prompter.input({
        message: "Enter source key:",
      });
      const destinationKey = await prompter.input({
        message: "Enter destination key:",
      });

      const command = new CopyObjectCommand({
        Bucket: destinationBucket,
        CopySource: `${sourceBucket}/${sourceKey}`,
        Key: destinationKey,
      });
      await s3Client.send(command);
      await copyFileFromBucket({ destinationBucket });
    } catch (err) {
      console.error("Copy error.");
      console.error(err);
      const retryAnswer = await prompter.confirm({ message: "Try again?" });
      if (retryAnswer) {
        await copy();
      }
    }
  };
  await copy();
};
```

There's no SDK method for getting multiple objects from a bucket. Instead, you'll create a list of objects to download and iterate over them.

```
export const downloadFilesFromBucket = async ({ bucketName }) => {
  const { Contents } = await s3Client.send(
    new ListObjectsCommand({ Bucket: bucketName }),
  );
  const path = await prompter.input({
    message: "Enter destination path for files:",
  });

  for (const content of Contents) {
    const obj = await s3Client.send(
      new GetObjectCommand({ Bucket: bucketName, Key: content.Key }),
    );
    writeFileSync(
      `${path}/${content.Key}`,
      await obj.Body.transformToByteArray(),
    );
  }
  console.log("Files downloaded successfully.\n");
};
```

It's time to clean up your resources. A bucket must be empty before it can be deleted. These two functions empty and delete the bucket.

```
export const emptyBucket = async ({ bucketName }) => {
  const listObjectsCommand = new ListObjectsCommand({ Bucket: bucketName });
  const { Contents } = await s3Client.send(listObjectsCommand);
  const keys = Contents.map((c) => c.Key);

  const deleteObjectsCommand = new DeleteObjectsCommand({
    Bucket: bucketName,
    Delete: { Objects: keys.map((key) => ({ Key: key })) },
  });
  await s3Client.send(deleteObjectsCommand);
  console.log(`${bucketName} emptied successfully.\n`);
};

export const deleteBucket = async ({ bucketName }) => {
  const command = new DeleteBucketCommand({ Bucket: bucketName });
  await s3Client.send(command);
```

```
  console.log(`${bucketName} deleted successfully.\n`);
};
```

The 'main' function pulls everything together. If you run this file directly the main function will be called.

```
const main = async () => {
  const OBJECT_DIRECTORY = `${dirnameFromMetaUrl(
    import.meta.url,
  )}../../../../resources/sample_files/.sample_media`;

  try {
    console.log(wrapText("Welcome to the Amazon S3 getting started example."));
    console.log("Let's create a bucket.");
    const bucketName = await createBucket();
    await prompter.confirm({ message: continueMessage });

    console.log(wrapText("File upload."));
    console.log(
      "I have some default files ready to go. You can edit the source code to
 provide your own.",
    );
    await uploadFilesToBucket({
      bucketName,
      folderPath: OBJECT_DIRECTORY,
    });

    await listFilesInBucket({ bucketName });
    await prompter.confirm({ message: continueMessage });

    console.log(wrapText("Copy files."));
    await copyFileFromBucket({ destinationBucket: bucketName });
    await listFilesInBucket({ bucketName });
    await prompter.confirm({ message: continueMessage });

    console.log(wrapText("Download files."));
    await downloadFilesFromBucket({ bucketName });

    console.log(wrapText("Clean up."));
    await emptyBucket({ bucketName });
    await deleteBucket({ bucketName });
  } catch (err) {
```

```
    console.error(err);
  }
};
```

- For API details, see the following topics in *AWS SDK for JavaScript API Reference*.
  - CopyObject
  - CreateBucket
  - DeleteBucket
  - DeleteObjects
  - GetObject
  - ListObjectsV2
  - PutObject

Kotlin

SDK for Kotlin

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
suspend fun main(args: Array<String>) {
    val usage = """
    Usage:
        <bucketName> <key> <objectPath> <savePath> <toBucket>

    Where:
        bucketName - The Amazon S3 bucket to create.
        key - The key to use.
        objectPath - The path where the file is located (for example, C:/AWS/
book2.pdf).
        savePath - The path where the file is saved after it's downloaded (for
 example, C:/AWS/book2.pdf).
        toBucket - An Amazon S3 bucket to where an object is copied to (for
 example, C:/AWS/book2.pdf).
```

```
        """

    if (args.size != 4) {
        println(usage)
        exitProcess(1)
    }

    val bucketName = args[0]
    val key = args[1]
    val objectPath = args[2]
    val savePath = args[3]
    val toBucket = args[4]

    // Create an Amazon S3 bucket.
    createBucket(bucketName)

    // Update a local file to the Amazon S3 bucket.
    putObject(bucketName, key, objectPath)

    // Download the object to another local file.
    getObjectFromMrap(bucketName, key, savePath)

    // List all objects located in the Amazon S3 bucket.
    listBucketObs(bucketName)

    // Copy the object to another Amazon S3 bucket
    copyBucketOb(bucketName, key, toBucket)

    // Delete the object from the Amazon S3 bucket.
    deleteBucketObs(bucketName, key)

    // Delete the Amazon S3 bucket.
    deleteBucket(bucketName)
    println("All Amazon S3 operations were successfully performed")
}

suspend fun createBucket(bucketName: String) {
    val request =
        CreateBucketRequest {
            bucket = bucketName
        }

    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->
        s3.createBucket(request)
```

```
        println("$bucketName is ready")
    }
}

suspend fun putObject(
    bucketName: String,
    objectKey: String,
    objectPath: String,
) {
    val metadataVal = mutableMapOf<String, String>()
    metadataVal["myVal"] = "test"

    val request =
        PutObjectRequest {
            bucket = bucketName
            key = objectKey
            metadata = metadataVal
            this.body = Paths.get(objectPath).asByteStream()
        }

    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->
        val response = s3.putObject(request)
        println("Tag information is ${response.eTag}")
    }
}

suspend fun getObjectFromMrap(
    bucketName: String,
    keyName: String,
    path: String,
) {
    val request =
        GetObjectRequest {
            key = keyName
            bucket = bucketName
        }

    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->
        s3.getObject(request) { resp ->
            val myFile = File(path)
            resp.body?.writeToFile(myFile)
            println("Successfully read $keyName from $bucketName")
        }
    }
```

```
}

suspend fun listBucketObs(bucketName: String) {
    val request =
        ListObjectsRequest {
            bucket = bucketName
        }

    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->

        val response = s3.listObjects(request)
        response.contents?.forEach { myObject ->
            println("The name of the key is ${myObject.key}")
            println("The owner is ${myObject.owner}")
        }
    }
}

suspend fun copyBucketOb(
    fromBucket: String,
    objectKey: String,
    toBucket: String,
) {
    var encodedUrl = ""
    try {
        encodedUrl = URLEncoder.encode("$fromBucket/$objectKey",
 StandardCharsets.UTF_8.toString())
    } catch (e: UnsupportedEncodingException) {
        println("URL could not be encoded: " + e.message)
    }

    val request =
        CopyObjectRequest {
            copySource = encodedUrl
            bucket = toBucket
            key = objectKey
        }
    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->
        s3.copyObject(request)
    }
}

suspend fun deleteBucketObs(
    bucketName: String,
```

```
    objectName: String,
) {
    val objectId =
        ObjectIdentifier {
            key = objectName
        }

    val delOb =
        Delete {
            objects = listOf(objectId)
        }

    val request =
        DeleteObjectsRequest {
            bucket = bucketName
            delete = delOb
        }

    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->
        s3.deleteObjects(request)
        println("$objectName was deleted from $bucketName")
    }
}

suspend fun deleteBucket(bucketName: String?) {
    val request =
        DeleteBucketRequest {
            bucket = bucketName
        }
    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->
        s3.deleteBucket(request)
        println("The $bucketName was successfully deleted!")
    }
}
```

- For API details, see the following topics in *AWS SDK for Kotlin API reference*.
  - CopyObject
  - CreateBucket
  - DeleteBucket
  - DeleteObjects

- GetObject
- ListObjectsV2
- PutObject

PHP

SDK for PHP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
        echo("\n");
        echo("--------------------------------------\n");
        print("Welcome to the Amazon S3 getting started demo using PHP!\n");
        echo("--------------------------------------\n");

        $region = 'us-west-2';

        $this->s3client = new S3Client([
                'region' => $region,
        ]);
        /* Inline declaration example
        $s3client = new Aws\S3\S3Client(['region' => 'us-west-2']);
        */

        $this->bucketName = "amzn-s3-demo-bucket-" . uniqid();

        try {
            $this->s3client->createBucket([
                'Bucket' => $this->bucketName,
                'CreateBucketConfiguration' => ['LocationConstraint' => $region],
            ]);
            echo "Created bucket named: $this->bucketName \n";
        } catch (Exception $exception) {
            echo "Failed to create bucket $this->bucketName with error: " .
$exception->getMessage();
            exit("Please fix error with bucket creation before continuing.");
        }
```

```
        $fileName = __DIR__ . "/local-file-" . uniqid();
        try {
            $this->s3client->putObject([
                'Bucket' => $this->bucketName,
                'Key' => $fileName,
                'SourceFile' => __DIR__ . '/testfile.txt'
            ]);
            echo "Uploaded $fileName to $this->bucketName.\n";
        } catch (Exception $exception) {
            echo "Failed to upload $fileName with error: " . $exception-
>getMessage();
            exit("Please fix error with file upload before continuing.");
        }

        try {
            $file = $this->s3client->getObject([
                'Bucket' => $this->bucketName,
                'Key' => $fileName,
            ]);
            $body = $file->get('Body');
            $body->rewind();
            echo "Downloaded the file and it begins with: {$body->read(26)}.\n";
        } catch (Exception $exception) {
            echo "Failed to download $fileName from $this->bucketName with error:
 " . $exception->getMessage();
            exit("Please fix error with file downloading before continuing.");
        }

        try {
            $folder = "copied-folder";
            $this->s3client->copyObject([
                'Bucket' => $this->bucketName,
                'CopySource' => "$this->bucketName/$fileName",
                'Key' => "$folder/$fileName-copy",
            ]);
            echo "Copied $fileName to $folder/$fileName-copy.\n";
        } catch (Exception $exception) {
            echo "Failed to copy $fileName with error: " . $exception-
>getMessage();
            exit("Please fix error with object copying before continuing.");
        }

        try {
```

```
            $contents = $this->s3client->listObjectsV2([
                'Bucket' => $this->bucketName,
            ]);
            echo "The contents of your bucket are: \n";
            foreach ($contents['Contents'] as $content) {
                echo $content['Key'] . "\n";
            }
        } catch (Exception $exception) {
            echo "Failed to list objects in $this->bucketName with error: " .
 $exception->getMessage();
            exit("Please fix error with listing objects before continuing.");
        }

        try {
            $objects = [];
            foreach ($contents['Contents'] as $content) {
                $objects[] = [
                    'Key' => $content['Key'],
                ];
            }
            $this->s3client->deleteObjects([
                'Bucket' => $this->bucketName,
                'Delete' => [
                    'Objects' => $objects,
                ],
            ]);
            $check = $this->s3client->listObjectsV2([
                'Bucket' => $this->bucketName,
            ]);
            if (isset($check['Contents']) && count($check['Contents']) > 0) {
                throw new Exception("Bucket wasn't empty.");
            }
            echo "Deleted all objects and folders from $this->bucketName.\n";
        } catch (Exception $exception) {
            echo "Failed to delete $fileName from $this->bucketName with error:
 " . $exception->getMessage();
            exit("Please fix error with object deletion before continuing.");
        }

        try {
            $this->s3client->deleteBucket([
                'Bucket' => $this->bucketName,
            ]);
            echo "Deleted bucket $this->bucketName.\n";
```

```
        } catch (Exception $exception) {
            echo "Failed to delete $this->bucketName with error: " . $exception-
>getMessage();
            exit("Please fix error with bucket deletion before continuing.");
        }

        echo "Successfully ran the Amazon S3 with PHP demo.\n";
```

- For API details, see the following topics in *AWS SDK for PHP API Reference*.
  - CopyObject
  - CreateBucket
  - DeleteBucket
  - DeleteObjects
  - GetObject
  - ListObjectsV2
  - PutObject

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import io
import os
import uuid

import boto3
from boto3.s3.transfer import S3UploadFailedError
from botocore.exceptions import ClientError
```

```
def do_scenario(s3_resource):
    print("-" * 88)
    print("Welcome to the Amazon S3 getting started demo!")
    print("-" * 88)

    bucket_name = f"amzn-s3-demo-bucket-{uuid.uuid4()}"
    bucket = s3_resource.Bucket(bucket_name)
    try:
        bucket.create(
            CreateBucketConfiguration={
                "LocationConstraint": s3_resource.meta.client.meta.region_name
            }
        )
        print(f"Created demo bucket named {bucket.name}.")
    except ClientError as err:
        print(f"Tried and failed to create demo bucket {bucket_name}.")
        print(f"\t{err.response['Error']['Code']}:{err.response['Error']
['Message']}")
        print(f"\nCan't continue the demo without a bucket!")
        return

    file_name = None
    while file_name is None:
        file_name = input("\nEnter a file you want to upload to your bucket: ")
        if not os.path.exists(file_name):
            print(f"Couldn't find file {file_name}. Are you sure it exists?")
            file_name = None

    obj = bucket.Object(os.path.basename(file_name))
    try:
        obj.upload_file(file_name)
        print(
            f"Uploaded file {file_name} into bucket {bucket.name} with key
 {obj.key}."
        )
    except S3UploadFailedError as err:
        print(f"Couldn't upload file {file_name} to {bucket.name}.")
        print(f"\t{err}")

    answer = input(f"\nDo you want to download {obj.key} into memory (y/n)? ")
    if answer.lower() == "y":
        data = io.BytesIO()
        try:
            obj.download_fileobj(data)
```

```
            data.seek(0)
            print(f"Got your object. Here are the first 20 bytes:\n")
            print(f"\t{data.read(20)}")
        except ClientError as err:
            print(f"Couldn't download {obj.key}.")
            print(
                f"\t{err.response['Error']['Code']}:{err.response['Error']
['Message']}"
            )

    answer = input(
        f"\nDo you want to copy {obj.key} to a subfolder in your bucket (y/n)? "
    )
    if answer.lower() == "y":
        dest_obj = bucket.Object(f"demo-folder/{obj.key}")
        try:
            dest_obj.copy({"Bucket": bucket.name, "Key": obj.key})
            print(f"Copied {obj.key} to {dest_obj.key}.")
        except ClientError as err:
            print(f"Couldn't copy {obj.key} to {dest_obj.key}.")
            print(
                f"\t{err.response['Error']['Code']}:{err.response['Error']
['Message']}"
            )

    print("\nYour bucket contains the following objects:")
    try:
        for o in bucket.objects.all():
            print(f"\t{o.key}")
    except ClientError as err:
        print(f"Couldn't list the objects in bucket {bucket.name}.")
        print(f"\t{err.response['Error']['Code']}:{err.response['Error']
['Message']}")

    answer = input(
        "\nDo you want to delete all of the objects as well as the bucket (y/n)?
 "
    )
    if answer.lower() == "y":
        try:
            bucket.objects.delete()
            bucket.delete()
            print(f"Emptied and deleted bucket {bucket.name}.\n")
        except ClientError as err:
```

```
            print(f"Couldn't empty and delete bucket {bucket.name}.")
            print(
                f"\t{err.response['Error']['Code']}:{err.response['Error']
['Message']}"
            )

    print("Thanks for watching!")
    print("-" * 88)


if __name__ == "__main__":
    do_scenario(boto3.resource("s3"))
```

- For API details, see the following topics in *AWS SDK for Python (Boto3) API Reference*.
  - CopyObject
  - CreateBucket
  - DeleteBucket
  - DeleteObjects
  - GetObject
  - ListObjectsV2
  - PutObject

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
require 'aws-sdk-s3'

# Wraps the getting started scenario actions.
class ScenarioGettingStarted
  attr_reader :s3_resource
```

```
  # @param s3_resource [Aws::S3::Resource] An Amazon S3 resource.
  def initialize(s3_resource)
    @s3_resource = s3_resource
  end

  # Creates a bucket with a random name in the currently configured account and
  # AWS Region.
  #
  # @return [Aws::S3::Bucket] The newly created bucket.
  def create_bucket
    bucket = @s3_resource.create_bucket(
      bucket: "amzn-s3-demo-bucket-#{Random.uuid}",
      create_bucket_configuration: {
        location_constraint: 'us-east-1' # NOTE: only certain regions permitted
      }
    )
    puts("Created demo bucket named #{bucket.name}.")
  rescue Aws::Errors::ServiceError => e
    puts('Tried and failed to create demo bucket.')
    puts("\t#{e.code}: #{e.message}")
    puts("\nCan't continue the demo without a bucket!")
    raise
  else
    bucket
  end

  # Requests a file name from the user.
  #
  # @return The name of the file.
  def create_file
    File.open('demo.txt', w) { |f| f.write('This is a demo file.') }
  end

  # Uploads a file to an Amazon S3 bucket.
  #
  # @param bucket [Aws::S3::Bucket] The bucket object representing the upload
destination
  # @return [Aws::S3::Object] The Amazon S3 object that contains the uploaded
file.
  def upload_file(bucket)
    File.open('demo.txt', 'w+') { |f| f.write('This is a demo file.') }
    s3_object = bucket.object(File.basename('demo.txt'))
    s3_object.upload_file('demo.txt')
```

```
    puts("Uploaded file demo.txt into bucket #{bucket.name} with key
 #{s3_object.key}.")
  rescue Aws::Errors::ServiceError => e
    puts("Couldn't upload file demo.txt to #{bucket.name}.")
    puts("\t#{e.code}: #{e.message}")
    raise
  else
    s3_object
  end

  # Downloads an Amazon S3 object to a file.
  #
  # @param s3_object [Aws::S3::Object] The object to download.
  def download_file(s3_object)
    puts("\nDo you want to download #{s3_object.key} to a local file (y/n)? ")
    answer = gets.chomp.downcase
    if answer == 'y'
      puts('Enter a name for the downloaded file: ')
      file_name = gets.chomp
      s3_object.download_file(file_name)
      puts("Object #{s3_object.key} successfully downloaded to #{file_name}.")
    end
  rescue Aws::Errors::ServiceError => e
    puts("Couldn't download #{s3_object.key}.")
    puts("\t#{e.code}: #{e.message}")
    raise
  end

  # Copies an Amazon S3 object to a subfolder within the same bucket.
  #
  # @param source_object [Aws::S3::Object] The source object to copy.
  # @return [Aws::S3::Object, nil] The destination object.
  def copy_object(source_object)
    dest_object = nil
    puts("\nDo you want to copy #{source_object.key} to a subfolder in your
 bucket (y/n)? ")
    answer = gets.chomp.downcase
    if answer == 'y'
      dest_object = source_object.bucket.object("demo-folder/
#{source_object.key}")
      dest_object.copy_from(source_object)
      puts("Copied #{source_object.key} to #{dest_object.key}.")
    end
  rescue Aws::Errors::ServiceError => e
```

```
    puts("Couldn't copy #{source_object.key}.")
    puts("\t#{e.code}: #{e.message}")
    raise
  else
    dest_object
  end

  # Lists the objects in an Amazon S3 bucket.
  #
  # @param bucket [Aws::S3::Bucket] The bucket to query.
  def list_objects(bucket)
    puts("\nYour bucket contains the following objects:")
    bucket.objects.each do |obj|
      puts("\t#{obj.key}")
    end
  rescue Aws::Errors::ServiceError => e
    puts("Couldn't list the objects in bucket #{bucket.name}.")
    puts("\t#{e.code}: #{e.message}")
    raise
  end

  # Deletes the objects in an Amazon S3 bucket and deletes the bucket.
  #
  # @param bucket [Aws::S3::Bucket] The bucket to empty and delete.
  def delete_bucket(bucket)
    puts("\nDo you want to delete all of the objects as well as the bucket (y/n)?
 ")
    answer = gets.chomp.downcase
    if answer == 'y'
      bucket.objects.batch_delete!
      bucket.delete
      puts("Emptied and deleted bucket #{bucket.name}.\n")
    end
  rescue Aws::Errors::ServiceError => e
    puts("Couldn't empty and delete bucket #{bucket.name}.")
    puts("\t#{e.code}: #{e.message}")
    raise
  end
end

# Runs the Amazon S3 getting started scenario.
def run_scenario(scenario)
  puts('-' * 88)
  puts('Welcome to the Amazon S3 getting started demo!')
```

```
  puts('-' * 88)

  bucket = scenario.create_bucket
  s3_object = scenario.upload_file(bucket)
  scenario.download_file(s3_object)
  scenario.copy_object(s3_object)
  scenario.list_objects(bucket)
  scenario.delete_bucket(bucket)

  puts('Thanks for watching!')
  puts('-' * 88)
rescue Aws::Errors::ServiceError
  puts('Something went wrong with the demo!')
end

run_scenario(ScenarioGettingStarted.new(Aws::S3::Resource.new)) if $PROGRAM_NAME
 == __FILE__
```

- For API details, see the following topics in *AWS SDK for Ruby API Reference*.
  - CopyObject
  - CreateBucket
  - DeleteBucket
  - DeleteObjects
  - GetObject
  - ListObjectsV2
  - PutObject

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Code for the binary crate which runs the scenario.

```
#![allow(clippy::result_large_err)]

//!  Purpose
//!  Shows how to use the AWS SDK for Rust to get started using
//!  Amazon Simple Storage Service (Amazon S3). Create a bucket, move objects
 into and out of it,
//!  and delete all resources at the end of the demo.
//!
//!  This example follows the steps in "Getting started with Amazon S3" in the
 Amazon S3
//!  user guide.
//!  - https://docs.aws.amazon.com/AmazonS3/latest/userguide/
GetStartedWithS3.html

use aws_config::meta::region::RegionProviderChain;
use aws_sdk_s3::{config::Region, Client};
use s3_code_examples::error::S3ExampleError;
use uuid::Uuid;

#[tokio::main]
async fn main() -> Result<(), S3ExampleError> {
    let region_provider = RegionProviderChain::first_try(Region::new("us-
west-2"));
    let region = region_provider.region().await.unwrap();
    let shared_config =
 aws_config::from_env().region(region_provider).load().await;
    let client = Client::new(&shared_config);
    let bucket_name = format!("amzn-s3-demo-bucket-{}", Uuid::new_v4());
    let file_name = "s3/testfile.txt".to_string();
    let key = "test file key name".to_string();
    let target_key = "target_key".to_string();

    if let Err(e) = run_s3_operations(region, client, bucket_name, file_name,
 key, target_key).await
    {
        eprintln!("{:?}", e);
    };

    Ok(())
}

async fn run_s3_operations(
```

```
    region: Region,
    client: Client,
    bucket_name: String,
    file_name: String,
    key: String,
    target_key: String,
) -> Result<(), S3ExampleError> {
    s3_code_examples::create_bucket(&client, &bucket_name, &region).await?;
    let run_example: Result<(), S3ExampleError> = (async {
        s3_code_examples::upload_object(&client, &bucket_name, &file_name,
 &key).await?;
        let _object = s3_code_examples::download_object(&client, &bucket_name,
 &key).await;
        s3_code_examples::copy_object(&client, &bucket_name, &bucket_name, &key,
 &target_key)
            .await?;
        s3_code_examples::list_objects(&client, &bucket_name).await?;
        s3_code_examples::clear_bucket(&client, &bucket_name).await?;
        Ok(())
    })
    .await;
    if let Err(err) = run_example {
        eprintln!("Failed to complete getting-started example: {err:?}");
    }
    s3_code_examples::delete_bucket(&client, &bucket_name).await?;

    Ok(())
}
```

Common actions used by the scenario.

```
pub async fn create_bucket(
    client: &aws_sdk_s3::Client,
    bucket_name: &str,
    region: &aws_config::Region,
) -> Result<Option<aws_sdk_s3::operation::create_bucket::CreateBucketOutput>,
 S3ExampleError> {
    let constraint =
 aws_sdk_s3::types::BucketLocationConstraint::from(region.to_string().as_str());
    let cfg = aws_sdk_s3::types::CreateBucketConfiguration::builder()
        .location_constraint(constraint)
        .build();
```

```
    let create = client
        .create_bucket()
        .create_bucket_configuration(cfg)
        .bucket(bucket_name)
        .send()
        .await;

    // BucketAlreadyExists and BucketAlreadyOwnedByYou are not problems for this
 task.
    create.map(Some).or_else(|err| {
        if err
            .as_service_error()
            .map(|se| se.is_bucket_already_exists() ||
 se.is_bucket_already_owned_by_you())
            == Some(true)
        {
            Ok(None)
        } else {
            Err(S3ExampleError::from(err))
        }
    })
}

pub async fn upload_object(
    client: &aws_sdk_s3::Client,
    bucket_name: &str,
    file_name: &str,
    key: &str,
) -> Result<aws_sdk_s3::operation::put_object::PutObjectOutput, S3ExampleError> {
    let body =
 aws_sdk_s3::primitives::ByteStream::from_path(std::path::Path::new(file_name)).await;
    client
        .put_object()
        .bucket(bucket_name)
        .key(key)
        .body(body.unwrap())
        .send()
        .await
        .map_err(S3ExampleError::from)
}

pub async fn download_object(
    client: &aws_sdk_s3::Client,
    bucket_name: &str,
```

```
    key: &str,
) -> Result<aws_sdk_s3::operation::get_object::GetObjectOutput, S3ExampleError> {
    client
        .get_object()
        .bucket(bucket_name)
        .key(key)
        .send()
        .await
        .map_err(S3ExampleError::from)
}

/// Copy an object from one bucket to another.
pub async fn copy_object(
    client: &aws_sdk_s3::Client,
    source_bucket: &str,
    destination_bucket: &str,
    source_object: &str,
    destination_object: &str,
) -> Result<(), S3ExampleError> {
    let source_key = format!("{source_bucket}/{source_object}");
    let response = client
        .copy_object()
        .copy_source(&source_key)
        .bucket(destination_bucket)
        .key(destination_object)
        .send()
        .await?;

    println!(
        "Copied from {source_key} to {destination_bucket}/{destination_object}
 with etag {}",
        response
            .copy_object_result
            .unwrap_or_else(||
 aws_sdk_s3::types::CopyObjectResult::builder().build())
            .e_tag()
            .unwrap_or("missing")
    );
    Ok(())
}

pub async fn list_objects(client: &aws_sdk_s3::Client, bucket: &str) ->
 Result<(), S3ExampleError> {
    let mut response = client
```

```
        .list_objects_v2()
        .bucket(bucket.to_owned())
        .max_keys(10) // In this example, go 10 at a time.
        .into_paginator()
        .send();

    while let Some(result) = response.next().await {
        match result {
            Ok(output) => {
                for object in output.contents() {
                    println!(" - {}", object.key().unwrap_or("Unknown"));
                }
            }
            Err(err) => {
                eprintln!("{err:?}")
            }
        }
    }

    Ok(())
}

/// Given a bucket, remove all objects in the bucket, and then ensure no objects
/// remain in the bucket.
pub async fn clear_bucket(
    client: &aws_sdk_s3::Client,
    bucket_name: &str,
) -> Result<Vec<String>, S3ExampleError> {
    let objects = client.list_objects_v2().bucket(bucket_name).send().await?;

    // delete_objects no longer needs to be mutable.
    let objects_to_delete: Vec<String> = objects
        .contents()
        .iter()
        .filter_map(|obj| obj.key())
        .map(String::from)
        .collect();

    if objects_to_delete.is_empty() {
        return Ok(vec![]);
    }

    let return_keys = objects_to_delete.clone();
```

```
    delete_objects(client, bucket_name, objects_to_delete).await?;

    let objects = client.list_objects_v2().bucket(bucket_name).send().await?;

    eprintln!("{objects:?}");

    match objects.key_count {
        Some(0) => Ok(return_keys),
        _ => Err(S3ExampleError::new(
            "There were still objects left in the bucket.",
        )),
    }
}

pub async fn delete_bucket(
    client: &aws_sdk_s3::Client,
    bucket_name: &str,
) -> Result<(), S3ExampleError> {
    let resp = client.delete_bucket().bucket(bucket_name).send().await;
    match resp {
        Ok(_) => Ok(()),
        Err(err) => {
            if err
                .as_service_error()
                .and_then(aws_sdk_s3::error::ProvideErrorMetadata::code)
                == Some("NoSuchBucket")
            {
                Ok(())
            } else {
                Err(S3ExampleError::from(err))
            }
        }
    }
}
```

- For API details, see the following topics in *AWS SDK for Rust API reference*.
  - CopyObject
  - CreateBucket
  - DeleteBucket
  - DeleteObjects

- GetObject
- ListObjectsV2
- PutObject

SAP ABAP

SDK for SAP ABAP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    DATA(lo_session) = /aws1/cl_rt_session_aws=>create( cv_pfl ).
    DATA(lo_s3) = /aws1/cl_s3_factory=>create( lo_session ).

    " Create an Amazon Simple Storage Service (Amazon S3) bucket. "
    TRY.
        " determine our region from our session
        DATA(lv_region) = CONV /aws1/s3_bucketlocationcnstrnt( lo_session-
>get_region( ) ).
        DATA lo_constraint TYPE REF TO /aws1/cl_s3_createbucketconf.
        " When in the us-east-1 region, you must not specify a constraint
        " In all other regions, specify the region as the constraint
        IF lv_region = 'us-east-1'.
          CLEAR lo_constraint.
        ELSE.
          lo_constraint = NEW /aws1/cl_s3_createbucketconf( lv_region ).
        ENDIF.

        lo_s3->createbucket(
            iv_bucket = iv_bucket_name
            io_createbucketconfiguration  = lo_constraint ).
        MESSAGE 'S3 bucket created.' TYPE 'I'.
      CATCH /aws1/cx_s3_bucketalrdyexists.
        MESSAGE 'Bucket name already exists.' TYPE 'E'.
      CATCH /aws1/cx_s3_bktalrdyownedbyyou.
        MESSAGE 'Bucket already exists and is owned by you.' TYPE 'E'.
    ENDTRY.
```

```
    "Upload an object to an S3 bucket."
    TRY.
        "Get contents of file from application server."
        DATA lv_file_content TYPE xstring.
        OPEN DATASET iv_key FOR INPUT IN BINARY MODE.
        READ DATASET iv_key INTO lv_file_content.
        CLOSE DATASET iv_key.

        lo_s3->putobject(
            iv_bucket = iv_bucket_name
            iv_key = iv_key
            iv_body = lv_file_content ).
        MESSAGE 'Object uploaded to S3 bucket.' TYPE 'I'.
      CATCH /aws1/cx_s3_nosuchbucket.
        MESSAGE 'Bucket does not exist.' TYPE 'E'.
    ENDTRY.

    " Get an object from a bucket. "
    TRY.
        DATA(lo_result) = lo_s3->getobject(
                   iv_bucket = iv_bucket_name
                   iv_key = iv_key ).
        DATA(lv_object_data) = lo_result->get_body( ).
        MESSAGE 'Object retrieved from S3 bucket.' TYPE 'I'.
      CATCH /aws1/cx_s3_nosuchbucket.
        MESSAGE 'Bucket does not exist.' TYPE 'E'.
      CATCH /aws1/cx_s3_nosuchkey.
        MESSAGE 'Object key does not exist.' TYPE 'E'.
    ENDTRY.

    " Copy an object to a subfolder in a bucket. "
    TRY.
        lo_s3->copyobject(
          iv_bucket = iv_bucket_name
          iv_key = |{ iv_copy_to_folder }/{ iv_key }|
          iv_copysource = |{ iv_bucket_name }/{ iv_key }| ).
        MESSAGE 'Object copied to a subfolder.' TYPE 'I'.
      CATCH /aws1/cx_s3_nosuchbucket.
        MESSAGE 'Bucket does not exist.' TYPE 'E'.
      CATCH /aws1/cx_s3_nosuchkey.
        MESSAGE 'Object key does not exist.' TYPE 'E'.
    ENDTRY.
```

```
    " List objects in the bucket. "
    TRY.
        DATA(lo_list) = lo_s3->listobjects(
           iv_bucket = iv_bucket_name ).
        MESSAGE 'Retrieved list of objects in S3 bucket.' TYPE 'I'.
      CATCH /aws1/cx_s3_nosuchbucket.
        MESSAGE 'Bucket does not exist.' TYPE 'E'.
    ENDTRY.
    DATA text TYPE string VALUE 'Object List - '.
    DATA lv_object_key TYPE /aws1/s3_objectkey.
    LOOP AT lo_list->get_contents( ) INTO DATA(lo_object).
      lv_object_key = lo_object->get_key( ).
      CONCATENATE lv_object_key ', ' INTO text.
    ENDLOOP.
    MESSAGE text TYPE'I'.

    " Delete the objects in a bucket. "
    TRY.
        lo_s3->deleteobject(
            iv_bucket = iv_bucket_name
            iv_key = iv_key ).
        lo_s3->deleteobject(
            iv_bucket = iv_bucket_name
            iv_key = |{ iv_copy_to_folder }/{ iv_key }| ).
        MESSAGE 'Objects deleted from S3 bucket.' TYPE 'I'.
      CATCH /aws1/cx_s3_nosuchbucket.
        MESSAGE 'Bucket does not exist.' TYPE 'E'.
    ENDTRY.


    " Delete the bucket. "
    TRY.
        lo_s3->deletebucket(
            iv_bucket = iv_bucket_name ).
        MESSAGE 'Deleted S3 bucket.' TYPE 'I'.
      CATCH /aws1/cx_s3_nosuchbucket.
        MESSAGE 'Bucket does not exist.' TYPE 'E'.
    ENDTRY.
```

- For API details, see the following topics in *AWS SDK for SAP ABAP API reference*.
  - CopyObject
  - CreateBucket

- DeleteBucket
- DeleteObjects
- GetObject
- ListObjectsV2
- PutObject

Swift

SDK for Swift

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import AWSS3

import Foundation
import AWSS3
import Smithy
import ClientRuntime

/// A class containing all the code that interacts with the AWS SDK for Swift.
public class ServiceHandler {
    let configuration: S3Client.S3ClientConfiguration
    let client: S3Client

    enum HandlerError: Error {
        case getObjectBody(String)
        case readGetObjectBody(String)
        case missingContents(String)
    }

    /// Initialize and return a new ``ServiceHandler`` object, which is used to
 drive the AWS calls
    /// used for the example.
    ///
    /// - Returns: A new ``ServiceHandler`` object, ready to be called to
    ///            execute AWS operations.
```

```
    public init() async throws {
        do {
            configuration = try await S3Client.S3ClientConfiguration()
         //   configuration.region = "us-east-2" // Uncomment this to set the
 region programmatically.
            client = S3Client(config: configuration)
        }
        catch {
            print("ERROR: ", dump(error, name: "Initializing S3 client"))
            throw error
        }
    }


    /// Create a new user given the specified name.
    ///
    /// - Parameters:
    ///   - name: Name of the bucket to create.
    /// Throws an exception if an error occurs.
    public func createBucket(name: String) async throws {
        var input = CreateBucketInput(
            bucket: name
        )

        // For regions other than "us-east-1", you must set the
 locationConstraint in the createBucketConfiguration.
        // For more information, see LocationConstraint in the S3 API guide.
        // https://docs.aws.amazon.com/AmazonS3/latest/API/
API_CreateBucket.html#API_CreateBucket_RequestBody
        if let region = configuration.region {
            if region != "us-east-1" {
                input.createBucketConfiguration =
 S3ClientTypes.CreateBucketConfiguration(locationConstraint:
 S3ClientTypes.BucketLocationConstraint(rawValue: region))
            }
        }

        do {
            _ = try await client.createBucket(input: input)
        }
        catch let error as BucketAlreadyOwnedByYou {
            print("The bucket '\(name)' already exists and is owned by you. You
 may wish to ignore this exception.")
            throw error
```

```
        }
        catch {
            print("ERROR: ", dump(error, name: "Creating a bucket"))
            throw error
        }
    }

    /// Delete a bucket.
    /// - Parameter name: Name of the bucket to delete.
    public func deleteBucket(name: String) async throws {
        let input = DeleteBucketInput(
            bucket: name
        )
        do {
            _ = try await client.deleteBucket(input: input)
        }
        catch {
            print("ERROR: ", dump(error, name: "Deleting a bucket"))
            throw error
        }
    }

    /// Upload a file from local storage to the bucket.
    /// - Parameters:
    ///   - bucket: Name of the bucket to upload the file to.
    ///   - key: Name of the file to create.
    ///   - file: Path name of the file to upload.
    public func uploadFile(bucket: String, key: String, file: String) async
 throws {
        let fileUrl = URL(fileURLWithPath: file)
        do {
            let fileData = try Data(contentsOf: fileUrl)
            let dataStream = ByteStream.data(fileData)

            let input = PutObjectInput(
                body: dataStream,
                bucket: bucket,
                key: key
            )

            _ = try await client.putObject(input: input)
        }
        catch {
            print("ERROR: ", dump(error, name: "Putting an object."))
```

```
            throw error
        }
    }

    /// Create a file in the specified bucket with the given name. The new
    /// file's contents are uploaded from a `Data` object.
    ///
    /// - Parameters:
    ///   - bucket: Name of the bucket to create a file in.
    ///   - key: Name of the file to create.
    ///   - data: A `Data` object to write into the new file.
    public func createFile(bucket: String, key: String, withData data: Data)
 async throws {
        let dataStream = ByteStream.data(data)

        let input = PutObjectInput(
            body: dataStream,
            bucket: bucket,
            key: key
        )

        do {
            _ = try await client.putObject(input: input)
        }
        catch {
            print("ERROR: ", dump(error, name: "Putting an object."))
            throw error
        }
    }

    /// Download the named file to the given directory on the local device.
    ///
    /// - Parameters:
    ///   - bucket: Name of the bucket that contains the file to be copied.
    ///   - key: The name of the file to copy from the bucket.
    ///   - to: The path of the directory on the local device where you want to
    ///     download the file.
    public func downloadFile(bucket: String, key: String, to: String) async
 throws {
        let fileUrl = URL(fileURLWithPath: to).appendingPathComponent(key)

        let input = GetObjectInput(
            bucket: bucket,
            key: key
```

```
        )
        do {
            let output = try await client.getObject(input: input)

            guard let body = output.body else {
                throw HandlerError.getObjectBody("GetObjectInput missing body.")
            }

            guard let data = try await body.readData() else {
                throw HandlerError.readGetObjectBody("GetObjectInput unable to
read data.")
            }

            try data.write(to: fileUrl)
        }
        catch {
            print("ERROR: ", dump(error, name: "Downloading a file."))
            throw error
        }
    }

    /// Read the specified file from the given S3 bucket into a Swift
    /// `Data` object.
    ///
    /// - Parameters:
    ///   - bucket: Name of the bucket containing the file to read.
    ///   - key: Name of the file within the bucket to read.
    ///
    /// - Returns: A `Data` object containing the complete file data.
    public func readFile(bucket: String, key: String) async throws -> Data {
        let input = GetObjectInput(
            bucket: bucket,
            key: key
        )
        do {
            let output = try await client.getObject(input: input)

            guard let body = output.body else {
                throw HandlerError.getObjectBody("GetObjectInput missing body.")
            }

            guard let data = try await body.readData() else {
                throw HandlerError.readGetObjectBody("GetObjectInput unable to
read data.")
```

```
            }

            return data
        }
        catch {
            print("ERROR: ", dump(error, name: "Reading a file."))
            throw error
        }
    }


    /// Copy a file from one bucket to another.
    ///
    /// - Parameters:
    ///   - sourceBucket: Name of the bucket containing the source file.
    ///   - name: Name of the source file.
    ///   - destBucket: Name of the bucket to copy the file into.
    public func copyFile(from sourceBucket: String, name: String, to destBucket:
 String) async throws {
        let srcUrl = ("\(sourceBucket)/
\(name)").addingPercentEncoding(withAllowedCharacters: .urlPathAllowed)

        let input = CopyObjectInput(
            bucket: destBucket,
            copySource: srcUrl,
            key: name
        )
        do {
            _ = try await client.copyObject(input: input)
        }
        catch {
            print("ERROR: ", dump(error, name: "Copying an object."))
            throw error
        }
    }

    /// Deletes the specified file from Amazon S3.
    ///
    /// - Parameters:
    ///   - bucket: Name of the bucket containing the file to delete.
    ///   - key: Name of the file to delete.
    ///
    public func deleteFile(bucket: String, key: String) async throws {
        let input = DeleteObjectInput(
```

```
            bucket: bucket,
            key: key
        )

        do {
            _ = try await client.deleteObject(input: input)
        }
        catch {
            print("ERROR: ", dump(error, name: "Deleting a file."))
            throw error
        }
    }

    /// Returns an array of strings, each naming one file in the
    /// specified bucket.
    ///
    /// - Parameter bucket: Name of the bucket to get a file listing for.
    /// - Returns: An array of `String` objects, each giving the name of
    ///            one file contained in the bucket.
    public func listBucketFiles(bucket: String) async throws -> [String] {
        do {
            let input = ListObjectsV2Input(
                bucket: bucket
            )

            // Use "Paginated" to get all the objects.
            // This lets the SDK handle the 'continuationToken' in
"ListObjectsV2Output".
            let output = client.listObjectsV2Paginated(input: input)
            var names: [String] = []

            for try await page in output {
                guard let objList = page.contents else {
                    print("ERROR: listObjectsV2Paginated returned nil contents.")
                    continue
                }

                for obj in objList {
                    if let objName = obj.key {
                        names.append(objName)
                    }
                }
            }
```

```
            return names
        }
        catch {
            print("ERROR: ", dump(error, name: "Listing objects."))
            throw error
        }
    }
}
```

```
import AWSS3

import Foundation
import ServiceHandler
import ArgumentParser

/// The command-line arguments and options available for this
/// example command.
struct ExampleCommand: ParsableCommand {
    @Argument(help: "Name of the S3 bucket to create")
    var bucketName: String

    @Argument(help: "Pathname of the file to upload to the S3 bucket")
    var uploadSource: String

    @Argument(help: "The name (key) to give the file in the S3 bucket")
    var objName: String

    @Argument(help: "S3 bucket to copy the object to")
    var destBucket: String

    @Argument(help: "Directory where you want to download the file from the S3
 bucket")
    var downloadDir: String

    static var configuration = CommandConfiguration(
        commandName: "s3-basics",
        abstract: "Demonstrates a series of basic AWS S3 functions.",
        discussion: """
        Performs the following Amazon S3 commands:

        * `CreateBucket`
```

```
        * `PutObject`
        * `GetObject`
        * `CopyObject`
        * `ListObjects`
        * `DeleteObjects`
        * `DeleteBucket`
        """
    )

    /// Called by ``main()`` to do the actual running of the AWS
    /// example.
    func runAsync() async throws {
        let serviceHandler = try await ServiceHandler()

        // 1. Create the bucket.
        print("Creating the bucket \(bucketName)...")
        try await serviceHandler.createBucket(name: bucketName)

        // 2. Upload a file to the bucket.
        print("Uploading the file \(uploadSource)...")
        try await serviceHandler.uploadFile(bucket: bucketName, key: objName,
file: uploadSource)

        // 3. Download the file.
        print("Downloading the file \(objName) to \(downloadDir)...")
        try await serviceHandler.downloadFile(bucket: bucketName, key: objName,
to: downloadDir)

        // 4. Copy the file to another bucket.
        print("Copying the file to the bucket \(destBucket)...")
        try await serviceHandler.copyFile(from: bucketName, name: objName, to:
destBucket)

        // 5. List the contents of the bucket.

        print("Getting a list of the files in the bucket \(bucketName)")
        let fileList = try await serviceHandler.listBucketFiles(bucket:
bucketName)
        let numFiles = fileList.count
        if numFiles != 0 {
            print("\(numFiles) file\((numFiles > 1) ? "s" : "") in bucket
\(bucketName):")
            for name in fileList {
                print("  \(name)")
```

```
            }
        } else {
            print("No files found in bucket \(bucketName)")
        }

        // 6. Delete the objects from the bucket.

        print("Deleting the file \(objName) from the bucket \(bucketName)...")
        try await serviceHandler.deleteFile(bucket: bucketName, key: objName)
        print("Deleting the file \(objName) from the bucket \(destBucket)...")
        try await serviceHandler.deleteFile(bucket: destBucket, key: objName)

        // 7. Delete the bucket.
        print("Deleting the bucket \(bucketName)...")
        try await serviceHandler.deleteBucket(name: bucketName)

        print("Done.")
    }
}

//
// Main program entry point.
//
@main
struct Main {
    static func main() async {
        let args = Array(CommandLine.arguments.dropFirst())

        do {
            let command = try ExampleCommand.parse(args)
            try await command.runAsync()
        } catch {
            ExampleCommand.exit(withError: error)
        }
    }
}
```

- For API details, see the following topics in *AWS SDK for Swift API reference*.
  - CopyObject
  - CreateBucket
  - DeleteBucket

- DeleteObjects
- GetObject
- ListObjectsV2
- PutObject

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Actions for Amazon S3 using AWS SDKs

The following code examples demonstrate how to perform individual Amazon S3 actions with AWS SDKs. Each example includes a link to GitHub, where you can find instructions for setting up and running the code.

These excerpts call the Amazon S3 API and are code excerpts from larger programs that must be run in context. You can see actions in context in Scenarios for Amazon S3 using AWS SDKs .

The following examples include only the most commonly used actions. For a complete list, see the Amazon Simple Storage Service API Reference.

Examples

- Use AbortMultipartUpload with an AWS SDK or CLI
- Use CompleteMultipartUpload with an AWS SDK or CLI
- Use CopyObject with an AWS SDK or CLI
- Use CreateBucket with an AWS SDK or CLI
- Use CreateMultiRegionAccessPoint with an AWS SDK
- Use CreateMultipartUpload with an AWS SDK or CLI
- Use CreatePresignedPost with an AWS SDK
- Use DeleteBucket with an AWS SDK or CLI
- Use DeleteBucketAnalyticsConfiguration with a CLI
- Use DeleteBucketCors with an AWS SDK or CLI
- Use DeleteBucketEncryption with a CLI
- Use DeleteBucketInventoryConfiguration with a CLI
- Use DeleteBucketLifecycle with an AWS SDK or CLI

- Use DeleteBucketMetricsConfiguration with a CLI
- Use DeleteBucketPolicy with an AWS SDK or CLI
- Use DeleteBucketReplication with a CLI
- Use DeleteBucketTagging with a CLI
- Use DeleteBucketWebsite with an AWS SDK or CLI
- Use DeleteObject with an AWS SDK or CLI
- Use DeleteObjectTagging with a CLI
- Use DeleteObjects with an AWS SDK or CLI
- Use DeletePublicAccessBlock with a CLI
- Use GetBucketAccelerateConfiguration with a CLI
- Use GetBucketAcl with an AWS SDK or CLI
- Use GetBucketAnalyticsConfiguration with a CLI
- Use GetBucketCors with an AWS SDK or CLI
- Use GetBucketEncryption with an AWS SDK or CLI
- Use GetBucketInventoryConfiguration with a CLI
- Use GetBucketLifecycleConfiguration with an AWS SDK or CLI
- Use GetBucketLocation with an AWS SDK or CLI
- Use GetBucketLogging with a CLI
- Use GetBucketMetricsConfiguration with a CLI
- Use GetBucketNotification with a CLI
- Use GetBucketPolicy with an AWS SDK or CLI
- Use GetBucketPolicyStatus with a CLI
- Use GetBucketReplication with an AWS SDK or CLI
- Use GetBucketRequestPayment with a CLI
- Use GetBucketTagging with a CLI
- Use GetBucketVersioning with a CLI
- Use GetBucketWebsite with an AWS SDK or CLI
- Use GetObject with an AWS SDK or CLI
- Use GetObjectAcl with an AWS SDK or CLI
- Use GetObjectAttributes with an AWS SDK or CLI

- Use GetObjectLegalHold with an AWS SDK or CLI
- Use GetObjectLockConfiguration with an AWS SDK or CLI
- Use GetObjectRetention with an AWS SDK or CLI
- Use GetObjectTagging with a CLI
- Use GetPublicAccessBlock with a CLI
- Use HeadBucket with an AWS SDK or CLI
- Use HeadObject with an AWS SDK or CLI
- Use ListBucketAnalyticsConfigurations with a CLI
- Use ListBucketInventoryConfigurations with a CLI
- Use ListBuckets with an AWS SDK or CLI
- Use ListMultipartUploads with an AWS SDK or CLI
- Use ListObjectVersions with an AWS SDK or CLI
- Use ListObjects with a CLI
- Use ListObjectsV2 with an AWS SDK or CLI
- Use PutBucketAccelerateConfiguration with an AWS SDK or CLI
- Use PutBucketAcl with an AWS SDK or CLI
- Use PutBucketCors with an AWS SDK or CLI
- Use PutBucketEncryption with an AWS SDK or CLI
- Use PutBucketLifecycleConfiguration with an AWS SDK or CLI
- Use PutBucketLogging with an AWS SDK or CLI
- Use PutBucketNotification with a CLI
- Use PutBucketNotificationConfiguration with an AWS SDK or CLI
- Use PutBucketPolicy with an AWS SDK or CLI
- Use PutBucketReplication with an AWS SDK or CLI
- Use PutBucketRequestPayment with a CLI
- Use PutBucketTagging with a CLI
- Use PutBucketVersioning with an AWS SDK or CLI
- Use PutBucketWebsite with an AWS SDK or CLI
- Use PutObject with an AWS SDK or CLI
- Use PutObjectAcl with an AWS SDK or CLI

- Use PutObjectLegalHold with an AWS SDK or CLI
- Use PutObjectLockConfiguration with an AWS SDK or CLI
- Use PutObjectRetention with an AWS SDK or CLI
- Use RestoreObject with an AWS SDK or CLI
- Use SelectObjectContent with an AWS SDK or CLI
- Use UploadPart with an AWS SDK or CLI
- Use UploadPartCopy with an AWS SDK or CLI

Use `AbortMultipartUpload` with an AWS SDK or CLI

The following code examples show how to use `AbortMultipartUpload`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Delete incomplete multipart uploads
- Work with Amazon S3 object integrity

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
//! Abort a multipart upload to an S3 bucket.
/*!
    \param bucket: The name of the S3 bucket where the object will be uploaded.
    \param key: The unique identifier (key) for the object within the S3 bucket.
    \param uploadID: An upload ID string.
    \param client: The S3 client instance used to perform the upload operation.
    \return bool: Function succeeded.
*/

bool AwsDoc::S3::abortMultipartUpload(const Aws::String &bucket,
```

```
                                        const Aws::String &key,
                                        const Aws::String &uploadID,
                                        const Aws::S3::S3Client &client) {
    Aws::S3::Model::AbortMultipartUploadRequest request;
    request.SetBucket(bucket);
    request.SetKey(key);
    request.SetUploadId(uploadID);

    Aws::S3::Model::AbortMultipartUploadOutcome outcome =
            client.AbortMultipartUpload(request);

    if (outcome.IsSuccess()) {
        std::cout << "Multipart upload aborted." << std::endl;
    } else {
        std::cerr << "Error aborting multipart upload: " <<
 outcome.GetError().GetMessage() << std::endl;
    }

    return outcome.IsSuccess();
}
```

- For API details, see AbortMultipartUpload in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

To abort the specified multipart upload

The following `abort-multipart-upload` command aborts a multipart upload for the key `multipart/01` in the bucket `amzn-s3-demo-bucket`.

```
aws s3api abort-multipart-upload \
    --bucket amzn-s3-demo-bucket \
    --key multipart/01 \
    --upload-
id dfRtDYU0WWCCcH43C3WFbkRONycyCpTJJvxu2i5GYkZljF.Yxwh6XG7WfS2vC4to6HiV6Yjlx.cph0gtNBtJ8P
```

The upload ID required by this command is output by `create-multipart-upload` and can also be retrieved with `list-multipart-uploads`.

- For API details, see AbortMultipartUpload in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.core.exception.SdkException;
import software.amazon.awssdk.core.sync.RequestBody;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.AbortMultipartUploadRequest;
import software.amazon.awssdk.services.s3.model.AbortMultipartUploadResponse;
import software.amazon.awssdk.services.s3.model.CompletedMultipartUpload;
import software.amazon.awssdk.services.s3.model.CompletedPart;
import software.amazon.awssdk.services.s3.model.CreateMultipartUploadResponse;
import software.amazon.awssdk.services.s3.model.LifecycleRule;
import software.amazon.awssdk.services.s3.model.ListMultipartUploadsRequest;
import software.amazon.awssdk.services.s3.model.ListMultipartUploadsResponse;
import software.amazon.awssdk.services.s3.model.MultipartUpload;
import
 software.amazon.awssdk.services.s3.model.PutBucketLifecycleConfigurationResponse;
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.services.s3.model.UploadPartRequest;
import software.amazon.awssdk.services.s3.model.UploadPartResponse;
import software.amazon.awssdk.services.s3.waiters.S3Waiter;
import software.amazon.awssdk.services.sts.StsClient;
import software.amazon.awssdk.utils.builder.SdkBuilder;

import java.io.IOException;
import java.io.RandomAccessFile;
import java.net.URISyntaxException;
import java.net.URL;
import java.nio.ByteBuffer;
import java.time.Duration;
import java.time.Instant;
import java.util.ArrayList;
```

```
import java.util.Collection;
import java.util.List;
import java.util.Objects;
import java.util.UUID;

import static software.amazon.awssdk.transfer.s3.SizeConstant.KB;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */

public class AbortMultipartUploadExamples {
    static final String bucketName = "amzn-s3-demo-bucket" +
 UUID.randomUUID(); // Change bucket name.
    static final String key = UUID.randomUUID().toString();
    static final String classPathFilePath = "/multipartUploadFiles/s3-
userguide.pdf";
    static final String filePath = getFullFilePath(classPathFilePath);
    static final S3Client s3Client = S3Client.create();
    private static final Logger logger =
 LoggerFactory.getLogger(AbortMultipartUploadExamples.class);
    private static String accountId = getAccountId();

    public static void main(String[] args) {
        doAbortIncompleteMultipartUploadsFromList();
        doAbortMultipartUploadUsingUploadId();
        doAbortIncompleteMultipartUploadsOlderThan();
        doAbortMultipartUploadsUsingLifecycleConfig();
    }

    // A wrapper method that sets up the multipart upload environment for
 abortIncompleteMultipartUploadsFromList().
    public static void doAbortIncompleteMultipartUploadsFromList() {
        createBucket();
        initiateAndInterruptMultiPartUpload("uploadThread");
        abortIncompleteMultipartUploadsFromList();
        deleteResources();
    }
```

```
   /**
    * Aborts all incomplete multipart uploads from the specified S3 bucket.
    * <p>
    * This method retrieves a list of all incomplete multipart uploads in the
specified S3 bucket,
    * and then aborts each of those uploads.
    */
   public static void abortIncompleteMultipartUploadsFromList() {
       ListMultipartUploadsRequest listMultipartUploadsRequest =
ListMultipartUploadsRequest.builder()
           .bucket(bucketName)
           .build();

       ListMultipartUploadsResponse response =
s3Client.listMultipartUploads(listMultipartUploadsRequest);
       List<MultipartUpload> uploads = response.uploads();

       AbortMultipartUploadRequest abortMultipartUploadRequest;
       for (MultipartUpload upload : uploads) {
           abortMultipartUploadRequest = AbortMultipartUploadRequest.builder()
               .bucket(bucketName)
               .key(upload.key())
               .expectedBucketOwner(accountId)
               .uploadId(upload.uploadId())
               .build();

           AbortMultipartUploadResponse abortMultipartUploadResponse =
s3Client.abortMultipartUpload(abortMultipartUploadRequest);
           if (abortMultipartUploadResponse.sdkHttpResponse().isSuccessful()) {
               logger.info("Upload ID [{}] to bucket [{}] successfully
aborted.", upload.uploadId(), bucketName);
           }
       }
   }

   // A wrapper method that sets up the multipart upload environment for
abortIncompleteMultipartUploadsOlderThan().
   static void doAbortIncompleteMultipartUploadsOlderThan() {
       createBucket();
       Instant secondUploadInstant = initiateAndInterruptTwoUploads();
       abortIncompleteMultipartUploadsOlderThan(secondUploadInstant);
       deleteResources();
   }
```

```
   static void abortIncompleteMultipartUploadsOlderThan(Instant pointInTime) {
       ListMultipartUploadsRequest listMultipartUploadsRequest =
ListMultipartUploadsRequest.builder()
           .bucket(bucketName)
           .build();

       ListMultipartUploadsResponse response =
s3Client.listMultipartUploads(listMultipartUploadsRequest);
       List<MultipartUpload> uploads = response.uploads();

       AbortMultipartUploadRequest abortMultipartUploadRequest;
       for (MultipartUpload upload : uploads) {
           logger.info("Found multipartUpload with upload ID [{}], initiated
[{}]", upload.uploadId(), upload.initiated());
           if (upload.initiated().isBefore(pointInTime)) {
               abortMultipartUploadRequest =
AbortMultipartUploadRequest.builder()
                   .bucket(bucketName)
                   .key(upload.key())
                   .expectedBucketOwner(accountId)
                   .uploadId(upload.uploadId())
                   .build();

               AbortMultipartUploadResponse abortMultipartUploadResponse =
s3Client.abortMultipartUpload(abortMultipartUploadRequest);
               if
(abortMultipartUploadResponse.sdkHttpResponse().isSuccessful()) {
                   logger.info("Upload ID [{}] to bucket [{}] successfully
aborted.", upload.uploadId(), bucketName);
               }
           }
       }
   }

   // A wrapper method that sets up the multipart upload environment for
abortMultipartUploadUsingUploadId().
   static void doAbortMultipartUploadUsingUploadId() {
       createBucket();
       try {
           abortMultipartUploadUsingUploadId();
       } catch (S3Exception e) {
           logger.error(e.getMessage());
       } finally {
```

```
            deleteResources();
        }
    }

    static void abortMultipartUploadUsingUploadId() {
        String uploadId = startUploadReturningUploadId();
        AbortMultipartUploadResponse response = s3Client.abortMultipartUpload(b -
> b
            .uploadId(uploadId)
            .bucket(bucketName)
            .key(key));

        if (response.sdkHttpResponse().isSuccessful()) {
            logger.info("Upload ID [{}] to bucket [{}] successfully aborted.",
 uploadId, bucketName);
        }
    }

    // A wrapper method that sets up the multipart upload environment for
 abortMultipartUploadsUsingLifecycleConfig().
    static void doAbortMultipartUploadsUsingLifecycleConfig() {
        createBucket();
        try {
            abortMultipartUploadsUsingLifecycleConfig();
        } catch (S3Exception e) {
            logger.error(e.getMessage());
        } finally {
            deleteResources();
        }
    }

    static void abortMultipartUploadsUsingLifecycleConfig() {
        Collection<LifecycleRule> lifeCycleRules =
 List.of(LifecycleRule.builder()
            .abortIncompleteMultipartUpload(b -> b.
                daysAfterInitiation(7))
            .status("Enabled")
            .filter(SdkBuilder::build) // Filter element is required.
            .build());

        // If the action is successful, the service sends back an HTTP 200
 response with an empty HTTP body.
        PutBucketLifecycleConfigurationResponse response =
 s3Client.putBucketLifecycleConfiguration(b -> b
```

```
            .bucket(bucketName)
            .lifecycleConfiguration(b1 -> b1.rules(lifeCycleRules)));

        if (response.sdkHttpResponse().isSuccessful()) {
            logger.info("Rule to abort incomplete multipart uploads added to
bucket.");
        } else {
            logger.error("Unsuccessfully applied rule. HTTP status code is [{}]",
response.sdkHttpResponse().statusCode());
        }
    }

    /************************
     Multipart upload methods
     ************************/

    static void initiateAndInterruptMultiPartUpload(String threadName) {
        Runnable upload = () -> {
            try {
                AbortMultipartUploadExamples.doMultipartUpload();
            } catch (SdkException e) {
                logger.error(e.getMessage());
            }
        };
        Thread uploadThread = new Thread(upload, threadName);
        uploadThread.start();
        try {
            Thread.sleep(Duration.ofSeconds(1).toMillis()); // Give the multipart
upload time to register.
        } catch (InterruptedException e) {
            logger.error(e.getMessage());
        }
        uploadThread.interrupt();
    }

    static Instant initiateAndInterruptTwoUploads() {
        Instant firstUploadInstant = Instant.now();
        initiateAndInterruptMultiPartUpload("uploadThread1");
        try {
            Thread.sleep(Duration.ofSeconds(5).toMillis());
        } catch (InterruptedException e) {
            logger.error(e.getMessage());
        }
        Instant secondUploadInstant = Instant.now();
```

```
        initiateAndInterruptMultiPartUpload("uploadThread2");
        return secondUploadInstant;
    }

    static void doMultipartUpload() {
        String uploadId = step1CreateMultipartUpload();
        List<CompletedPart> completedParts = step2UploadParts(uploadId);
        step3CompleteMultipartUpload(uploadId, completedParts);
    }

    static String step1CreateMultipartUpload() {
        CreateMultipartUploadResponse createMultipartUploadResponse =
s3Client.createMultipartUpload(b -> b
            .bucket(bucketName)
            .key(key));
        return createMultipartUploadResponse.uploadId();
    }

    static List<CompletedPart> step2UploadParts(String uploadId) {
        int partNumber = 1;
        List<CompletedPart> completedParts = new ArrayList<>();
        ByteBuffer bb = ByteBuffer.allocate(Long.valueOf(1024 * KB).intValue());

        try (RandomAccessFile file = new RandomAccessFile(filePath, "r")) {
            long fileSize = file.length();
            long position = 0;
            while (position < fileSize) {
                file.seek(position);
                long read = file.getChannel().read(bb);

                bb.flip(); // Swap position and limit before reading from the
buffer.
                UploadPartRequest uploadPartRequest = UploadPartRequest.builder()
                    .bucket(bucketName)
                    .key(key)
                    .uploadId(uploadId)
                    .partNumber(partNumber)
                    .build();

                UploadPartResponse partResponse = s3Client.uploadPart(
                    uploadPartRequest,
                    RequestBody.fromByteBuffer(bb));

                CompletedPart part = CompletedPart.builder()
```

```
                    .partNumber(partNumber)
                    .eTag(partResponse.eTag())
                    .build();
                completedParts.add(part);
                logger.info("Part {} upload", partNumber);

                bb.clear();
                position += read;
                partNumber++;
            }
        } catch (IOException | S3Exception e) {
            logger.error(e.getMessage());
            return null;
        }
        return completedParts;
    }

    static void step3CompleteMultipartUpload(String uploadId, List<CompletedPart>
 completedParts) {
        s3Client.completeMultipartUpload(b -> b
            .bucket(bucketName)
            .key(key)
            .uploadId(uploadId)

 .multipartUpload(CompletedMultipartUpload.builder().parts(completedParts).build()));
    }

    static String startUploadReturningUploadId() {
        String uploadId = step1CreateMultipartUpload();
        doMultipartUploadWithUploadId(uploadId);
        return uploadId;

    }

    static void doMultipartUploadWithUploadId(String uploadId) {
        new Thread(() -> {
            try {
                List<CompletedPart> completedParts = step2UploadParts(uploadId);
                step3CompleteMultipartUpload(uploadId, completedParts);
            } catch (SdkException e) {
                logger.error(e.getMessage());
            }
        }, "upload thread").start();
        try {
```

```
            Thread.sleep(Duration.ofSeconds(2L).toMillis());
        } catch (InterruptedException e) {
            logger.error(e.getMessage());
            System.exit(1);
        }
    }

    /************************
     Resource handling methods
     ************************/

    static void createBucket() {
        logger.info("Creating bucket: [{}]", bucketName);
        s3Client.createBucket(b -> b.bucket(bucketName));
        try (S3Waiter s3Waiter = s3Client.waiter()) {
            s3Waiter.waitUntilBucketExists(b -> b.bucket(bucketName));
        }
        logger.info("Bucket created.");
    }

    static void deleteResources() {
        logger.info("Deleting resources ...");
        s3Client.deleteObject(b -> b.bucket(bucketName).key(key));
        s3Client.deleteBucket(b -> b.bucket(bucketName));
        try (S3Waiter s3Waiter = s3Client.waiter()) {
            s3Waiter.waitUntilBucketNotExists(b -> b.bucket(bucketName));
        }
        logger.info("Resources deleted.");
    }

    private static String getAccountId() {
        try (StsClient stsClient = StsClient.create()) {
            return stsClient.getCallerIdentity().account();
        }
    }

    static String getFullFilePath(String filePath) {
        URL uploadDirectoryURL =
PerformMultiPartUpload.class.getResource(filePath);
        String fullFilePath;
        try {
            fullFilePath =
Objects.requireNonNull(uploadDirectoryURL).toURI().getPath();
        } catch (URISyntaxException e) {
```

```
            throw new RuntimeException(e);
        }
        return fullFilePath;
    }
}
```

- For API details, see AbortMultipartUpload in *AWS SDK for Java 2.x API Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command aborts multipart uploads created earlier than 5 days ago.

```
Remove-S3MultipartUpload -BucketName amzn-s3-demo-bucket -DaysBefore 5
```

Example 2: This command aborts multipart uploads created earlier than January 2nd, 2014.

```
Remove-S3MultipartUpload -BucketName amzn-s3-demo-bucket -InitiatedDate
 "Thursday, January 02, 2014"
```

Example 3: This command aborts multipart uploads created earlier than January 2nd, 2014, 10:45:37.

```
Remove-S3MultipartUpload -BucketName amzn-s3-demo-bucket -InitiatedDate
 "2014/01/02 10:45:37"
```

- For API details, see AbortMultipartUpload in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command aborts multipart uploads created earlier than 5 days ago.

```
Remove-S3MultipartUpload -BucketName amzn-s3-demo-bucket -DaysBefore 5
```

Example 2: This command aborts multipart uploads created earlier than January 2nd, 2014.

```
Remove-S3MultipartUpload -BucketName amzn-s3-demo-bucket -InitiatedDate
 "Thursday, January 02, 2014"
```

Example 3: This command aborts multipart uploads created earlier than January 2nd, 2014, 10:45:37.

```
Remove-S3MultipartUpload -BucketName amzn-s3-demo-bucket -InitiatedDate
 "2014/01/02 10:45:37"
```

- For API details, see AbortMultipartUpload in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `CompleteMultipartUpload` with an AWS SDK or CLI

The following code examples show how to use `CompleteMultipartUpload`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Perform a multipart copy
- Use checksums
- Work with Amazon S3 object integrity

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
//! Complete a multipart upload to an S3 bucket.
```

```
/*!
    \param bucket: The name of the S3 bucket where the object will be uploaded.
    \param key: The unique identifier (key) for the object within the S3 bucket.
    \param uploadID: An upload ID string.
    \param parts: A vector of CompleteParts.
    \param client: The S3 client instance used to perform the upload operation.
    \return CompleteMultipartUploadOutcome: The request outcome.
*/
Aws::S3::Model::CompleteMultipartUploadOutcome
 AwsDoc::S3::completeMultipartUpload(const Aws::String &bucket,

  const Aws::String &key,

  const Aws::String &uploadID,

  const Aws::Vector<Aws::S3::Model::CompletedPart> &parts,

  const Aws::S3::S3Client &client) {
    Aws::S3::Model::CompletedMultipartUpload completedMultipartUpload;
    completedMultipartUpload.SetParts(parts);

    Aws::S3::Model::CompleteMultipartUploadRequest request;
    request.SetBucket(bucket);
    request.SetKey(key);
    request.SetUploadId(uploadID);
    request.SetMultipartUpload(completedMultipartUpload);

    Aws::S3::Model::CompleteMultipartUploadOutcome outcome =
            client.CompleteMultipartUpload(request);

    if (!outcome.IsSuccess()) {
        std::cerr << "Error completing multipart upload: " <<
 outcome.GetError().GetMessage() << std::endl;
    }
    return outcome;
}
```

- For API details, see CompleteMultipartUpload in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The following command completes a multipart upload for the key `multipart/01` in the bucket `amzn-s3-demo-bucket`:

```
aws s3api complete-multipart-upload --multipart-upload file://
mpustruct --bucket amzn-s3-demo-bucket --key 'multipart/01' --upload-
id dfRtDYU0WWCCcH43C3WFbkRONycyCpTJJvxu2i5GYkZljF.Yxwh6XG7WfS2vC4to6HiV6Yjlx.cph0gtNBtJ8P
```

The upload ID required by this command is output by `create-multipart-upload` and can also be retrieved with `list-multipart-uploads`.

The multipart upload option in the above command takes a JSON structure that describes the parts of the multipart upload that should be reassembled into the complete file. In this example, the `file://` prefix is used to load the JSON structure from a file in the local folder named `mpustruct`.

mpustruct:

```
{
  "Parts": [
    {
      "ETag": "e868e0f4719e394144ef36531ee6824c",
      "PartNumber": 1
    },
    {
      "ETag": "6bb2b12753d66fe86da4998aa33fffb0",
      "PartNumber": 2
    },
    {
      "ETag": "d0a0112e841abec9c9ec83406f0159c8",
      "PartNumber": 3
    }
  ]
}
```

The ETag value for each part is upload is output each time you upload a part using the `upload-part` command and can also be retrieved by calling `list-parts` or calculated by taking the MD5 checksum of each part.

Output:

```
{
    "ETag": "\"3944a9f7a4faab7f78788ff6210f63f0-3\"",
    "Bucket": "amzn-s3-demo-bucket",
    "Location": "https://amzn-s3-demo-bucket.s3.amazonaws.com/multipart%2F01",
    "Key": "multipart/01"
}
```

- For API details, see CompleteMultipartUpload in *AWS CLI Command Reference*.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    // upload_parts: Vec<aws_sdk_s3::types::CompletedPart>
    let completed_multipart_upload: CompletedMultipartUpload =
CompletedMultipartUpload::builder()
        .set_parts(Some(upload_parts))
        .build();

    let _complete_multipart_upload_res = client
        .complete_multipart_upload()
        .bucket(&bucket_name)
        .key(&key)
        .multipart_upload(completed_multipart_upload)
        .upload_id(upload_id)
        .send()
        .await?;
```

```
    // Create a multipart upload. Use UploadPart and CompleteMultipartUpload to
    // upload the file.
    let multipart_upload_res: CreateMultipartUploadOutput = client
```

```
        .create_multipart_upload()
        .bucket(&bucket_name)
        .key(&key)
        .send()
        .await?;

    let upload_id = multipart_upload_res.upload_id().ok_or(S3ExampleError::new(
        "Missing upload_id after CreateMultipartUpload",
    ))?;
```

```
    let mut upload_parts: Vec<aws_sdk_s3::types::CompletedPart> = Vec::new();

    for chunk_index in 0..chunk_count {
        let this_chunk = if chunk_count - 1 == chunk_index {
            size_of_last_chunk
        } else {
            CHUNK_SIZE
        };
        let stream = ByteStream::read_from()
            .path(path)
            .offset(chunk_index * CHUNK_SIZE)
            .length(Length::Exact(this_chunk))
            .build()
            .await
            .unwrap();

        // Chunk index needs to start at 0, but part numbers start at 1.
        let part_number = (chunk_index as i32) + 1;
        let upload_part_res = client
            .upload_part()
            .key(&key)
            .bucket(&bucket_name)
            .upload_id(upload_id)
            .body(stream)
            .part_number(part_number)
            .send()
            .await?;

        upload_parts.push(
            CompletedPart::builder()
                .e_tag(upload_part_res.e_tag.unwrap_or_default())
                .part_number(part_number)
```

```
                .build(),
        );
    }
```

- For API details, see CompleteMultipartUpload in *AWS SDK for Rust API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `CopyObject` with an AWS SDK or CLI

The following code examples show how to use `CopyObject`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Learn the basics
- Get started with encryption
- Get started with S3
- Make conditional requests

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
using System;
using System.Threading.Tasks;
using Amazon.S3;
using Amazon.S3.Model;

public class CopyObject
```

```
    {
        public static async Task Main()
        {
            // Specify the AWS Region where your buckets are located if it is
            // different from the AWS Region of the default user.
            IAmazonS3 s3Client = new AmazonS3Client();

            // Remember to change these values to refer to your Amazon S3
 objects.
            string sourceBucketName = "amzn-s3-demo-bucket1";
            string destinationBucketName = "amzn-s3-demo-bucket2";
            string sourceObjectKey = "testfile.txt";
            string destinationObjectKey = "testfilecopy.txt";

            Console.WriteLine($"Copying {sourceObjectKey} from {sourceBucketName}
 to ");
            Console.WriteLine($"{destinationBucketName} as
 {destinationObjectKey}");

            var response = await CopyingObjectAsync(
                s3Client,
                sourceObjectKey,
                destinationObjectKey,
                sourceBucketName,
                destinationBucketName);

            if (response.HttpStatusCode == System.Net.HttpStatusCode.OK)
            {
                Console.WriteLine("\nCopy complete.");
            }
        }

        /// <summary>
        /// This method calls the AWS SDK for .NET to copy an
        /// object from one Amazon S3 bucket to another.
        /// </summary>
        /// <param name="client">The Amazon S3 client object.</param>
        /// <param name="sourceKey">The name of the object to be copied.</param>
        /// <param name="destinationKey">The name under which to save the copy.</
param>
        /// <param name="sourceBucketName">The name of the Amazon S3 bucket
        /// where the file is located now.</param>
        /// <param name="destinationBucketName">The name of the Amazon S3
        /// bucket where the copy should be saved.</param>
```

```
        /// <returns>Returns a CopyObjectResponse object with the results from
        /// the async call.</returns>
        public static async Task<CopyObjectResponse> CopyingObjectAsync(
            IAmazonS3 client,
            string sourceKey,
            string destinationKey,
            string sourceBucketName,
            string destinationBucketName)
        {
            var response = new CopyObjectResponse();
            try
            {
                var request = new CopyObjectRequest
                {
                    SourceBucket = sourceBucketName,
                    SourceKey = sourceKey,
                    DestinationBucket = destinationBucketName,
                    DestinationKey = destinationKey,
                };
                response = await client.CopyObjectAsync(request);
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Error copying object: '{ex.Message}'");
            }

            return response;
        }
    }
```

Copy an object using a conditional request.

```
    /// <summary>
    /// Copies an object from one Amazon S3 bucket to another with a conditional
 request.
    /// </summary>
    /// <param name="sourceKey">The key of the source object to copy.</param>
    /// <param name="destKey">The key of the destination object.</param>
    /// <param name="sourceBucket">The source bucket of the object.</param>
    /// <param name="destBucket">The destination bucket of the object.</param>
```

```
    /// <param name="conditionType">The type of condition to apply, e.g.
 'CopySourceIfMatch', 'CopySourceIfNoneMatch', 'CopySourceIfModifiedSince',
 'CopySourceIfUnmodifiedSince'.</param>
    /// <param name="conditionDateValue">The value to use for the condition for
 dates.</param>
    /// <param name="etagConditionalValue">The value to use for the condition for
 etags.</param>
    /// <returns>True if the conditional copy is successful, False otherwise.</
returns>
    public async Task<bool> CopyObjectConditional(string sourceKey, string
 destKey, string sourceBucket, string destBucket,
        S3ConditionType conditionType, DateTime? conditionDateValue = null,
 string? etagConditionalValue = null)
    {
        try
        {
            var copyObjectRequest = new CopyObjectRequest
            {
                DestinationBucket = destBucket,
                DestinationKey = destKey,
                SourceBucket = sourceBucket,
                SourceKey = sourceKey
            };

            switch (conditionType)
            {
                case S3ConditionType.IfMatch:
                    copyObjectRequest.ETagToMatch = etagConditionalValue;
                    break;
                case S3ConditionType.IfNoneMatch:
                    copyObjectRequest.ETagToNotMatch = etagConditionalValue;
                    break;
                case S3ConditionType.IfModifiedSince:
                    copyObjectRequest.ModifiedSinceDateUtc =
 conditionDateValue.GetValueOrDefault();
                    break;
                case S3ConditionType.IfUnmodifiedSince:
                    copyObjectRequest.UnmodifiedSinceDateUtc =
 conditionDateValue.GetValueOrDefault();
                    break;
                default:
                    throw new ArgumentOutOfRangeException(nameof(conditionType),
 conditionType, null);
            }
```

```
            await _amazonS3.CopyObjectAsync(copyObjectRequest);
            _logger.LogInformation($"Conditional copy successful for key
 {destKey} in bucket {destBucket}.");
            return true;
        }
        catch (AmazonS3Exception e)
        {
            if (e.ErrorCode == "PreconditionFailed")
            {
                _logger.LogError("Conditional copy failed: Precondition failed");
            }
            else if (e.ErrorCode == "304")
            {
                _logger.LogError("Conditional copy failed: Object not modified");
            }
            else
            {
                _logger.LogError($"Unexpected error: {e.ErrorCode}");
                throw;
            }
            return false;
        }
    }
```

- For API details, see CopyObject in *AWS SDK for .NET API Reference*.

Bash

AWS CLI with Bash script

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
###############################################################################
# function errecho
#
# This function outputs everything sent to it to STDERR (standard error output).
```

```
##############################################################################
function errecho() {
  printf "%s\n" "$*" 1>&2
}

##############################################################################
# function copy_item_in_bucket
#
# This function creates a copy of the specified file in the same bucket.
#
# Parameters:
#       $1 - The name of the bucket to copy the file from and to.
#       $2 - The key of the source file to copy.
#       $3 - The key of the destination file.
#
# Returns:
#       0 - If successful.
#       1 - If it fails.
##############################################################################
function copy_item_in_bucket() {
  local bucket_name=$1
  local source_key=$2
  local destination_key=$3
  local response

  response=$(aws s3api copy-object \
    --bucket "$bucket_name" \
    --copy-source "$bucket_name/$source_key" \
    --key "$destination_key")

  # shellcheck disable=SC2181
  if [[ $? -ne 0 ]]; then
    errecho "ERROR:  AWS reports s3api copy-object operation failed.\n$response"
    return 1
  fi
}
```

- For API details, see CopyObject in *AWS CLI Command Reference*.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::copyObject(const Aws::String &objectKey, const Aws::String
 &fromBucket, const Aws::String &toBucket,
                            const Aws::S3::S3ClientConfiguration &clientConfig) {
    Aws::S3::S3Client client(clientConfig);
    Aws::S3::Model::CopyObjectRequest request;

    request.WithCopySource(fromBucket + "/" + objectKey)
            .WithKey(objectKey)
            .WithBucket(toBucket);

    Aws::S3::Model::CopyObjectOutcome outcome = client.CopyObject(request);
    if (!outcome.IsSuccess()) {
        const Aws::S3::S3Error &err = outcome.GetError();
        std::cerr << "Error: copyObject: " <<
                  err.GetExceptionName() << ": " << err.GetMessage() <<
 std::endl;

    } else {
        std::cout << "Successfully copied " << objectKey << " from " <<
 fromBucket <<
                  " to " << toBucket << "." << std::endl;
    }

    return outcome.IsSuccess();
}
```

- For API details, see CopyObject in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The following command copies an object from `bucket-1` to `bucket-2`:

```
aws s3api copy-object --copy-source bucket-1/test.txt --key test.txt --
bucket bucket-2
```

Output:

```
{
    "CopyObjectResult": {
        "LastModified": "2015-11-10T01:07:25.000Z",
        "ETag": "\"589c8b79c230a6ecd5a7e1d040a9a030\""
    },
    "VersionId": "YdnYvTCVDqRRFA.NFJjy36p0hxifMlkA"
}
```

- For API details, see CopyObject in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "io"
 "log"
 "os"
 "time"
```

```
 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// BucketBasics encapsulates the Amazon Simple Storage Service (Amazon S3)
 actions
// used in the examples.
// It contains S3Client, an Amazon S3 service client that is used to perform
 bucket
// and object actions.
type BucketBasics struct {
 S3Client *s3.Client
}



// CopyToBucket copies an object in a bucket to another bucket.
func (basics BucketBasics) CopyToBucket(ctx context.Context, sourceBucket string,
 destinationBucket string, objectKey string) error {
 _, err := basics.S3Client.CopyObject(ctx, &s3.CopyObjectInput{
  Bucket:     aws.String(destinationBucket),
  CopySource: aws.String(fmt.Sprintf("%v/%v", sourceBucket, objectKey)),
  Key:        aws.String(objectKey),
 })
 if err != nil {
  var notActive *types.ObjectNotInActiveTierError
  if errors.As(err, &notActive) {
   log.Printf("Couldn't copy object %s from %s because the object isn't in the
 active tier.\n",
    objectKey, sourceBucket)
   err = notActive
  }
 } else {
  err = s3.NewObjectExistsWaiter(basics.S3Client).Wait(
   ctx, &s3.HeadObjectInput{Bucket: aws.String(destinationBucket), Key:
 aws.String(objectKey)}, time.Minute)
  if err != nil {
   log.Printf("Failed attempt to wait for object %s to exist.\n", objectKey)
  }
 }
```

```
 return err
}
```

- For API details, see CopyObject in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Copy an object using an S3Client.

```
   /**
    * Asynchronously copies an object from one S3 bucket to another.
    *
    * @param fromBucket the name of the source S3 bucket
    * @param objectKey  the key (name) of the object to be copied
    * @param toBucket   the name of the destination S3 bucket
    * @return a {@link CompletableFuture} that completes with the copy result as
a {@link String}
    * @throws RuntimeException if the URL could not be encoded or an S3
exception occurred during the copy
    */
   public CompletableFuture<String> copyBucketObjectAsync(String fromBucket,
String objectKey, String toBucket) {
       CopyObjectRequest copyReq = CopyObjectRequest.builder()
           .sourceBucket(fromBucket)
           .sourceKey(objectKey)
           .destinationBucket(toBucket)
           .destinationKey(objectKey)
           .build();

       CompletableFuture<CopyObjectResponse> response =
getAsyncClient().copyObject(copyReq);
```

```
        response.whenComplete((copyRes, ex) -> {
            if (copyRes != null) {
                logger.info("The " + objectKey + " was copied to " + toBucket);
            } else {
                throw new RuntimeException("An S3 exception occurred during
 copy", ex);
            }
        });

        return response.thenApply(CopyObjectResponse::copyObjectResult)
            .thenApply(Object::toString);
    }
```

Use an S3TransferManager to copy an object from one bucket to another. View the complete file and test.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.core.sync.RequestBody;
import software.amazon.awssdk.services.s3.model.CopyObjectRequest;
import software.amazon.awssdk.transfer.s3.S3TransferManager;
import software.amazon.awssdk.transfer.s3.model.CompletedCopy;
import software.amazon.awssdk.transfer.s3.model.Copy;
import software.amazon.awssdk.transfer.s3.model.CopyRequest;

import java.util.UUID;

    public String copyObject(S3TransferManager transferManager, String
 bucketName,
            String key, String destinationBucket, String destinationKey) {
        CopyObjectRequest copyObjectRequest = CopyObjectRequest.builder()
                .sourceBucket(bucketName)
                .sourceKey(key)
                .destinationBucket(destinationBucket)
                .destinationKey(destinationKey)
                .build();

        CopyRequest copyRequest = CopyRequest.builder()
                .copyObjectRequest(copyObjectRequest)
                .build();

        Copy copy = transferManager.copy(copyRequest);
```

```
        CompletedCopy completedCopy = copy.completionFuture().join();
        return completedCopy.response().copyObjectResult().eTag();
    }
```

- For API details, see CopyObject in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Copy the object.

```
import {
  S3Client,
  CopyObjectCommand,
  ObjectNotInActiveTierError,
  waitUntilObjectExists,
} from "@aws-sdk/client-s3";

/**
 * Copy an S3 object from one bucket to another.
 *
 * @param {{
 *   sourceBucket: string,
 *   sourceKey: string,
 *   destinationBucket: string,
 *   destinationKey: string }} config
 */
export const main = async ({
  sourceBucket,
  sourceKey,
  destinationBucket,
  destinationKey,
}) => {
```

```
  const client = new S3Client({});

  try {
    await client.send(
      new CopyObjectCommand({
        CopySource: `${sourceBucket}/${sourceKey}`,
        Bucket: destinationBucket,
        Key: destinationKey,
      }),
    );
    await waitUntilObjectExists(
      { client },
      { Bucket: destinationBucket, Key: destinationKey },
    );
    console.log(
      `Successfully copied ${sourceBucket}/${sourceKey} to ${destinationBucket}/
${destinationKey}`,
    );
  } catch (caught) {
    if (caught instanceof ObjectNotInActiveTierError) {
      console.error(
        `Could not copy ${sourceKey} from ${sourceBucket}. Object is not in the
 active tier.`,
      );
    } else {
      throw caught;
    }
  }
};
```

Copy the object on condition its ETag does not match the one provided.

```
import {
  CopyObjectCommand,
  NoSuchKey,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

// Optionally edit the default key name of the copied object in
 'object_name.json'
```

```
import data from "../scenarios/conditional-requests/object_name.json" assert {
  type: "json",
};

/**
 * Get a single object from a specified S3 bucket.
 * @param {{ sourceBucketName: string, sourceKeyName: string,
 destinationBucketName: string, eTag: string }}
 */
export const main = async ({
  sourceBucketName,
  sourceKeyName,
  destinationBucketName,
  eTag,
}) => {
  const client = new S3Client({});
  const name = data.name;
  try {
    const response = await client.send(
      new CopyObjectCommand({
        CopySource: `${sourceBucketName}/${sourceKeyName}`,
        Bucket: destinationBucketName,
        Key: `${name}${sourceKeyName}`,
        CopySourceIfMatch: eTag,
      }),
    );
    console.log("Successfully copied object to bucket.");
  } catch (caught) {
    if (caught instanceof NoSuchKey) {
      console.error(
        `Error from S3 while copying object "${sourceKeyName}" from
 "${sourceBucketName}". No such key exists.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Unable to copy object "${sourceKeyName}" to bucket
 "${sourceBucketName}":  ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

```
// Call function if run directly
import { parseArgs } from "node:util";
import {
  isMain,
  validateArgs,
} from "@aws-doc-sdk-examples/lib/utils/util-node.js";

const loadArgs = () => {
  const options = {
    sourceBucketName: {
      type: "string",
      required: true,
    },
    sourceKeyName: {
      type: "string",
      required: true,
    },
    destinationBucketName: {
      type: "string",
      required: true,
    },
    eTag: {
      type: "string",
      required: true,
    },
  };
  const results = parseArgs({ options });
  const { errors } = validateArgs({ options }, results);
  return { errors, results };
};

if (isMain(import.meta.url)) {
  const { errors, results } = loadArgs();
  if (!errors) {
    main(results.values);
  } else {
    console.error(errors.join("\n"));
  }
}
```

Copy the object on condition its ETag does not match the one provided.

```
import {
  CopyObjectCommand,
  NoSuchKey,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

// Optionally edit the default key name of the copied object in
 'object_name.json'
import data from "../scenarios/conditional-requests/object_name.json" assert {
  type: "json",
};

/**
 * Get a single object from a specified S3 bucket.
 * @param {{ sourceBucketName: string, sourceKeyName: string,
 destinationBucketName: string, eTag: string }}
 */
export const main = async ({
  sourceBucketName,
  sourceKeyName,
  destinationBucketName,
  eTag,
}) => {
  const client = new S3Client({});
  const name = data.name;

  try {
    const response = await client.send(
      new CopyObjectCommand({
        CopySource: `${sourceBucketName}/${sourceKeyName}`,
        Bucket: destinationBucketName,
        Key: `${name}${sourceKeyName}`,
        CopySourceIfNoneMatch: eTag,
      }),
    );
    console.log("Successfully copied object to bucket.");
  } catch (caught) {
    if (caught instanceof NoSuchKey) {
      console.error(
        `Error from S3 while copying object "${sourceKeyName}" from
 "${sourceBucketName}". No such key exists.`,
```

```
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Unable to copy object "${sourceKeyName}" to bucket
 "${sourceBucketName}":  ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};

// Call function if run directly
import { parseArgs } from "node:util";
import {
  isMain,
  validateArgs,
} from "@aws-doc-sdk-examples/lib/utils/util-node.js";

const loadArgs = () => {
  const options = {
    sourceBucketName: {
      type: "string",
      required: true,
    },
    sourceKeyName: {
      type: "string",
      required: true,
    },
    destinationBucketName: {
      type: "string",
      required: true,
    },
    eTag: {
      type: "string",
      required: true,
    },
  };
  const results = parseArgs({ options });
  const { errors } = validateArgs({ options }, results);
  return { errors, results };
};

if (isMain(import.meta.url)) {
```

```
  const { errors, results } = loadArgs();
  if (!errors) {
    main(results.values);
  } else {
    console.error(errors.join("\n"));
  }
}
```

Copy the object using on condition it has been created or modified in a given timeframe.

```
import {
  CopyObjectCommand,
  NoSuchKey,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

// Optionally edit the default key name of the copied object in
 'object_name.json'
import data from "../scenarios/conditional-requests/object_name.json" assert {
  type: "json",
};

/**
 * Get a single object from a specified S3 bucket.
 * @param {{ sourceBucketName: string, sourceKeyName: string,
 destinationBucketName: string }}
 */
export const main = async ({
  sourceBucketName,
  sourceKeyName,
  destinationBucketName,
}) => {
  const date = new Date();
  date.setDate(date.getDate() - 1);

  const name = data.name;
  const client = new S3Client({});
  const copySource = `${sourceBucketName}/${sourceKeyName}`;
  const copiedKey = name + sourceKeyName;
```

```
  try {
    const response = await client.send(
      new CopyObjectCommand({
        CopySource: copySource,
        Bucket: destinationBucketName,
        Key: copiedKey,
        CopySourceIfModifiedSince: date,
      }),
    );
    console.log("Successfully copied object to bucket.");
  } catch (caught) {
    if (caught instanceof NoSuchKey) {
      console.error(
        `Error from S3 while copying object "${sourceKeyName}" from
 "${sourceBucketName}". No such key exists.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while copying object from ${sourceBucketName}.
 ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};

// Call function if run directly
import { parseArgs } from "node:util";
import {
  isMain,
  validateArgs,
} from "@aws-doc-sdk-examples/lib/utils/util-node.js";

const loadArgs = () => {
  const options = {
    sourceBucketName: {
      type: "string",
      required: true,
    },
    sourceKeyName: {
      type: "string",
      required: true,
    },
```

```
    destinationBucketName: {
      type: "string",
      required: true,
    },
  };
  const results = parseArgs({ options });
  const { errors } = validateArgs({ options }, results);
  return { errors, results };
};

if (isMain(import.meta.url)) {
  const { errors, results } = loadArgs();
  if (!errors) {
    main(results.values);
  } else {
    console.error(errors.join("\n"));
  }
}
```

Copy the object using on condition it has not been created or modified in a given timeframe.

```
import {
  CopyObjectCommand,
  NoSuchKey,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

// Optionally edit the default key name of the copied object in
 'object_name.json'
import data from "../scenarios/conditional-requests/object_name.json" assert {
  type: "json",
};

/**
 * Get a single object from a specified S3 bucket.
 * @param {{ sourceBucketName: string, sourceKeyName: string,
 destinationBucketName: string }}
 */
export const main = async ({
  sourceBucketName,
```

```
  sourceKeyName,
  destinationBucketName,
}) => {
  const date = new Date();
  date.setDate(date.getDate() - 1);
  const client = new S3Client({});
  const name = data.name;
  const copiedKey = name + sourceKeyName;
  const copySource = `${sourceBucketName}/${sourceKeyName}`;

  try {
    const response = await client.send(
      new CopyObjectCommand({
        CopySource: copySource,
        Bucket: destinationBucketName,
        Key: copiedKey,
        CopySourceIfUnmodifiedSince: date,
      }),
    );
    console.log("Successfully copied object to bucket.");
  } catch (caught) {
    if (caught instanceof NoSuchKey) {
      console.error(
        `Error from S3 while copying object "${sourceKeyName}" from
 "${sourceBucketName}". No such key exists.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while copying object from ${sourceBucketName}.
 ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};

// Call function if run directly
import { parseArgs } from "node:util";
import {
  isMain,
  validateArgs,
} from "@aws-doc-sdk-examples/lib/utils/util-node.js";
```

```
const loadArgs = () => {
  const options = {
    sourceBucketName: {
      type: "string",
      required: true,
    },
    sourceKeyName: {
      type: "string",
      required: true,
    },
    destinationBucketName: {
      type: "string",
      required: true,
    },
  };
  const results = parseArgs({ options });
  const { errors } = validateArgs({ options }, results);
  return { errors, results };
};

if (isMain(import.meta.url)) {
  const { errors, results } = loadArgs();
  if (!errors) {
    main(results.values);
  } else {
    console.error(errors.join("\n"));
  }
}
```

- For API details, see CopyObject in *AWS SDK for JavaScript API Reference*.

Kotlin

SDK for Kotlin

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
suspend fun copyBucketObject(
    fromBucket: String,
    objectKey: String,
    toBucket: String,
) {
    var encodedUrl = ""
    try {
        encodedUrl = URLEncoder.encode("$fromBucket/$objectKey",
 StandardCharsets.UTF_8.toString())
    } catch (e: UnsupportedEncodingException) {
        println("URL could not be encoded: " + e.message)
    }

    val request =
        CopyObjectRequest {
            copySource = encodedUrl
            bucket = toBucket
            key = objectKey
        }
    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->
        s3.copyObject(request)
    }
}
```

- For API details, see CopyObject in *AWS SDK for Kotlin API reference*.

PHP

SDK for PHP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Simple copy of an object.

```
        $s3client = new Aws\S3\S3Client(['region' => 'us-west-2']);
```

```
        try {
            $folder = "copied-folder";
            $this->s3client->copyObject([
                'Bucket' => $this->bucketName,
                'CopySource' => "$this->bucketName/$fileName",
                'Key' => "$folder/$fileName-copy",
            ]);
            echo "Copied $fileName to $folder/$fileName-copy.\n";
        } catch (Exception $exception) {
            echo "Failed to copy $fileName with error: " . $exception-
>getMessage();
            exit("Please fix error with object copying before continuing.");
        }
```

- For API details, see CopyObject in *AWS SDK for PHP API Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command copies the object "sample.txt" from bucket "test-files" to the same bucket but with a new key of "sample-copy.txt".

```
Copy-S3Object -BucketName amzn-s3-demo-bucket -Key sample.txt -DestinationKey
 sample-copy.txt
```

Example 2: This command copies the object "sample.txt" from bucket "test-files" to the bucket "backup-files" with a key of "sample-copy.txt".

```
Copy-S3Object -BucketName amzn-s3-demo-source-bucket -Key sample.txt -
DestinationKey sample-copy.txt -DestinationBucket amzn-s3-demo-destination-bucket
```

Example 3: This command downloads the object "sample.txt" from bucket "test-files" to a local file with name "local-sample.txt".

```
Copy-S3Object -BucketName amzn-s3-demo-bucket -Key sample.txt -LocalFile local-
sample.txt
```

Example 4: Downloads the single object to the specified file. The downloaded file will be found at c:\downloads\data\archive.zip

```
Copy-S3Object -BucketName amzn-s3-demo-bucket -Key data/archive.zip -LocalFolder
 c:\downloads
```

Example 5: Downloads all objects that match the specified key prefix to the local folder. The relative key hierarchy will be preserved as subfolders in the overall download location.

```
Copy-S3Object -BucketName amzn-s3-demo-bucket -KeyPrefix data -LocalFolder c:
\downloads
```

- For API details, see CopyObject in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command copies the object "sample.txt" from bucket "test-files" to the same bucket but with a new key of "sample-copy.txt".

```
Copy-S3Object -BucketName amzn-s3-demo-bucket -Key sample.txt -DestinationKey
 sample-copy.txt
```

Example 2: This command copies the object "sample.txt" from bucket "test-files" to the bucket "backup-files" with a key of "sample-copy.txt".

```
Copy-S3Object -BucketName amzn-s3-demo-source-bucket -Key sample.txt -
DestinationKey sample-copy.txt -DestinationBucket amzn-s3-demo-destination-bucket
```

Example 3: This command downloads the object "sample.txt" from bucket "test-files" to a local file with name "local-sample.txt".

```
Copy-S3Object -BucketName amzn-s3-demo-bucket -Key sample.txt -LocalFile local-
sample.txt
```

Example 4: Downloads the single object to the specified file. The downloaded file will be found at c:\downloads\data\archive.zip

```
Copy-S3Object -BucketName amzn-s3-demo-bucket -Key data/archive.zip -LocalFolder
 c:\downloads
```

Example 5: Downloads all objects that match the specified key prefix to the local folder. The relative key hierarchy will be preserved as subfolders in the overall download location.

```
Copy-S3Object -BucketName amzn-s3-demo-bucket -KeyPrefix data -LocalFolder c:
\downloads
```

- For API details, see CopyObject in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class ObjectWrapper:
    """Encapsulates S3 object actions."""

    def __init__(self, s3_object):
        """
        :param s3_object: A Boto3 Object resource. This is a high-level resource
 in Boto3
                          that wraps object actions in a class-like structure.
        """
        self.object = s3_object
        self.key = self.object.key


    def copy(self, dest_object):
        """
        Copies the object to another bucket.

        :param dest_object: The destination object initialized with a bucket and
 key.
                            This is a Boto3 Object resource.
        """
        try:
```

```
            dest_object.copy_from(
                CopySource={"Bucket": self.object.bucket_name, "Key":
 self.object.key}
            )
            dest_object.wait_until_exists()
            logger.info(
                "Copied object from %s:%s to %s:%s.",
                self.object.bucket_name,
                self.object.key,
                dest_object.bucket_name,
                dest_object.key,
            )
        except ClientError:
            logger.exception(
                "Couldn't copy object from %s/%s to %s/%s.",
                self.object.bucket_name,
                self.object.key,
                dest_object.bucket_name,
                dest_object.key,
            )
            raise
```

Copy an object using a conditional request.

```
class S3ConditionalRequests:
    """Encapsulates S3 conditional request operations."""

    def __init__(self, s3_client):
        self.s3 = s3_client

    @classmethod
    def from_client(cls):
        """
        Instantiates this class from a Boto3 client.
        """
        s3_client = boto3.client("s3")
        return cls(s3_client)


    def copy_object_conditional(
        self,
```

```
        source_key: str,
        dest_key: str,
        source_bucket: str,
        dest_bucket: str,
        condition_type: str,
        condition_value: str,
    ):
        """
        Copies an object from one Amazon S3 bucket to another with a conditional
 request.

        :param source_key: The key of the source object to copy.
        :param dest_key: The key of the destination object.
        :param source_bucket: The source bucket of the object.
        :param dest_bucket: The destination bucket of the object.
        :param condition_type: The type of condition to apply, e.g.
        'CopySourceIfMatch', 'CopySourceIfNoneMatch',
 'CopySourceIfModifiedSince', 'CopySourceIfUnmodifiedSince'.
        :param condition_value: The value to use for the condition.
        """
        try:
            self.s3.copy_object(
                Bucket=dest_bucket,
                Key=dest_key,
                CopySource={"Bucket": source_bucket, "Key": source_key},
                **{condition_type: condition_value},
            )
            print(
                f"\tConditional copy successful for key {dest_key} in bucket
 {dest_bucket}."
            )
        except ClientError as e:
            error_code = e.response["Error"]["Code"]
            if error_code == "PreconditionFailed":
                print("\tConditional copy failed: Precondition failed")
            elif error_code == "304":  # Not modified error code.
                print("\tConditional copy failed: Object not modified")
            else:
                logger.error(f"Unexpected error: {error_code}")
                raise
```

- For API details, see CopyObject in *AWS SDK for Python (Boto3) API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Copy an object.

```
require 'aws-sdk-s3'

# Wraps Amazon S3 object actions.
class ObjectCopyWrapper
  attr_reader :source_object

  # @param source_object [Aws::S3::Object] An existing Amazon S3 object. This is
 used as the source object for
  #                                        copy actions.
  def initialize(source_object)
    @source_object = source_object
  end

  # Copy the source object to the specified target bucket and rename it with the
 target key.
  #
  # @param target_bucket [Aws::S3::Bucket] An existing Amazon S3 bucket where the
 object is copied.
  # @param target_object_key [String] The key to give the copy of the object.
  # @return [Aws::S3::Object, nil] The copied object when successful; otherwise,
 nil.
  def copy_object(target_bucket, target_object_key)
    @source_object.copy_to(bucket: target_bucket.name, key: target_object_key)
    target_bucket.object(target_object_key)
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't copy #{@source_object.key} to #{target_object_key}. Here's
 why: #{e.message}"
  end
end

# Example usage:
```

```
def run_demo
  source_bucket_name = "amzn-s3-demo-bucket1"
  source_key = "my-source-file.txt"
  target_bucket_name = "amzn-s3-demo-bucket2"
  target_key = "my-target-file.txt"

  source_bucket = Aws::S3::Bucket.new(source_bucket_name)
  wrapper = ObjectCopyWrapper.new(source_bucket.object(source_key))
  target_bucket = Aws::S3::Bucket.new(target_bucket_name)
  target_object = wrapper.copy_object(target_bucket, target_key)
  return unless target_object

  puts "Copied #{source_key} from #{source_bucket_name} to
 #{target_object.bucket_name}:#{target_object.key}."
end

run_demo if $PROGRAM_NAME == __FILE__
```

Copy an object and add server-side encryption to the destination object.

```
require 'aws-sdk-s3'

# Wraps Amazon S3 object actions.
class ObjectCopyEncryptWrapper
  attr_reader :source_object

  # @param source_object [Aws::S3::Object] An existing Amazon S3 object. This is
 used as the source object for
  #                                        copy actions.
  def initialize(source_object)
    @source_object = source_object
  end

  # Copy the source object to the specified target bucket, rename it with the
 target key, and encrypt it.
  #
  # @param target_bucket [Aws::S3::Bucket] An existing Amazon S3 bucket where the
 object is copied.
  # @param target_object_key [String] The key to give the copy of the object.
  # @return [Aws::S3::Object, nil] The copied object when successful; otherwise,
 nil.
  def copy_object(target_bucket, target_object_key, encryption)
```

```
    @source_object.copy_to(bucket: target_bucket.name, key: target_object_key,
 server_side_encryption: encryption)
    target_bucket.object(target_object_key)
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't copy #{@source_object.key} to #{target_object_key}. Here's
 why: #{e.message}"
  end
end

# Example usage:
def run_demo
  source_bucket_name = "amzn-s3-demo-bucket1"
  source_key = "my-source-file.txt"
  target_bucket_name = "amzn-s3-demo-bucket2"
  target_key = "my-target-file.txt"
  target_encryption = "AES256"

  source_bucket = Aws::S3::Bucket.new(source_bucket_name)
  wrapper = ObjectCopyEncryptWrapper.new(source_bucket.object(source_key))
  target_bucket = Aws::S3::Bucket.new(target_bucket_name)
  target_object = wrapper.copy_object(target_bucket, target_key,
 target_encryption)
  return unless target_object

  puts "Copied #{source_key} from #{source_bucket_name} to
 #{target_object.bucket_name}:#{target_object.key} and "\
       "encrypted the target with #{target_object.server_side_encryption}
 encryption."
end

run_demo if $PROGRAM_NAME == __FILE__
```

- For API details, see CopyObject in *AWS SDK for Ruby API Reference*.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
/// Copy an object from one bucket to another.
pub async fn copy_object(
    client: &aws_sdk_s3::Client,
    source_bucket: &str,
    destination_bucket: &str,
    source_object: &str,
    destination_object: &str,
) -> Result<(), S3ExampleError> {
    let source_key = format!("{source_bucket}/{source_object}");
    let response = client
        .copy_object()
        .copy_source(&source_key)
        .bucket(destination_bucket)
        .key(destination_object)
        .send()
        .await?;

    println!(
        "Copied from {source_key} to {destination_bucket}/{destination_object}
 with etag {}",
        response
            .copy_object_result
            .unwrap_or_else(||
 aws_sdk_s3::types::CopyObjectResult::builder().build())
            .e_tag()
            .unwrap_or("missing")
    );
    Ok(())
}
```

- For API details, see CopyObject in *AWS SDK for Rust API reference*.

SAP ABAP

SDK for SAP ABAP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    TRY.
        lo_s3->copyobject(
          iv_bucket = iv_dest_bucket
          iv_key = iv_dest_object
          iv_copysource = |{ iv_src_bucket }/{ iv_src_object }| ).
        MESSAGE 'Object copied to another bucket.' TYPE 'I'.
      CATCH /aws1/cx_s3_nosuchbucket.
        MESSAGE 'Bucket does not exist.' TYPE 'E'.
      CATCH /aws1/cx_s3_nosuchkey.
        MESSAGE 'Object key does not exist.' TYPE 'E'.
    ENDTRY.
```

- For API details, see CopyObject in *AWS SDK for SAP ABAP API reference*.

Swift

SDK for Swift

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import AWSS3

    public func copyFile(from sourceBucket: String, name: String, to destBucket:
 String) async throws {
```

```
        let srcUrl = ("\(sourceBucket)/
\(name)").addingPercentEncoding(withAllowedCharacters: .urlPathAllowed)

        let input = CopyObjectInput(
            bucket: destBucket,
            copySource: srcUrl,
            key: name
        )
        do {
            _ = try await client.copyObject(input: input)
        }
        catch {
            print("ERROR: ", dump(error, name: "Copying an object."))
            throw error
        }
    }
```

- For API details, see CopyObject in *AWS SDK for Swift API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `CreateBucket` with an AWS SDK or CLI

The following code examples show how to use `CreateBucket`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Learn the basics
- Get started with S3
- Manage large messages using S3
- Work with versioned objects

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
        /// <summary>
        /// Shows how to create a new Amazon S3 bucket.
        /// </summary>
        /// <param name="client">An initialized Amazon S3 client object.</param>
        /// <param name="bucketName">The name of the bucket to create.</param>
        /// <returns>A boolean value representing the success or failure of
        /// the bucket creation process.</returns>
        public static async Task<bool> CreateBucketAsync(IAmazonS3 client, string
bucketName)
        {
            try
            {
                var request = new PutBucketRequest
                {
                    BucketName = bucketName,
                    UseClientRegion = true,
                };

                var response = await client.PutBucketAsync(request);
                return response.HttpStatusCode == System.Net.HttpStatusCode.OK;
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Error creating bucket: '{ex.Message}'");
                return false;
            }
        }
```

Create a bucket with object lock enabled.

```
    /// <summary>
    /// Create a new Amazon S3 bucket with object lock actions.
    /// </summary>
    /// <param name="bucketName">The name of the bucket to create.</param>
    /// <param name="enableObjectLock">True to enable object lock on the
bucket.</param>
    /// <returns>True if successful.</returns>
    public async Task<bool> CreateBucketWithObjectLock(string bucketName, bool
enableObjectLock)
    {
        Console.WriteLine($"\tCreating bucket {bucketName} with object lock
{enableObjectLock}.");
        try
        {
            var request = new PutBucketRequest
            {
                BucketName = bucketName,
                UseClientRegion = true,
                ObjectLockEnabledForBucket = enableObjectLock,
            };

            var response = await _amazonS3.PutBucketAsync(request);

            return response.HttpStatusCode == System.Net.HttpStatusCode.OK;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"Error creating bucket: '{ex.Message}'");
            return false;
        }
    }
```

- For API details, see CreateBucket in *AWS SDK for .NET API Reference*.

Bash

AWS CLI with Bash script

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
###############################################################################
# function iecho
#
# This function enables the script to display the specified text only if
# the global variable $VERBOSE is set to true.
###############################################################################
function iecho() {
  if [[ $VERBOSE == true ]]; then
    echo "$@"
  fi
}

###############################################################################
# function errecho
#
# This function outputs everything sent to it to STDERR (standard error output).
###############################################################################
function errecho() {
  printf "%s\n" "$*" 1>&2
}

###############################################################################
# function create-bucket
#
# This function creates the specified bucket in the specified AWS Region, unless
# it already exists.
#
# Parameters:
#       -b bucket_name  -- The name of the bucket to create.
#       -r region_code  -- The code for an AWS Region in which to
#                          create the bucket.
#
```

```
# Returns:
#       The URL of the bucket that was created.
#     And:
#       0 - If successful.
#       1 - If it fails.
###############################################################################
function create_bucket() {
  local bucket_name region_code response
  local option OPTARG # Required to use getopts command in a function.

  # bashsupport disable=BP5008
  function usage() {
    echo "function create_bucket"
    echo "Creates an Amazon S3 bucket. You must supply a bucket name:"
    echo "  -b bucket_name    The name of the bucket. It must be globally
 unique."
    echo "  [-r region_code]    The code for an AWS Region in which the bucket is
 created."
    echo ""
  }

  # Retrieve the calling parameters.
  while getopts "b:r:h" option; do
    case "${option}" in
      b) bucket_name="${OPTARG}" ;;
      r) region_code="${OPTARG}" ;;
      h)
        usage
        return 0
        ;;
      \?)
        echo "Invalid parameter"
        usage
        return 1
        ;;
    esac
  done

  if [[ -z "$bucket_name" ]]; then
    errecho "ERROR: You must provide a bucket name with the -b parameter."
    usage
    return 1
  fi
```

```
  local bucket_config_arg
  # A location constraint for "us-east-1" returns an error.
  if [[ -n "$region_code" ]] && [[ "$region_code" != "us-east-1" ]]; then
    bucket_config_arg="--create-bucket-configuration LocationConstraint=
$region_code"
  fi

  iecho "Parameters:\n"
  iecho "    Bucket name:   $bucket_name"
  iecho "    Region code:   $region_code"
  iecho ""

  # If the bucket already exists, we don't want to try to create it.
  if (bucket_exists "$bucket_name"); then
    errecho "ERROR: A bucket with that name already exists. Try again."
    return 1
  fi

  # shellcheck disable=SC2086
  response=$(aws s3api create-bucket \
    --bucket "$bucket_name" \
    $bucket_config_arg)

  # shellcheck disable=SC2181
  if [[ ${?} -ne 0 ]]; then
    errecho "ERROR: AWS reports create-bucket operation failed.\n$response"
    return 1
  fi
}
```

- For API details, see CreateBucket in *AWS CLI Command Reference*.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::createBucket(const Aws::String &bucketName,
                              const Aws::S3::S3ClientConfiguration &clientConfig)
 {
    Aws::S3::S3Client client(clientConfig);
    Aws::S3::Model::CreateBucketRequest request;
    request.SetBucket(bucketName);

    if (clientConfig.region != "us-east-1") {
        Aws::S3::Model::CreateBucketConfiguration createBucketConfig;
        createBucketConfig.SetLocationConstraint(

 Aws::S3::Model::BucketLocationConstraintMapper::GetBucketLocationConstraintForName(
                        clientConfig.region));
        request.SetCreateBucketConfiguration(createBucketConfig);
    }

    Aws::S3::Model::CreateBucketOutcome outcome = client.CreateBucket(request);
    if (!outcome.IsSuccess()) {
        auto err = outcome.GetError();
        std::cerr << "Error: createBucket: " <<
                  err.GetExceptionName() << ": " << err.GetMessage() <<
 std::endl;
    } else {
        std::cout << "Created bucket " << bucketName <<
                  " in the specified AWS Region." << std::endl;
    }

    return outcome.IsSuccess();
}
```

- For API details, see CreateBucket in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

Example 1: To create a bucket

The following `create-bucket` example creates a bucket named `amzn-s3-demo-bucket`:

```
aws s3api create-bucket \
```

```
    --bucket amzn-s3-demo-bucket \
    --region us-east-1
```

Output:

```
{
    "Location": "/amzn-s3-demo-bucket"
}
```

For more information, see Creating a bucket in the *Amazon S3 User Guide*.

Example 2: To create a bucket with owner enforced

The following `create-bucket` example creates a bucket named `amzn-s3-demo-bucket` that uses the bucket owner enforced setting for S3 Object Ownership.

```
aws s3api create-bucket \
    --bucket amzn-s3-demo-bucket \
    --region us-east-1 \
    --object-ownership BucketOwnerEnforced
```

Output:

```
{
    "Location": "/amzn-s3-demo-bucket"
}
```

For more information, see Controlling ownership of objects and disabling ACLs in the *Amazon S3 User Guide*.

Example 3: To create a bucket outside of the ``us-east-1`` region

The following `create-bucket` example creates a bucket named `amzn-s3-demo-bucket` in the `eu-west-1` region. Regions outside of `us-east-1` require the appropriate `LocationConstraint` to be specified in order to create the bucket in the desired region.

```
aws s3api create-bucket \
    --bucket amzn-s3-demo-bucket \
    --region eu-west-1 \
    --create-bucket-configuration LocationConstraint=eu-west-1
```

Output:

```
{
    "Location": "http://amzn-s3-demo-bucket.s3.amazonaws.com/"
}
```

For more information, see Creating a bucket in the *Amazon S3 User Guide*.

- For API details, see CreateBucket in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create a bucket with default configuration.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "io"
 "log"
 "os"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// BucketBasics encapsulates the Amazon Simple Storage Service (Amazon S3)
 actions
```

```
// used in the examples.
// It contains S3Client, an Amazon S3 service client that is used to perform
 bucket
// and object actions.
type BucketBasics struct {
 S3Client *s3.Client
}



// CreateBucket creates a bucket with the specified name in the specified Region.
func (basics BucketBasics) CreateBucket(ctx context.Context, name string, region
 string) error {
 _, err := basics.S3Client.CreateBucket(ctx, &s3.CreateBucketInput{
  Bucket: aws.String(name),
  CreateBucketConfiguration: &types.CreateBucketConfiguration{
   LocationConstraint: types.BucketLocationConstraint(region),
  },
 })
 if err != nil {
  var owned *types.BucketAlreadyOwnedByYou
  var exists *types.BucketAlreadyExists
  if errors.As(err, &owned) {
   log.Printf("You already own bucket %s.\n", name)
   err = owned
  } else if errors.As(err, &exists) {
   log.Printf("Bucket %s already exists.\n", name)
   err = exists
  }
 } else {
  err = s3.NewBucketExistsWaiter(basics.S3Client).Wait(
   ctx, &s3.HeadBucketInput{Bucket: aws.String(name)}, time.Minute)
  if err != nil {
   log.Printf("Failed attempt to wait for bucket %s to exist.\n", name)
  }
 }
 return err
}
```

Create a bucket with object locking and wait for it to exist.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "log"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// S3Actions wraps S3 service actions.
type S3Actions struct {
 S3Client  *s3.Client
 S3Manager *manager.Uploader
}



// CreateBucketWithLock creates a new S3 bucket with optional object locking
 enabled
// and waits for the bucket to exist before returning.
func (actor S3Actions) CreateBucketWithLock(ctx context.Context, bucket string,
 region string, enableObjectLock bool) (string, error) {
 input := &s3.CreateBucketInput{
  Bucket: aws.String(bucket),
  CreateBucketConfiguration: &types.CreateBucketConfiguration{
   LocationConstraint: types.BucketLocationConstraint(region),
  },
 }

 if enableObjectLock {
  input.ObjectLockEnabledForBucket = aws.Bool(true)
 }

 _, err := actor.S3Client.CreateBucket(ctx, input)
 if err != nil {
  var owned *types.BucketAlreadyOwnedByYou
```

```
  var exists *types.BucketAlreadyExists
  if errors.As(err, &owned) {
   log.Printf("You already own bucket %s.\n", bucket)
   err = owned
  } else if errors.As(err, &exists) {
   log.Printf("Bucket %s already exists.\n", bucket)
   err = exists
  }
 } else {
  err = s3.NewBucketExistsWaiter(actor.S3Client).Wait(
   ctx, &s3.HeadBucketInput{Bucket: aws.String(bucket)}, time.Minute)
  if err != nil {
   log.Printf("Failed attempt to wait for bucket %s to exist.\n", bucket)
  }
 }

 return bucket, err
}
```

- For API details, see CreateBucket in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create a bucket.

```
    /**
     * Creates an S3 bucket asynchronously.
     *
     * @param bucketName the name of the S3 bucket to create
     * @return a {@link CompletableFuture} that completes when the bucket is
 created and ready
```

```
     * @throws RuntimeException if there is a failure while creating the bucket
     */
    public CompletableFuture<Void> createBucketAsync(String bucketName) {
        CreateBucketRequest bucketRequest = CreateBucketRequest.builder()
            .bucket(bucketName)
            .build();

        CompletableFuture<CreateBucketResponse> response =
getAsyncClient().createBucket(bucketRequest);
        return response.thenCompose(resp -> {
            S3AsyncWaiter s3Waiter = getAsyncClient().waiter();
            HeadBucketRequest bucketRequestWait = HeadBucketRequest.builder()
                .bucket(bucketName)
                .build();

            CompletableFuture<WaiterResponse<HeadBucketResponse>>
waiterResponseFuture =
                s3Waiter.waitUntilBucketExists(bucketRequestWait);
            return waiterResponseFuture.thenAccept(waiterResponse -> {
                waiterResponse.matched().response().ifPresent(headBucketResponse
-> {
                    logger.info(bucketName + " is ready");
                });
            });
        }).whenComplete((resp, ex) -> {
            if (ex != null) {
                throw new RuntimeException("Failed to create bucket", ex);
            }
        });
    }
```

Create a bucket with object lock enabled.

```
    // Create a new Amazon S3 bucket with object lock options.
    public void createBucketWithLockOptions(boolean enableObjectLock, String
bucketName) {
        S3Waiter s3Waiter = getClient().waiter();
        CreateBucketRequest bucketRequest = CreateBucketRequest.builder()
            .bucket(bucketName)
            .objectLockEnabledForBucket(enableObjectLock)
            .build();
```

```
        getClient().createBucket(bucketRequest);
        HeadBucketRequest bucketRequestWait = HeadBucketRequest.builder()
            .bucket(bucketName)
            .build();

        // Wait until the bucket is created and print out the response.
        s3Waiter.waitUntilBucketExists(bucketRequestWait);
        System.out.println(bucketName + " is ready");
    }
```

- For API details, see CreateBucket in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create the bucket.

```
import {
  BucketAlreadyExists,
  BucketAlreadyOwnedByYou,
  CreateBucketCommand,
  S3Client,
  waitUntilBucketExists,
} from "@aws-sdk/client-s3";

/**
 * Create an Amazon S3 bucket.
 * @param {{ bucketName: string }} config
 */
export const main = async ({ bucketName }) => {
  const client = new S3Client({});

  try {
    const { Location } = await client.send(
```

```
      new CreateBucketCommand({
        // The name of the bucket. Bucket names are unique and have several other
 constraints.
        // See https://docs.aws.amazon.com/AmazonS3/latest/userguide/
bucketnamingrules.html
        Bucket: bucketName,
      }),
    );
    await waitUntilBucketExists({ client }, { Bucket: bucketName });
    console.log(`Bucket created with location ${Location}`);
  } catch (caught) {
    if (caught instanceof BucketAlreadyExists) {
      console.error(
        `The bucket "${bucketName}" already exists in another AWS account. Bucket
 names must be globally unique.`,
      );
    }
    // WARNING: If you try to create a bucket in the North Virginia region,
    // and you already own a bucket in that region with the same name, this
    // error will not be thrown. Instead, the call will return successfully
    // and the ACL on that bucket will be reset.
    else if (caught instanceof BucketAlreadyOwnedByYou) {
      console.error(
        `The bucket "${bucketName}" already exists in this AWS account.`,
      );
    } else {
      throw caught;
    }
  }
};
```

- For more information, see AWS SDK for JavaScript Developer Guide.
- For API details, see CreateBucket in *AWS SDK for JavaScript API Reference*.

Kotlin

SDK for Kotlin

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
suspend fun createNewBucket(bucketName: String) {
    val request =
        CreateBucketRequest {
            bucket = bucketName
        }

    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->
        s3.createBucket(request)
        println("$bucketName is ready")
    }
}
```

- For API details, see CreateBucket in *AWS SDK for Kotlin API reference*.

PHP

SDK for PHP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create a bucket.

```
        $s3client = new Aws\S3\S3Client(['region' => 'us-west-2']);

        try {
```

```
            $this->s3client->createBucket([
                'Bucket' => $this->bucketName,
                'CreateBucketConfiguration' => ['LocationConstraint' => $region],
            ]);
            echo "Created bucket named: $this->bucketName \n";
        } catch (Exception $exception) {
            echo "Failed to create bucket $this->bucketName with error: " .
 $exception->getMessage();
            exit("Please fix error with bucket creation before continuing.");
        }
```

- For API details, see CreateBucket in *AWS SDK for PHP API Reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create a bucket with default settings.

```
class BucketWrapper:
    """Encapsulates S3 bucket actions."""

    def __init__(self, bucket):
        """
        :param bucket: A Boto3 Bucket resource. This is a high-level resource in
 Boto3
                       that wraps bucket actions in a class-like structure.
        """
        self.bucket = bucket
        self.name = bucket.name


    def create(self, region_override=None):
        """
```

```
        Create an Amazon S3 bucket in the default Region for the account or in
 the
        specified Region.

        :param region_override: The Region in which to create the bucket. If this
 is
                                not specified, the Region configured in your
 shared
                                credentials is used.
        """
        if region_override is not None:
            region = region_override
        else:
            region = self.bucket.meta.client.meta.region_name
        try:
            self.bucket.create(CreateBucketConfiguration={"LocationConstraint":
 region})

            self.bucket.wait_until_exists()
            logger.info("Created bucket '%s' in region=%s", self.bucket.name,
 region)
        except ClientError as error:
            logger.exception(
                "Couldn't create bucket named '%s' in region=%s.",
                self.bucket.name,
                region,
            )
            raise error
```

Create a versioned bucket with a lifecycle configuration.

```
def create_versioned_bucket(bucket_name, prefix):
    """
    Creates an Amazon S3 bucket, enables it for versioning, and configures a
 lifecycle
    that expires noncurrent object versions after 7 days.

    Adding a lifecycle configuration to a versioned bucket is a best practice.
    It helps prevent objects in the bucket from accumulating a large number of
    noncurrent versions, which can slow down request performance.
```

```
    Usage is shown in the usage_demo_single_object function at the end of this
module.

    :param bucket_name: The name of the bucket to create.
    :param prefix: Identifies which objects are automatically expired under the
                   configured lifecycle rules.
    :return: The newly created bucket.
    """
    try:
        bucket = s3.create_bucket(
            Bucket=bucket_name,
            CreateBucketConfiguration={
                "LocationConstraint": s3.meta.client.meta.region_name
            },
        )
        logger.info("Created bucket %s.", bucket.name)
    except ClientError as error:
        if error.response["Error"]["Code"] == "BucketAlreadyOwnedByYou":
            logger.warning("Bucket %s already exists! Using it.", bucket_name)
            bucket = s3.Bucket(bucket_name)
        else:
            logger.exception("Couldn't create bucket %s.", bucket_name)
            raise

    try:
        bucket.Versioning().enable()
        logger.info("Enabled versioning on bucket %s.", bucket.name)
    except ClientError:
        logger.exception("Couldn't enable versioning on bucket %s.", bucket.name)
        raise

    try:
        expiration = 7
        bucket.LifecycleConfiguration().put(
            LifecycleConfiguration={
                "Rules": [
                    {
                        "Status": "Enabled",
                        "Prefix": prefix,
                        "NoncurrentVersionExpiration": {"NoncurrentDays":
expiration},
                    }
                ]
            }
```

```
        )
        logger.info(
            "Configured lifecycle to expire noncurrent versions after %s days "
            "on bucket %s.",
            expiration,
            bucket.name,
        )
    except ClientError as error:
        logger.warning(
            "Couldn't configure lifecycle on bucket %s because %s. "
            "Continuing anyway.",
            bucket.name,
            error,
        )

    return bucket
```

- For API details, see CreateBucket in *AWS SDK for Python (Boto3) API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
require 'aws-sdk-s3'

# Wraps Amazon S3 bucket actions.
class BucketCreateWrapper
  attr_reader :bucket

  # @param bucket [Aws::S3::Bucket] An Amazon S3 bucket initialized with a name.
 This is a client-side object until
  #                                 create is called.
  def initialize(bucket)
```

```
    @bucket = bucket
  end

  # Creates an Amazon S3 bucket in the specified AWS Region.
  #
  # @param region [String] The Region where the bucket is created.
  # @return [Boolean] True when the bucket is created; otherwise, false.
  def create?(region)
    @bucket.create(create_bucket_configuration: { location_constraint: region })
    true
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't create bucket. Here's why: #{e.message}"
    false
  end

  # Gets the Region where the bucket is located.
  #
  # @return [String] The location of the bucket.
  def location
    if @bucket.nil?
      'None. You must create a bucket before you can get its location!'
    else
      @bucket.client.get_bucket_location(bucket:
 @bucket.name).location_constraint
    end
  rescue Aws::Errors::ServiceError => e
    "Couldn't get the location of #{@bucket.name}. Here's why: #{e.message}"
  end
end

# Example usage:
def run_demo
  region = "us-west-2"
  wrapper = BucketCreateWrapper.new(Aws::S3::Bucket.new("amzn-s3-demo-bucket-
#{Random.uuid}"))
  return unless wrapper.create?(region)

  puts "Created bucket #{wrapper.bucket.name}."
  puts "Your bucket's region is: #{wrapper.location}"
end

run_demo if $PROGRAM_NAME == __FILE__
```

- For API details, see CreateBucket in *AWS SDK for Ruby API Reference*.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
pub async fn create_bucket(
    client: &aws_sdk_s3::Client,
    bucket_name: &str,
    region: &aws_config::Region,
) -> Result<Option<aws_sdk_s3::operation::create_bucket::CreateBucketOutput>,
 S3ExampleError> {
    let constraint =
 aws_sdk_s3::types::BucketLocationConstraint::from(region.to_string().as_str());
    let cfg = aws_sdk_s3::types::CreateBucketConfiguration::builder()
        .location_constraint(constraint)
        .build();
    let create = client
        .create_bucket()
        .create_bucket_configuration(cfg)
        .bucket(bucket_name)
        .send()
        .await;

    // BucketAlreadyExists and BucketAlreadyOwnedByYou are not problems for this
 task.
    create.map(Some).or_else(|err| {
        if err
            .as_service_error()
            .map(|se| se.is_bucket_already_exists() ||
 se.is_bucket_already_owned_by_you())
            == Some(true)
        {
            Ok(None)
        } else {
            Err(S3ExampleError::from(err))
```

```
        }
    })
}
```

- For API details, see CreateBucket in *AWS SDK for Rust API reference*.

SAP ABAP

SDK for SAP ABAP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    TRY.
        " determine our region from our session
        DATA(lv_region) = CONV /aws1/s3_bucketlocationcnstrnt( lo_session-
>get_region( ) ).
        DATA lo_constraint TYPE REF TO /aws1/cl_s3_createbucketconf.
        " When in the us-east-1 region, you must not specify a constraint
        " In all other regions, specify the region as the constraint
        IF lv_region = 'us-east-1'.
          CLEAR lo_constraint.
        ELSE.
          lo_constraint = NEW /aws1/cl_s3_createbucketconf( lv_region ).
        ENDIF.

        lo_s3->createbucket(
            iv_bucket = iv_bucket_name
            io_createbucketconfiguration  = lo_constraint ).
        MESSAGE 'S3 bucket created.' TYPE 'I'.
      CATCH /aws1/cx_s3_bucketalrdyexists.
        MESSAGE 'Bucket name already exists.' TYPE 'E'.
      CATCH /aws1/cx_s3_bktalrdyownedbyyou.
        MESSAGE 'Bucket already exists and is owned by you.' TYPE 'E'.
    ENDTRY.
```

- For API details, see CreateBucket in *AWS SDK for SAP ABAP API reference*.

Swift

SDK for Swift

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import AWSS3

    public func createBucket(name: String) async throws {
        var input = CreateBucketInput(
            bucket: name
        )

        // For regions other than "us-east-1", you must set the
 locationConstraint in the createBucketConfiguration.
        // For more information, see LocationConstraint in the S3 API guide.
        // https://docs.aws.amazon.com/AmazonS3/latest/API/
API_CreateBucket.html#API_CreateBucket_RequestBody
        if let region = configuration.region {
            if region != "us-east-1" {
                input.createBucketConfiguration =
 S3ClientTypes.CreateBucketConfiguration(locationConstraint:
 S3ClientTypes.BucketLocationConstraint(rawValue: region))
            }
        }

        do {
            _ = try await client.createBucket(input: input)
        }
        catch let error as BucketAlreadyOwnedByYou {
            print("The bucket '\(name)' already exists and is owned by you. You
 may wish to ignore this exception.")
            throw error
        }
        catch {
            print("ERROR: ", dump(error, name: "Creating a bucket"))
```

```
            throw error
        }
    }
```

- For API details, see CreateBucket in *AWS SDK for Swift API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `CreateMultiRegionAccessPoint` with an AWS SDK

The following code example shows how to use `CreateMultiRegionAccessPoint`.

Kotlin

SDK for Kotlin

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Configure the S3 control client to send request to the us-west-2 Region.

```
        suspend fun createS3ControlClient(): S3ControlClient {
            // Configure your S3ControlClient to send requests to US West
(Oregon).
            val s3Control = S3ControlClient.fromEnvironment {
                region = "us-west-2"
            }
            return s3Control
        }
```

Create the Multi-Region Access Point.

```
    suspend fun createMrap(
        s3Control: S3ControlClient,
```

```
        accountIdParam: String,
        bucketName1: String,
        bucketName2: String,
        mrapName: String,
    ): String {
        println("Creating MRAP ...")
        val createMrapResponse: CreateMultiRegionAccessPointResponse =
            s3Control.createMultiRegionAccessPoint {
                accountId = accountIdParam
                clientToken = UUID.randomUUID().toString()
                details {
                    name = mrapName
                    regions = listOf(
                        Region {
                            bucket = bucketName1
                        },
                        Region {
                            bucket = bucketName2
                        },
                    )
                }
            }
        val requestToken: String? = createMrapResponse.requestTokenArn

        // Use the request token to check for the status of the
CreateMultiRegionAccessPoint operation.
        if (requestToken != null) {
            waitForSucceededStatus(s3Control, requestToken, accountIdParam)
            println("MRAP created")
        }

        val getMrapResponse =
            s3Control.getMultiRegionAccessPoint(
                input = GetMultiRegionAccessPointRequest {
                    accountId = accountIdParam
                    name = mrapName
                },
            )
        val mrapAlias = getMrapResponse.accessPoint?.alias
        return "arn:aws:s3::$accountIdParam:accesspoint/$mrapAlias"
    }
```

Wait for the Multi-Region Access Point to become available.

```
        suspend fun waitForSucceededStatus(
            s3Control: S3ControlClient,
            requestToken: String,
            accountIdParam: String,
            timeBetweenChecks: Duration = 1.minutes,
        ) {
            var describeResponse: DescribeMultiRegionAccessPointOperationResponse
            describeResponse = s3Control.describeMultiRegionAccessPointOperation(
                input = DescribeMultiRegionAccessPointOperationRequest {
                    accountId = accountIdParam
                    requestTokenArn = requestToken
                },
            )

            var status: String? = describeResponse.asyncOperation?.requestStatus
            while (status != "SUCCEEDED") {
                delay(timeBetweenChecks)
                describeResponse =
s3Control.describeMultiRegionAccessPointOperation(
                    input = DescribeMultiRegionAccessPointOperationRequest {
                        accountId = accountIdParam
                        requestTokenArn = requestToken
                    },
                )
                status = describeResponse.asyncOperation?.requestStatus
                println(status)
            }
        }
```

- For more information, see AWS SDK for Kotlin developer guide.
- For API details, see CreateMultiRegionAccessPoint in *AWS SDK for Kotlin API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `CreateMultipartUpload` with an AWS SDK or CLI

The following code examples show how to use `CreateMultipartUpload`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Perform a multipart copy
- Use checksums
- Work with Amazon S3 object integrity

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
//! Create a multipart upload.
/*!
    \param bucket: The name of the S3 bucket where the object will be uploaded.
    \param key: The unique identifier (key) for the object within the S3 bucket.
    \param client: The S3 client instance used to perform the upload operation.
    \return Aws::String: Upload ID or empty string if failed.
*/
Aws::String
AwsDoc::S3::createMultipartUpload(const Aws::String &bucket, const Aws::String
 &key,
                                  Aws::S3::Model::ChecksumAlgorithm
 checksumAlgorithm,
                                  const Aws::S3::S3Client &client) {
    Aws::S3::Model::CreateMultipartUploadRequest request;
    request.SetBucket(bucket);
    request.SetKey(key);

    if (checksumAlgorithm != Aws::S3::Model::ChecksumAlgorithm::NOT_SET) {
        request.SetChecksumAlgorithm(checksumAlgorithm);
    }

    Aws::S3::Model::CreateMultipartUploadOutcome outcome =
            client.CreateMultipartUpload(request);
```

```
    Aws::String uploadID;
    if (outcome.IsSuccess()) {
        uploadID = outcome.GetResult().GetUploadId();
    } else {
        std::cerr << "Error creating multipart upload: " <<
 outcome.GetError().GetMessage() << std::endl;
    }

    return uploadID;
}
```

- For API details, see CreateMultipartUpload in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The following command creates a multipart upload in the bucket `amzn-s3-demo-bucket` with the key `multipart/01`:

```
aws s3api create-multipart-upload --bucket amzn-s3-demo-bucket --key
 'multipart/01'
```

Output:

```
{
    "Bucket": "amzn-s3-demo-bucket",
    "UploadId":
 "dfRtDYU0WWCCcH43C3WFbkRONycyCpTJJvxu2i5GYkZljF.Yxwh6XG7WfS2vC4to6HiV6Yjlx.cph0gtNBtJ8P3
    "Key": "multipart/01"
}
```

The completed file will be named `01` in a folder called `multipart` in the bucket `amzn-s3-demo-bucket`. Save the upload ID, key and bucket name for use with the `upload-part` command.

- For API details, see CreateMultipartUpload in *AWS CLI Command Reference*.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
// Create a multipart upload. Use UploadPart and CompleteMultipartUpload to
// upload the file.
let multipart_upload_res: CreateMultipartUploadOutput = client
    .create_multipart_upload()
    .bucket(&bucket_name)
    .key(&key)
    .send()
    .await?;

let upload_id = multipart_upload_res.upload_id().ok_or(S3ExampleError::new(
    "Missing upload_id after CreateMultipartUpload",
))?;
```

```
let mut upload_parts: Vec<aws_sdk_s3::types::CompletedPart> = Vec::new();

for chunk_index in 0..chunk_count {
    let this_chunk = if chunk_count - 1 == chunk_index {
        size_of_last_chunk
    } else {
        CHUNK_SIZE
    };
    let stream = ByteStream::read_from()
        .path(path)
        .offset(chunk_index * CHUNK_SIZE)
        .length(Length::Exact(this_chunk))
        .build()
        .await
        .unwrap();

    // Chunk index needs to start at 0, but part numbers start at 1.
    let part_number = (chunk_index as i32) + 1;
```

```
        let upload_part_res = client
            .upload_part()
            .key(&key)
            .bucket(&bucket_name)
            .upload_id(upload_id)
            .body(stream)
            .part_number(part_number)
            .send()
            .await?;

        upload_parts.push(
            CompletedPart::builder()
                .e_tag(upload_part_res.e_tag.unwrap_or_default())
                .part_number(part_number)
                .build(),
        );
    }
```

```
    // upload_parts: Vec<aws_sdk_s3::types::CompletedPart>
    let completed_multipart_upload: CompletedMultipartUpload =
CompletedMultipartUpload::builder()
        .set_parts(Some(upload_parts))
        .build();

    let _complete_multipart_upload_res = client
        .complete_multipart_upload()
        .bucket(&bucket_name)
        .key(&key)
        .multipart_upload(completed_multipart_upload)
        .upload_id(upload_id)
        .send()
        .await?;
```

- For API details, see CreateMultipartUpload in *AWS SDK for Rust API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `CreatePresignedPost` with an AWS SDK

The following code example shows how to use `CreatePresignedPost`.

.NET

SDK for .NET (v4)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create a presigned POST URL.

```
    /// <summary>
    /// Create a presigned POST URL with conditions.
    /// </summary>
    /// <param name="s3Client">The Amazon S3 client.</param>
    /// <param name="bucketName">The name of the bucket.</param>
    /// <param name="objectKey">The object key (path) where the uploaded file
 will be stored.</param>
    /// <param name="expires">When the presigned URL expires.</param>
    /// <param name="fields">Dictionary of fields to add to the form.</param>
    /// <param name="conditions">List of conditions to apply.</param>
    /// <returns>A CreatePresignedPostResponse object with URL and form fields.</
returns>
    public async Task<CreatePresignedPostResponse> CreatePresignedPostAsync(
        IAmazonS3 s3Client,
        string bucketName,
        string objectKey,
        DateTime expires,
        Dictionary<string, string>? fields = null,
        List<S3PostCondition>? conditions = null)
    {
        var request = new CreatePresignedPostRequest
        {
            BucketName = bucketName,
            Key = objectKey,
            Expires = expires
        };
```

```
        // Add custom fields if provided
        if (fields != null)
        {
            foreach (var field in fields)
            {
                request.Fields.Add(field.Key, field.Value);
            }
        }

        // Add conditions if provided
        if (conditions != null)
        {
            foreach (var condition in conditions)
            {
                request.Conditions.Add(condition);
            }
        }

        return await s3Client.CreatePresignedPostAsync(request);
    }
```

- For API details, see CreatePresignedPost in *AWS SDK for .NET API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteBucket` with an AWS SDK or CLI

The following code examples show how to use `DeleteBucket`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Learn the basics
- Get started with S3

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
        /// <summary>
        /// Shows how to delete an Amazon S3 bucket.
        /// </summary>
        /// <param name="client">An initialized Amazon S3 client object.</param>
        /// <param name="bucketName">The name of the Amazon S3 bucket to
delete.</param>
        /// <returns>A boolean value that represents the success or failure of
        /// the delete operation.</returns>
        public static async Task<bool> DeleteBucketAsync(IAmazonS3 client, string
bucketName)
        {
            try
            {
                var request = new DeleteBucketRequest { BucketName =
bucketName, };

                await client.DeleteBucketAsync(request);
                return true;
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Error deleting bucket: {ex.Message}");
                return false;
            }
        }
```

- For API details, see DeleteBucket in *AWS SDK for .NET API Reference*.

Bash

AWS CLI with Bash script

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
###############################################################################
# function errecho
#
# This function outputs everything sent to it to STDERR (standard error output).
###############################################################################
function errecho() {
  printf "%s\n" "$*" 1>&2
}

###############################################################################
# function delete_bucket
#
# This function deletes the specified bucket.
#
# Parameters:
#       $1 - The name of the bucket.

# Returns:
#       0 - If successful.
#       1 - If it fails.
###############################################################################
function delete_bucket() {
  local bucket_name=$1
  local response

  response=$(aws s3api delete-bucket \
    --bucket "$bucket_name")

  # shellcheck disable=SC2181
  if [[ $? -ne 0 ]]; then
    errecho "ERROR: AWS reports s3api delete-bucket failed.\n$response"
    return 1
```

```
  fi
}
```

- For API details, see DeleteBucket in *AWS CLI Command Reference*.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::deleteBucket(const Aws::String &bucketName,
                              const Aws::S3::S3ClientConfiguration &clientConfig)
 {

    Aws::S3::S3Client client(clientConfig);

    Aws::S3::Model::DeleteBucketRequest request;
    request.SetBucket(bucketName);

    Aws::S3::Model::DeleteBucketOutcome outcome =
            client.DeleteBucket(request);

    if (!outcome.IsSuccess()) {
        const Aws::S3::S3Error &err = outcome.GetError();
        std::cerr << "Error: deleteBucket: " <<
                  err.GetExceptionName() << ": " << err.GetMessage() <<
 std::endl;
    } else {
        std::cout << "The bucket was deleted" << std::endl;
    }

    return outcome.IsSuccess();
}
```

- For API details, see DeleteBucket in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The following command deletes a bucket named `amzn-s3-demo-bucket`:

```
aws s3api delete-bucket --bucket amzn-s3-demo-bucket --region us-east-1
```

- For API details, see DeleteBucket in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "io"
 "log"
 "os"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)
```

```
// BucketBasics encapsulates the Amazon Simple Storage Service (Amazon S3)
 actions
// used in the examples.
// It contains S3Client, an Amazon S3 service client that is used to perform
 bucket
// and object actions.
type BucketBasics struct {
 S3Client *s3.Client
}



// DeleteBucket deletes a bucket. The bucket must be empty or an error is
 returned.
func (basics BucketBasics) DeleteBucket(ctx context.Context, bucketName string)
 error {
 _, err := basics.S3Client.DeleteBucket(ctx, &s3.DeleteBucketInput{
  Bucket: aws.String(bucketName)})
 if err != nil {
  var noBucket *types.NoSuchBucket
  if errors.As(err, &noBucket) {
   log.Printf("Bucket %s does not exist.\n", bucketName)
   err = noBucket
  } else {
   log.Printf("Couldn't delete bucket %v. Here's why: %v\n", bucketName, err)
  }
 } else {
  err = s3.NewBucketNotExistsWaiter(basics.S3Client).Wait(
   ctx, &s3.HeadBucketInput{Bucket: aws.String(bucketName)}, time.Minute)
  if err != nil {
   log.Printf("Failed attempt to wait for bucket %s to be deleted.\n",
 bucketName)
  } else {
   log.Printf("Deleted %s.\n", bucketName)
  }
 }
 return err
}
```

- For API details, see DeleteBucket in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
   /**
    * Deletes an S3 bucket asynchronously.
    *
    * @param bucket the name of the bucket to be deleted
    * @return a {@link CompletableFuture} that completes when the bucket
deletion is successful, or throws a {@link RuntimeException}
    * if an error occurs during the deletion process
    */
   public CompletableFuture<Void> deleteBucketAsync(String bucket) {
       DeleteBucketRequest deleteBucketRequest = DeleteBucketRequest.builder()
           .bucket(bucket)
           .build();

       CompletableFuture<DeleteBucketResponse> response =
getAsyncClient().deleteBucket(deleteBucketRequest);
       response.whenComplete((deleteRes, ex) -> {
           if (deleteRes != null) {
               logger.info(bucket + " was deleted.");
           } else {
               throw new RuntimeException("An S3 exception occurred during
bucket deletion", ex);
           }
       });
       return response.thenApply(r -> null);
   }
```

- For API details, see DeleteBucket in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete the bucket.

```
import {
  DeleteBucketCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Delete an Amazon S3 bucket.
 * @param {{ bucketName: string }}
 */
export const main = async ({ bucketName }) => {
  const client = new S3Client({});
  const command = new DeleteBucketCommand({
    Bucket: bucketName,
  });

  try {
    await client.send(command);
    console.log("Bucket was deleted.");
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while deleting bucket. The bucket doesn't exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while deleting the bucket. ${caught.name}:
 ${caught.message}`,
```

```
      );
    } else {
      throw caught;
    }
  }
};
```

- For more information, see AWS SDK for JavaScript Developer Guide.
- For API details, see DeleteBucket in *AWS SDK for JavaScript API Reference*.

PHP

SDK for PHP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete an empty bucket.

```
        $s3client = new Aws\S3\S3Client(['region' => 'us-west-2']);

        try {
            $this->s3client->deleteBucket([
                'Bucket' => $this->bucketName,
            ]);
            echo "Deleted bucket $this->bucketName.\n";
        } catch (Exception $exception) {
            echo "Failed to delete $this->bucketName with error: " . $exception-
>getMessage();
            exit("Please fix error with bucket deletion before continuing.");
        }
```

- For API details, see DeleteBucket in *AWS SDK for PHP API Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command removes all objects and object versions from the bucket 'test-files' and then deletes the bucket. The command will prompt for confirmation before proceeding. Add the -Force switch to suppress confirmation. Note that buckets that are not empty cannot be deleted.

```
Remove-S3Bucket -BucketName amzn-s3-demo-bucket -DeleteBucketContent
```

- For API details, see DeleteBucket in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command removes all objects and object versions from the bucket 'test-files' and then deletes the bucket. The command will prompt for confirmation before proceeding. Add the -Force switch to suppress confirmation. Note that buckets that are not empty cannot be deleted.

```
Remove-S3Bucket -BucketName amzn-s3-demo-bucket -DeleteBucketContent
```

- For API details, see DeleteBucket in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class BucketWrapper:
    """Encapsulates S3 bucket actions."""

    def __init__(self, bucket):
        """
```

```
        :param bucket: A Boto3 Bucket resource. This is a high-level resource in
Boto3
                       that wraps bucket actions in a class-like structure.
        """
        self.bucket = bucket
        self.name = bucket.name


    def delete(self):
        """
        Delete the bucket. The bucket must be empty or an error is raised.
        """
        try:
            self.bucket.delete()
            self.bucket.wait_until_not_exists()
            logger.info("Bucket %s successfully deleted.", self.bucket.name)
        except ClientError:
            logger.exception("Couldn't delete bucket %s.", self.bucket.name)
            raise
```

- For API details, see DeleteBucket in *AWS SDK for Python (Boto3) API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
# Deletes the objects in an Amazon S3 bucket and deletes the bucket.
#
# @param bucket [Aws::S3::Bucket] The bucket to empty and delete.
def delete_bucket(bucket)
  puts("\nDo you want to delete all of the objects as well as the bucket (y/n)?
")
  answer = gets.chomp.downcase
  if answer == 'y'
```

```
      bucket.objects.batch_delete!
      bucket.delete
      puts("Emptied and deleted bucket #{bucket.name}.\n")
    end
  rescue Aws::Errors::ServiceError => e
    puts("Couldn't empty and delete bucket #{bucket.name}.")
    puts("\t#{e.code}: #{e.message}")
    raise
  end
```

- For API details, see DeleteBucket in *AWS SDK for Ruby API Reference*.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
pub async fn delete_bucket(
    client: &aws_sdk_s3::Client,
    bucket_name: &str,
) -> Result<(), S3ExampleError> {
    let resp = client.delete_bucket().bucket(bucket_name).send().await;
    match resp {
        Ok(_) => Ok(()),
        Err(err) => {
            if err
                .as_service_error()
                .and_then(aws_sdk_s3::error::ProvideErrorMetadata::code)
                == Some("NoSuchBucket")
            {
                Ok(())
            } else {
                Err(S3ExampleError::from(err))
            }
        }
    }
```

```
}
```

- For API details, see DeleteBucket in *AWS SDK for Rust API reference*.

SAP ABAP

SDK for SAP ABAP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    TRY.

        lo_s3->deletebucket(
            iv_bucket = iv_bucket_name ).
        MESSAGE 'Deleted S3 bucket.' TYPE 'I'.
      CATCH /aws1/cx_s3_nosuchbucket.
        MESSAGE 'Bucket does not exist.' TYPE 'E'.
    ENDTRY.
```

- For API details, see DeleteBucket in *AWS SDK for SAP ABAP API reference*.

Swift

SDK for Swift

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import AWSS3
```

```
    public func deleteBucket(name: String) async throws {
        let input = DeleteBucketInput(
            bucket: name
        )
        do {
            _ = try await client.deleteBucket(input: input)
        }
        catch {
            print("ERROR: ", dump(error, name: "Deleting a bucket"))
            throw error
        }
    }
```

- For API details, see DeleteBucket in *AWS SDK for Swift API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteBucketAnalyticsConfiguration` with a CLI

The following code examples show how to use `DeleteBucketAnalyticsConfiguration`.

CLI

AWS CLI

To delete an analytics configuration for a bucket

The following `delete-bucket-analytics-configuration` example removes the analytics configuration for the specified bucket and ID.

```
aws s3api delete-bucket-analytics-configuration \
    --bucket amzn-s3-demo-bucket \
    --id 1
```

This command produces no output.

- For API details, see DeleteBucketAnalyticsConfiguration in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: The command removes the analytics filter with name 'testfilter' in the given S3 bucket.

```
Remove-S3BucketAnalyticsConfiguration -BucketName 'amzn-s3-demo-bucket' -
AnalyticsId 'testfilter'
```

- For API details, see DeleteBucketAnalyticsConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: The command removes the analytics filter with name 'testfilter' in the given S3 bucket.

```
Remove-S3BucketAnalyticsConfiguration -BucketName 'amzn-s3-demo-bucket' -
AnalyticsId 'testfilter'
```

- For API details, see DeleteBucketAnalyticsConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteBucketCors` with an AWS SDK or CLI

The following code examples show how to use `DeleteBucketCors`.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
        /// <summary>
        /// Deletes a CORS configuration from an Amazon S3 bucket.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used
        /// to delete the CORS configuration from the bucket.</param>
        private static async Task DeleteCORSConfigurationAsync(AmazonS3Client
client)
        {
            DeleteCORSConfigurationRequest request = new
DeleteCORSConfigurationRequest()
            {
                BucketName = BucketName,
            };
            await client.DeleteCORSConfigurationAsync(request);
        }
```

- For API details, see DeleteBucketCors in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

The following command deletes a Cross-Origin Resource Sharing configuration from a bucket named `amzn-s3-demo-bucket`:

```
aws s3api delete-bucket-cors --bucket amzn-s3-demo-bucket
```

- For API details, see DeleteBucketCors in *AWS CLI Command Reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class BucketWrapper:
    """Encapsulates S3 bucket actions."""

    def __init__(self, bucket):
        """
        :param bucket: A Boto3 Bucket resource. This is a high-level resource in
 Boto3
                       that wraps bucket actions in a class-like structure.
        """
        self.bucket = bucket
        self.name = bucket.name


    def delete_cors(self):
        """
        Delete the CORS rules from the bucket.

        :param bucket_name: The name of the bucket to update.
        """
        try:
            self.bucket.Cors().delete()
            logger.info("Deleted CORS from bucket '%s'.", self.bucket.name)
        except ClientError:
            logger.exception("Couldn't delete CORS from bucket '%s'.",
 self.bucket.name)
            raise
```

- For API details, see DeleteBucketCors in *AWS SDK for Python (Boto3) API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
require 'aws-sdk-s3'

# Wraps Amazon S3 bucket CORS configuration.
class BucketCorsWrapper
  attr_reader :bucket_cors

  # @param bucket_cors [Aws::S3::BucketCors] A bucket CORS object configured with
 an existing bucket.
  def initialize(bucket_cors)
    @bucket_cors = bucket_cors
  end

  # Deletes the CORS configuration of a bucket.
  #
  # @return [Boolean] True if the CORS rules were deleted; otherwise, false.
  def delete_cors
    @bucket_cors.delete
    true
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't delete CORS rules for #{@bucket_cors.bucket.name}. Here's why:
 #{e.message}"
    false
  end

end
```

- For API details, see DeleteBucketCors in *AWS SDK for Ruby API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteBucketEncryption` with a CLI

The following code examples show how to use `DeleteBucketEncryption`.

CLI

AWS CLI

To delete the server-side encryption configuration of a bucket

The following `delete-bucket-encryption` example deletes the server-side encryption configuration of the specified bucket.

```
aws s3api delete-bucket-encryption \
    --bucket amzn-s3-demo-bucket
```

This command produces no output.

- For API details, see DeleteBucketEncryption in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This disables the encryption enabled for the S3 bucket provided.

```
Remove-S3BucketEncryption -BucketName 'amzn-s3-demo-bucket'
```

Output:

```
Confirm
Are you sure you want to perform this action?
Performing the operation "Remove-S3BucketEncryption (DeleteBucketEncryption)" on
 target "s3casetestbucket".
[Y] Yes  [A] Yes to All  [N] No  [L] No to All  [S] Suspend  [?] Help (default is
 "Y"): Y
```

- For API details, see DeleteBucketEncryption in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This disables the encryption enabled for the S3 bucket provided.

```
Remove-S3BucketEncryption -BucketName 'amzn-s3-demo-bucket'
```

Output:

```
Confirm
Are you sure you want to perform this action?
Performing the operation "Remove-S3BucketEncryption (DeleteBucketEncryption)" on
 target "s3casetestbucket".
```

```
[Y] Yes  [A] Yes to All  [N] No  [L] No to All  [S] Suspend  [?] Help (default is
 "Y"): Y
```

- For API details, see DeleteBucketEncryption in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteBucketInventoryConfiguration` with a CLI

The following code examples show how to use `DeleteBucketInventoryConfiguration`.

CLI

AWS CLI

To delete the inventory configuration of a bucket

The following `delete-bucket-inventory-configuration` example deletes the inventory configuration with ID 1 for the specified bucket.

```
aws s3api delete-bucket-inventory-configuration \
    --bucket amzn-s3-demo-bucket \
    --id 1
```

This command produces no output.

- For API details, see DeleteBucketInventoryConfiguration in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command removes the invventory named 'testInventoryName' corresponding to the given S3 bucket.

```
Remove-S3BucketInventoryConfiguration -BucketName 'amzn-s3-demo-bucket' -
InventoryId 'testInventoryName'
```

Output:

```
Confirm
Are you sure you want to perform this action?
Performing the operation "Remove-S3BucketInventoryConfiguration
 (DeleteBucketInventoryConfiguration)" on target "amzn-s3-demo-bucket".
[Y] Yes  [A] Yes to All  [N] No  [L] No to All  [S] Suspend  [?] Help (default is
 "Y"): Y
```

- For API details, see DeleteBucketInventoryConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command removes the invventory named 'testInventoryName' corresponding to the given S3 bucket.

```
Remove-S3BucketInventoryConfiguration -BucketName 'amzn-s3-demo-bucket' -
InventoryId 'testInventoryName'
```

Output:

```
Confirm
Are you sure you want to perform this action?
Performing the operation "Remove-S3BucketInventoryConfiguration
 (DeleteBucketInventoryConfiguration)" on target "amzn-s3-demo-bucket".
[Y] Yes  [A] Yes to All  [N] No  [L] No to All  [S] Suspend  [?] Help (default is
 "Y"): Y
```

- For API details, see DeleteBucketInventoryConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteBucketLifecycle` with an AWS SDK or CLI

The following code examples show how to use `DeleteBucketLifecycle`.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
        /// <summary>
        /// This method removes the Lifecycle configuration from the named
        /// S3 bucket.
        /// </summary>
        /// <param name="client">The S3 client object used to call
        /// the RemoveLifecycleConfigAsync method.</param>
        /// <param name="bucketName">A string representing the name of the
        /// S3 bucket from which the configuration will be removed.</param>
        public static async Task RemoveLifecycleConfigAsync(IAmazonS3 client,
string bucketName)
        {
            var request = new DeleteLifecycleConfigurationRequest()
            {
                BucketName = bucketName,
            };
            await client.DeleteLifecycleConfigurationAsync(request);
        }
```

- For API details, see DeleteBucketLifecycle in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

The following command deletes a lifecycle configuration from a bucket named `amzn-s3-demo-bucket`:

```
aws s3api delete-bucket-lifecycle --bucket amzn-s3-demo-bucket
```

- For API details, see DeleteBucketLifecycle in *AWS CLI Command Reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class BucketWrapper:
    """Encapsulates S3 bucket actions."""

    def __init__(self, bucket):
        """
        :param bucket: A Boto3 Bucket resource. This is a high-level resource in
 Boto3
                       that wraps bucket actions in a class-like structure.
        """
        self.bucket = bucket
        self.name = bucket.name


    def delete_lifecycle_configuration(self):
        """
        Remove the lifecycle configuration from the specified bucket.
        """
        try:
            self.bucket.LifecycleConfiguration().delete()
            logger.info(
                "Deleted lifecycle configuration for bucket '%s'.",
 self.bucket.name
            )
        except ClientError:
            logger.exception(
                "Couldn't delete lifecycle configuration for bucket '%s'.",
                self.bucket.name,
            )
            raise
```

- For API details, see DeleteBucketLifecycle in *AWS SDK for Python (Boto3) API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteBucketMetricsConfiguration` with a CLI

The following code examples show how to use `DeleteBucketMetricsConfiguration`.

CLI

AWS CLI

To delete a metrics configuration for a bucket

The following `delete-bucket-metrics-configuration` example removes the metrics configuration for the specified bucket and ID.

```
aws s3api delete-bucket-metrics-configuration \
    --bucket amzn-s3-demo-bucket \
    --id 123
```

This command produces no output.

- For API details, see DeleteBucketMetricsConfiguration in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: The command removes the metrics filter with name 'testmetrics' in the given S3 bucket.

```
Remove-S3BucketMetricsConfiguration -BucketName 'amzn-s3-demo-bucket' -MetricsId
 'testmetrics'
```

- For API details, see DeleteBucketMetricsConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: The command removes the metrics filter with name 'testmetrics' in the given S3 bucket.

```
Remove-S3BucketMetricsConfiguration -BucketName 'amzn-s3-demo-bucket' -MetricsId
 'testmetrics'
```

- For API details, see DeleteBucketMetricsConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteBucketPolicy` with an AWS SDK or CLI

The following code examples show how to use `DeleteBucketPolicy`.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::deleteBucketPolicy(const Aws::String &bucketName,
                                    const Aws::S3::S3ClientConfiguration
 &clientConfig) {
    Aws::S3::S3Client client(clientConfig);

    Aws::S3::Model::DeleteBucketPolicyRequest request;
    request.SetBucket(bucketName);

    Aws::S3::Model::DeleteBucketPolicyOutcome outcome =
 client.DeleteBucketPolicy(request);

    if (!outcome.IsSuccess()) {
```

```
        const Aws::S3::S3Error &err = outcome.GetError();
        std::cerr << "Error: deleteBucketPolicy: " <<
                  err.GetExceptionName() << ": " << err.GetMessage() <<
 std::endl;
    } else {
        std::cout << "Policy was deleted from the bucket." << std::endl;
    }

    return outcome.IsSuccess();
}
```

- For API details, see DeleteBucketPolicy in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The following command deletes a bucket policy from a bucket named `amzn-s3-demo-bucket`:

```
aws s3api delete-bucket-policy --bucket amzn-s3-demo-bucket
```

- For API details, see DeleteBucketPolicy in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.DeleteBucketPolicyRequest;
```

```
/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 *
 * For more information, see the following documentation topic:
 *
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */

public class DeleteBucketPolicy {
    public static void main(String[] args) {

        final String usage = """

                Usage:
                    <bucketName>

                Where:
                    bucketName - The Amazon S3 bucket to delete the policy from
 (for example, bucket1).""";

        if (args.length != 1) {
            System.out.println(usage);
            System.exit(1);
        }

        String bucketName = args[0];
        System.out.format("Deleting policy from bucket: \"%s\"\n\n", bucketName);
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
                .region(region)
                .build();

        deleteS3BucketPolicy(s3, bucketName);
        s3.close();
    }

    /**
     * Deletes the S3 bucket policy for the specified bucket.
     *
     * @param s3 the {@link S3Client} instance to use for the operation
     * @param bucketName the name of the S3 bucket for which the policy should be
 deleted
```

```
     *
     * @throws S3Exception if there is an error deleting the bucket policy
     */
    public static void deleteS3BucketPolicy(S3Client s3, String bucketName) {
        DeleteBucketPolicyRequest delReq = DeleteBucketPolicyRequest.builder()
                .bucket(bucketName)
                .build();

        try {
            s3.deleteBucketPolicy(delReq);
            System.out.println("Done!");

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }
}
```

- For API details, see DeleteBucketPolicy in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete the bucket policy.

```
import {
  DeleteBucketPolicyCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Remove the policy from an Amazon S3 bucket.
```

```
 * @param {{ bucketName: string }}
 */
export const main = async ({ bucketName }) => {
  const client = new S3Client({});

  try {
    await client.send(
      new DeleteBucketPolicyCommand({
        Bucket: bucketName,
      }),
    );
    console.log(`Bucket policy deleted from "${bucketName}".`);
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while deleting policy from ${bucketName}. The bucket
 doesn't exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while deleting policy from ${bucketName}.  ${caught.name}:
 ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

- For more information, see AWS SDK for JavaScript Developer Guide.
- For API details, see DeleteBucketPolicy in *AWS SDK for JavaScript API Reference*.

Kotlin

SDK for Kotlin

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
suspend fun deleteS3BucketPolicy(bucketName: String?) {
    val request =
        DeleteBucketPolicyRequest {
            bucket = bucketName
        }

    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->
        s3.deleteBucketPolicy(request)
        println("Done!")
    }
}
```

- For API details, see DeleteBucketPolicy in *AWS SDK for Kotlin API reference*.

PowerShell

Tools for PowerShell V4

Example 1: The command removes the bucket policy associated with the given S3 bucket.

```
Remove-S3BucketPolicy -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see DeleteBucketPolicy in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: The command removes the bucket policy associated with the given S3 bucket.

```
Remove-S3BucketPolicy -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see DeleteBucketPolicy in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class BucketWrapper:
    """Encapsulates S3 bucket actions."""

    def __init__(self, bucket):
        """
        :param bucket: A Boto3 Bucket resource. This is a high-level resource in
 Boto3
                       that wraps bucket actions in a class-like structure.
        """
        self.bucket = bucket
        self.name = bucket.name


    def delete_policy(self):
        """
        Delete the security policy from the bucket.
        """
        try:
            self.bucket.Policy().delete()
            logger.info("Deleted policy for bucket '%s'.", self.bucket.name)
        except ClientError:
            logger.exception(
                "Couldn't delete policy for bucket '%s'.", self.bucket.name
            )
            raise
```

- For API details, see DeleteBucketPolicy in *AWS SDK for Python (Boto3) API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
# Wraps an Amazon S3 bucket policy.
class BucketPolicyWrapper
  attr_reader :bucket_policy

  # @param bucket_policy [Aws::S3::BucketPolicy] A bucket policy object
 configured with an existing bucket.
  def initialize(bucket_policy)
    @bucket_policy = bucket_policy
  end

  def delete_policy
    @bucket_policy.delete
    true
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't delete the policy from #{@bucket_policy.bucket.name}. Here's
 why: #{e.message}"
    false
  end

end
```

- For API details, see DeleteBucketPolicy in *AWS SDK for Ruby API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteBucketReplication` with a CLI

The following code examples show how to use `DeleteBucketReplication`.

CLI

AWS CLI

The following command deletes a replication configuration from a bucket named `amzn-s3-demo-bucket`:

```
aws s3api delete-bucket-replication --bucket amzn-s3-demo-bucket
```

- For API details, see DeleteBucketReplication in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: Deletes the replication configuration associated with the bucket named 'amzn-s3-demo-bucket'. Note that this operation requires permission for the s3:DeleteReplicationConfiguration action. You will be prompted for confirmation before the operation proceeds - to suppress confirmation, use the -Force switch.

```
Remove-S3BucketReplication -BucketName amzn-s3-demo-bucket
```

- For API details, see DeleteBucketReplication in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: Deletes the replication configuration associated with the bucket named 'amzn-s3-demo-bucket'. Note that this operation requires permission for the s3:DeleteReplicationConfiguration action. You will be prompted for confirmation before the operation proceeds - to suppress confirmation, use the -Force switch.

```
Remove-S3BucketReplication -BucketName amzn-s3-demo-bucket
```

- For API details, see DeleteBucketReplication in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteBucketTagging` with a CLI

The following code examples show how to use `DeleteBucketTagging`.

CLI

AWS CLI

The following command deletes a tagging configuration from a bucket named `amzn-s3-demo-bucket`:

```
aws s3api delete-bucket-tagging --bucket amzn-s3-demo-bucket
```

- For API details, see DeleteBucketTagging in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command removes all the tags associated with the given S3 bucket.

```
Remove-S3BucketTagging -BucketName 'amzn-s3-demo-bucket'
```

Output:

```
Confirm
Are you sure you want to perform this action?
Performing the operation "Remove-S3BucketTagging (DeleteBucketTagging)" on target
 "amzn-s3-demo-bucket".
[Y] Yes  [A] Yes to All  [N] No  [L] No to All  [S] Suspend  [?] Help (default is
 "Y"): Y
```

- For API details, see DeleteBucketTagging in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command removes all the tags associated with the given S3 bucket.

```
Remove-S3BucketTagging -BucketName 'amzn-s3-demo-bucket'
```

Output:

```
Confirm
Are you sure you want to perform this action?
Performing the operation "Remove-S3BucketTagging (DeleteBucketTagging)" on target
 "amzn-s3-demo-bucket".
[Y] Yes  [A] Yes to All  [N] No  [L] No to All  [S] Suspend  [?] Help (default is
 "Y"): Y
```

- For API details, see DeleteBucketTagging in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteBucketWebsite` with an AWS SDK or CLI

The following code examples show how to use `DeleteBucketWebsite`.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::deleteBucketWebsite(const Aws::String &bucketName,
                                     const Aws::S3::S3ClientConfiguration
 &clientConfig) {
    Aws::S3::S3Client client(clientConfig);
    Aws::S3::Model::DeleteBucketWebsiteRequest request;
    request.SetBucket(bucketName);

    Aws::S3::Model::DeleteBucketWebsiteOutcome outcome =
            client.DeleteBucketWebsite(request);

    if (!outcome.IsSuccess()) {
        auto err = outcome.GetError();
        std::cerr << "Error: deleteBucketWebsite: " <<
```

```
                    err.GetExceptionName() << ": " << err.GetMessage() <<
 std::endl;
    } else {
        std::cout << "Website configuration was removed." << std::endl;
    }

    return outcome.IsSuccess();
}
```

- For API details, see DeleteBucketWebsite in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The following command deletes a website configuration from a bucket named `amzn-s3-demo-bucket`:

```
aws s3api delete-bucket-website --bucket amzn-s3-demo-bucket
```

- For API details, see DeleteBucketWebsite in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.DeleteBucketWebsiteRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;

/**
```

```
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */

public class DeleteWebsiteConfiguration {
    public static void main(String[] args) {
        final String usage = """

            Usage:     <bucketName>

            Where:
                bucketName - The Amazon S3 bucket to delete the website
 configuration from.
            """;

        if (args.length != 1) {
            System.out.println(usage);
            System.exit(1);
        }

        String bucketName = args[0];
        System.out.format("Deleting website configuration for Amazon S3 bucket:
 %s\n", bucketName);
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        deleteBucketWebsiteConfig(s3, bucketName);
        System.out.println("Done!");
        s3.close();
    }

    /**
     * Deletes the website configuration for an Amazon S3 bucket.
     *
     * @param s3 The {@link S3Client} instance used to interact with Amazon S3.
     * @param bucketName The name of the S3 bucket for which the website
 configuration should be deleted.
```

```
     * @throws S3Exception If an error occurs while deleting the website
 configuration.
     */
    public static void deleteBucketWebsiteConfig(S3Client s3, String bucketName)
 {
        DeleteBucketWebsiteRequest delReq = DeleteBucketWebsiteRequest.builder()
            .bucket(bucketName)
            .build();

        try {
            s3.deleteBucketWebsite(delReq);

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.out.println("Failed to delete website configuration!");
            System.exit(1);
        }
    }
}
```

- For API details, see DeleteBucketWebsite in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete the website configuration from the bucket.

```
import {
  DeleteBucketWebsiteCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
```

```
 * Remove the website configuration for a bucket.
 * @param {{ bucketName: string }}
 */
export const main = async ({ bucketName }) => {
  const client = new S3Client({});

  try {
    await client.send(
      new DeleteBucketWebsiteCommand({
        Bucket: bucketName,
      }),
    );
    // The response code will be successful for both removed configurations and
    // configurations that did not exist in the first place.
    console.log(
      `The bucket "${bucketName}" is not longer configured as a website, or it
 never was.`,
    );
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while removing website configuration from ${bucketName}.
 The bucket doesn't exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while removing website configuration from ${bucketName}.
 ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

- For more information, see AWS SDK for JavaScript Developer Guide.
- For API details, see DeleteBucketWebsite in *AWS SDK for JavaScript API Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command disables the static website hosting property of the given S3 bucket.

```
Remove-S3BucketWebsite -BucketName 'amzn-s3-demo-bucket'
```

Output:

```
Confirm
Are you sure you want to perform this action?
Performing the operation "Remove-S3BucketWebsite (DeleteBucketWebsite)" on target
 "amzn-s3-demo-bucket".
[Y] Yes  [A] Yes to All  [N] No  [L] No to All  [S] Suspend  [?] Help (default is
 "Y"): Y
```

- For API details, see DeleteBucketWebsite in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command disables the static website hosting property of the given S3 bucket.

```
Remove-S3BucketWebsite -BucketName 'amzn-s3-demo-bucket'
```

Output:

```
Confirm
Are you sure you want to perform this action?
Performing the operation "Remove-S3BucketWebsite (DeleteBucketWebsite)" on target
 "amzn-s3-demo-bucket".
[Y] Yes  [A] Yes to All  [N] No  [L] No to All  [S] Suspend  [?] Help (default is
 "Y"): Y
```

- For API details, see DeleteBucketWebsite in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteObject` with an AWS SDK or CLI

The following code examples show how to use `DeleteObject`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Work with Amazon S3 object integrity
- Work with versioned objects

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete an object in a non-versioned S3 bucket.

```
using System;
using System.Threading.Tasks;
using Amazon.S3;
using Amazon.S3.Model;

/// <summary>
/// This example shows how to delete an object from a non-versioned Amazon
/// Simple Storage Service (Amazon S3) bucket.
/// </summary>
public class DeleteObject
{
    /// <summary>
    /// The Main method initializes the necessary variables and then calls
    /// the DeleteObjectNonVersionedBucketAsync method to delete the object
    /// named by the keyName parameter.
```

```
        /// </summary>
        public static async Task Main()
        {
            const string bucketName = "amzn-s3-demo-bucket";
            const string keyName = "testfile.txt";

            // If the Amazon S3 bucket is located in an AWS Region other than the
            // Region of the default account, define the AWS Region for the
            // Amazon S3 bucket in your call to the AmazonS3Client constructor.
            // For example RegionEndpoint.USWest2.
            IAmazonS3 client = new AmazonS3Client();
            await DeleteObjectNonVersionedBucketAsync(client, bucketName,
keyName);
        }

        /// <summary>
        /// The DeleteObjectNonVersionedBucketAsync takes care of deleting the
        /// desired object from the named bucket.
        /// </summary>
        /// <param name="client">An initialized Amazon S3 client used to delete
        /// an object from an Amazon S3 bucket.</param>
        /// <param name="bucketName">The name of the bucket from which the
        /// object will be deleted.</param>
        /// <param name="keyName">The name of the object to delete.</param>
        public static async Task DeleteObjectNonVersionedBucketAsync(IAmazonS3
client, string bucketName, string keyName)
        {
            try
            {
                var deleteObjectRequest = new DeleteObjectRequest
                {
                    BucketName = bucketName,
                    Key = keyName,
                };

                Console.WriteLine($"Deleting object: {keyName}");
                await client.DeleteObjectAsync(deleteObjectRequest);
                Console.WriteLine($"Object: {keyName} deleted from
{bucketName}.");
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Error encountered on server.
Message:'{ex.Message}' when deleting an object.");
```

```
            }
        }
    }
```

Delete an object in a versioned S3 bucket.

```
    using System;
    using System.Threading.Tasks;
    using Amazon.S3;
    using Amazon.S3.Model;

    /// <summary>
    /// This example creates an object in an Amazon Simple Storage Service
    /// (Amazon S3) bucket and then deletes the object version that was
    /// created.
    /// </summary>
    public class DeleteObjectVersion
    {
        public static async Task Main()
        {
            string bucketName = "amzn-s3-demo-bucket";
            string keyName = "verstioned-object.txt";

            // If the AWS Region of the default user is different from the AWS
            // Region of the Amazon S3 bucket, pass the AWS Region of the
            // bucket region to the Amazon S3 client object's constructor.
            // Define it like this:
            //      RegionEndpoint bucketRegion = RegionEndpoint.USWest2;
            IAmazonS3 client = new AmazonS3Client();

            await CreateAndDeleteObjectVersionAsync(client, bucketName, keyName);
        }

        /// <summary>
        /// This method creates and then deletes a versioned object.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used to
        /// create and delete the object.</param>
        /// <param name="bucketName">The name of the Amazon S3 bucket where the
        /// object will be created and deleted.</param>
        /// <param name="keyName">The key name of the object to create.</param>
```

```
        public static async Task CreateAndDeleteObjectVersionAsync(IAmazonS3
 client, string bucketName, string keyName)
        {
            try
            {
                // Add a sample object.
                string versionID = await PutAnObject(client, bucketName,
 keyName);

                // Delete the object by specifying an object key and a version
 ID.
                DeleteObjectRequest request = new DeleteObjectRequest()
                {
                    BucketName = bucketName,
                    Key = keyName,
                    VersionId = versionID,
                };

                Console.WriteLine("Deleting an object");
                await client.DeleteObjectAsync(request);
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Error: {ex.Message}");
            }
        }

        /// <summary>
        /// This method is used to create the temporary Amazon S3 object.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 object which will be
 used
        /// to create the temporary Amazon S3 object.</param>
        /// <param name="bucketName">The name of the Amazon S3 bucket where the
 object
        /// will be created.</param>
        /// <param name="objectKey">The name of the Amazon S3 object co create.</
param>
        /// <returns>The Version ID of the created object.</returns>
        public static async Task<string> PutAnObject(IAmazonS3 client, string
 bucketName, string objectKey)
        {
            PutObjectRequest request = new PutObjectRequest()
            {
```

```
                BucketName = bucketName,
                Key = objectKey,
                ContentBody = "This is the content body!",
            };

            PutObjectResponse response = await client.PutObjectAsync(request);
            return response.VersionId;
        }
    }
```

- For API details, see DeleteObject in *AWS SDK for .NET API Reference*.

Bash

AWS CLI with Bash script

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
###############################################################################
# function errecho
#
# This function outputs everything sent to it to STDERR (standard error output).
###############################################################################
function errecho() {
  printf "%s\n" "$*" 1>&2
}

###############################################################################
# function delete_item_in_bucket
#
# This function deletes the specified file from the specified bucket.
#
# Parameters:
#       $1 - The name of the bucket.
#       $2 - The key (file name) in the bucket to delete.
```

```
# Returns:
#       0 - If successful.
#       1 - If it fails.
##############################################################################
function delete_item_in_bucket() {
  local bucket_name=$1
  local key=$2
  local response

  response=$(aws s3api delete-object \
    --bucket "$bucket_name" \
    --key "$key")

  # shellcheck disable=SC2181
  if [[ $? -ne 0 ]]; then
    errecho "ERROR:  AWS reports s3api delete-object operation failed.\n
$response"
    return 1
  fi
}
```

- For API details, see DeleteObject in *AWS CLI Command Reference*.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::deleteObject(const Aws::String &objectKey,
                              const Aws::String &fromBucket,
                              const Aws::S3::S3ClientConfiguration &clientConfig)
 {
    Aws::S3::S3Client client(clientConfig);
    Aws::S3::Model::DeleteObjectRequest request;

    request.WithKey(objectKey)
```

```
            .WithBucket(fromBucket);

    Aws::S3::Model::DeleteObjectOutcome outcome =
            client.DeleteObject(request);

    if (!outcome.IsSuccess()) {
        auto err = outcome.GetError();
        std::cerr << "Error: deleteObject: " <<
                  err.GetExceptionName() << ": " << err.GetMessage() <<
 std::endl;
    } else {
        std::cout << "Successfully deleted the object." << std::endl;
    }

    return outcome.IsSuccess();
}
```

- For API details, see DeleteObject in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The following command deletes an object named `test.txt` from a bucket named `amzn-s3-demo-bucket`:

```
aws s3api delete-object --bucket amzn-s3-demo-bucket --key test.txt
```

If bucket versioning is enabled, the output will contain the version ID of the delete marker:

```
{
  "VersionId": "9_gKg5vG56F.TTEUdwkxGpJ3tNDlWlGq",
  "DeleteMarker": true
}
```

For more information about deleting objects, see Deleting Objects in the *Amazon S3 Developer Guide*.

- For API details, see DeleteObject in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "log"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// S3Actions wraps S3 service actions.
type S3Actions struct {
 S3Client  *s3.Client
 S3Manager *manager.Uploader
}



// DeleteObject deletes an object from a bucket.
func (actor S3Actions) DeleteObject(ctx context.Context, bucket string, key
 string, versionId string, bypassGovernance bool) (bool, error) {
 deleted := false
 input := &s3.DeleteObjectInput{
  Bucket: aws.String(bucket),
  Key:    aws.String(key),
 }
```

```
 if versionId != "" {
  input.VersionId = aws.String(versionId)
 }
 if bypassGovernance {
  input.BypassGovernanceRetention = aws.Bool(true)
 }
 _, err := actor.S3Client.DeleteObject(ctx, input)
 if err != nil {
  var noKey *types.NoSuchKey
  var apiErr *smithy.GenericAPIError
  if errors.As(err, &noKey) {
   log.Printf("Object %s does not exist in %s.\n", key, bucket)
   err = noKey
  } else if errors.As(err, &apiErr) {
   switch apiErr.ErrorCode() {
   case "AccessDenied":
    log.Printf("Access denied: cannot delete object %s from %s.\n", key, bucket)
    err = nil
   case "InvalidArgument":
    if bypassGovernance {
     log.Printf("You cannot specify bypass governance on a bucket without lock
 enabled.")
     err = nil
    }
   }
  }
 } else {
  err = s3.NewObjectNotExistsWaiter(actor.S3Client).Wait(
   ctx, &s3.HeadObjectInput{Bucket: aws.String(bucket), Key: aws.String(key)},
 time.Minute)
  if err != nil {
   log.Printf("Failed attempt to wait for object %s in bucket %s to be deleted.
\n", key, bucket)
  } else {
   deleted = true
  }
 }
 return deleted, err
}
```

- For API details, see DeleteObject in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
   /**
    * Deletes an object from an S3 bucket asynchronously.
    *
    * @param bucketName the name of the S3 bucket
    * @param key        the key (file name) of the object to be deleted
    * @return a {@link CompletableFuture} that completes when the object has
been deleted
    */
   public CompletableFuture<Void> deleteObjectFromBucketAsync(String bucketName,
String key) {
       DeleteObjectRequest deleteObjectRequest = DeleteObjectRequest.builder()
           .bucket(bucketName)
           .key(key)
           .build();

       CompletableFuture<DeleteObjectResponse> response =
getAsyncClient().deleteObject(deleteObjectRequest);
       response.whenComplete((deleteRes, ex) -> {
           if (deleteRes != null) {
               logger.info(key + " was deleted");
           } else {
               throw new RuntimeException("An S3 exception occurred during
delete", ex);
           }
       });

       return response.thenApply(r -> null);
   }
```

- For API details, see DeleteObject in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete an object.

```
import {
  DeleteObjectCommand,
  S3Client,
  S3ServiceException,
  waitUntilObjectNotExists,
} from "@aws-sdk/client-s3";

/**
 * Delete one object from an Amazon S3 bucket.
 * @param {{ bucketName: string, key: string }}
 */
export const main = async ({ bucketName, key }) => {
  const client = new S3Client({});

  try {
    await client.send(
      new DeleteObjectCommand({
        Bucket: bucketName,
        Key: key,
      }),
    );
    await waitUntilObjectNotExists(
      { client },
      { Bucket: bucketName, Key: key },
    );
    // A successful delete, or a delete for a non-existent object, both return
    // a 204 response code.
    console.log(
      `The object "${key}" from bucket "${bucketName}" was deleted, or it didn't
 exist.`,
    );
```

```
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while deleting object from ${bucketName}. The bucket
 doesn't exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while deleting object from ${bucketName}.  ${caught.name}:
 ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

- For API details, see DeleteObject in *AWS SDK for JavaScript API Reference*.

PHP

SDK for PHP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
   public function deleteObject(string $bucketName, string $fileName, array
 $args = [])
   {
       $parameters = array_merge(['Bucket' => $bucketName, 'Key' => $fileName],
 $args);
       try {
           $this->client->deleteObject($parameters);
           if ($this->verbose) {
```

```
                echo "Deleted the object named: $fileName from $bucketName.\n";
            }
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to delete $fileName from $bucketName with error:
 {$exception->getMessage()}\n";
                echo "Please fix error with object deletion before continuing.";
            }
            throw $exception;
        }
    }
```

- For API details, see DeleteObject in *AWS SDK for PHP API Reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete an object.

```
class ObjectWrapper:
    """Encapsulates S3 object actions."""

    def __init__(self, s3_object):
        """
        :param s3_object: A Boto3 Object resource. This is a high-level resource
 in Boto3
                          that wraps object actions in a class-like structure.
        """
        self.object = s3_object
        self.key = self.object.key


    def delete(self):
```

```
        """
        Deletes the object.
        """
        try:
            self.object.delete()
            self.object.wait_until_not_exists()
            logger.info(
                "Deleted object '%s' from bucket '%s'.",
                self.object.key,
                self.object.bucket_name,
            )
        except ClientError:
            logger.exception(
                "Couldn't delete object '%s' from bucket '%s'.",
                self.object.key,
                self.object.bucket_name,
            )
            raise
```

Roll an object back to a previous version by deleting later versions of the object.

```
def rollback_object(bucket, object_key, version_id):
    """
    Rolls back an object to an earlier version by deleting all versions that
    occurred after the specified rollback version.

    Usage is shown in the usage_demo_single_object function at the end of this
 module.

    :param bucket: The bucket that holds the object to roll back.
    :param object_key: The object to roll back.
    :param version_id: The version ID to roll back to.
    """
    # Versions must be sorted by last_modified date because delete markers are
    # at the end of the list even when they are interspersed in time.
    versions = sorted(
        bucket.object_versions.filter(Prefix=object_key),
        key=attrgetter("last_modified"),
        reverse=True,
    )
```

```
    logger.debug(
        "Got versions:\n%s",
        "\n".join(
            [
                f"\t{version.version_id}, last modified {version.last_modified}"
                for version in versions
            ]
        ),
    )

    if version_id in [ver.version_id for ver in versions]:
        print(f"Rolling back to version {version_id}")
        for version in versions:
            if version.version_id != version_id:
                version.delete()
                print(f"Deleted version {version.version_id}")
            else:
                break

        print(f"Active version is now {bucket.Object(object_key).version_id}")
    else:
        raise KeyError(
            f"{version_id} was not found in the list of versions for "
 f"{object_key}."
        )
```

Revive a deleted object by removing the object's active delete marker.

```
def revive_object(bucket, object_key):
    """
    Revives a versioned object that was deleted by removing the object's active
    delete marker.
    A versioned object presents as deleted when its latest version is a delete
 marker.
    By removing the delete marker, we make the previous version the latest
 version
    and the object then presents as *not* deleted.

    Usage is shown in the usage_demo_single_object function at the end of this
 module.
```

```
    :param bucket: The bucket that contains the object.
    :param object_key: The object to revive.
    """
    # Get the latest version for the object.
    response = s3.meta.client.list_object_versions(
        Bucket=bucket.name, Prefix=object_key, MaxKeys=1
    )

    if "DeleteMarkers" in response:
        latest_version = response["DeleteMarkers"][0]
        if latest_version["IsLatest"]:
            logger.info(
                "Object %s was indeed deleted on %s. Let's revive it.",
                object_key,
                latest_version["LastModified"],
            )
            obj = bucket.Object(object_key)
            obj.Version(latest_version["VersionId"]).delete()
            logger.info(
                "Revived %s, active version is now %s  with body '%s'",
                object_key,
                obj.version_id,
                obj.get()["Body"].read(),
            )
        else:
            logger.warning(
                "Delete marker is not the latest version for %s!", object_key
            )
    elif "Versions" in response:
        logger.warning("Got an active version for %s, nothing to do.",
 object_key)
    else:
        logger.error("Couldn't get any version info for %s.", object_key)
```

Create a Lambda handler that removes a delete marker from an S3 object. This handler can be used to efficiently clean up extraneous delete markers in a versioned bucket.

```
import logging
from urllib import parse
```

```
import boto3
from botocore.exceptions import ClientError

logger = logging.getLogger(__name__)
logger.setLevel("INFO")

s3 = boto3.client("s3")


def lambda_handler(event, context):
    """
    Removes a delete marker from the specified versioned object.

    :param event: The S3 batch event that contains the ID of the delete marker
                  to remove.
    :param context: Context about the event.
    :return: A result structure that Amazon S3 uses to interpret the result of
 the
             operation. When the result code is TemporaryFailure, S3 retries the
             operation.
    """
    # Parse job parameters from Amazon S3 batch operations
    invocation_id = event["invocationId"]
    invocation_schema_version = event["invocationSchemaVersion"]

    results = []
    result_code = None
    result_string = None

    task = event["tasks"][0]
    task_id = task["taskId"]

    try:
        obj_key = parse.unquote(task["s3Key"], encoding="utf-8")
        obj_version_id = task["s3VersionId"]
        bucket_name = task["s3BucketArn"].split(":")[-1]

        logger.info(
            "Got task: remove delete marker %s from object %s.", obj_version_id,
 obj_key
        )

        try:
```

```
            # If this call does not raise an error, the object version is not a
 delete
            # marker and should not be deleted.
            response = s3.head_object(
                Bucket=bucket_name, Key=obj_key, VersionId=obj_version_id
            )
            result_code = "PermanentFailure"
            result_string = (
                f"Object {obj_key}, ID {obj_version_id} is not " f"a delete
 marker."
            )

            logger.debug(response)
            logger.warning(result_string)
        except ClientError as error:
            delete_marker = error.response["ResponseMetadata"]
["HTTPHeaders"].get(
                "x-amz-delete-marker", "false"
            )
            if delete_marker == "true":
                logger.info(
                    "Object %s, version %s is a delete marker.", obj_key,
 obj_version_id
                )
                try:
                    s3.delete_object(
                        Bucket=bucket_name, Key=obj_key, VersionId=obj_version_id
                    )
                    result_code = "Succeeded"
                    result_string = (
                        f"Successfully removed delete marker "
                        f"{obj_version_id} from object {obj_key}."
                    )
                    logger.info(result_string)
                except ClientError as error:
                    # Mark request timeout as a temporary failure so it will be
 retried.
                    if error.response["Error"]["Code"] == "RequestTimeout":
                        result_code = "TemporaryFailure"
                        result_string = (
                            f"Attempt to remove delete marker from  "
                            f"object {obj_key} timed out."
                        )
                        logger.info(result_string)
```

```
                    else:
                        raise
            else:
                raise ValueError(
                    f"The x-amz-delete-marker header is either not "
                    f"present or is not 'true'."
                )
    except Exception as error:
        # Mark all other exceptions as permanent failures.
        result_code = "PermanentFailure"
        result_string = str(error)
        logger.exception(error)
    finally:
        results.append(
            {
                "taskId": task_id,
                "resultCode": result_code,
                "resultString": result_string,
            }
        )
    return {
        "invocationSchemaVersion": invocation_schema_version,
        "treatMissingKeysAs": "PermanentFailure",
        "invocationId": invocation_id,
        "results": results,
    }
```

- For API details, see DeleteObject in *AWS SDK for Python (Boto3) API Reference*.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
/// Delete an object from a bucket.
pub async fn remove_object(
    client: &aws_sdk_s3::Client,
    bucket: &str,
    key: &str,
) -> Result<(), S3ExampleError> {
    client
        .delete_object()
        .bucket(bucket)
        .key(key)
        .send()
        .await?;

    // There are no modeled errors to handle when deleting an object.

    Ok(())
}
```

- For API details, see DeleteObject in *AWS SDK for Rust API reference*.

SAP ABAP

SDK for SAP ABAP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    TRY.
        lo_s3->deleteobject(
            iv_bucket = iv_bucket_name
            iv_key = iv_object_key ).
        MESSAGE 'Object deleted from S3 bucket.' TYPE 'I'.
      CATCH /aws1/cx_s3_nosuchbucket.
        MESSAGE 'Bucket does not exist.' TYPE 'E'.
    ENDTRY.
```

- For API details, see DeleteObject in *AWS SDK for SAP ABAP API reference*.

Swift

SDK for Swift

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import AWSS3

    public func deleteFile(bucket: String, key: String) async throws {
        let input = DeleteObjectInput(
            bucket: bucket,
            key: key
        )

        do {
            _ = try await client.deleteObject(input: input)
        }
        catch {
            print("ERROR: ", dump(error, name: "Deleting a file."))
            throw error
        }
    }
```

- For API details, see DeleteObject in *AWS SDK for Swift API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteObjectTagging` with a CLI

The following code examples show how to use `DeleteObjectTagging`.

CLI

AWS CLI

To delete the tag sets of an object

The following `delete-object-tagging` example deletes the tag with the specified key from the object `doc1.rtf`.

```
aws s3api delete-object-tagging \
    --bucket amzn-s3-demo-bucket \
    --key doc1.rtf
```

This command produces no output.

- For API details, see DeleteObjectTagging in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command removes all the tags associated with the object with key 'testfile.txt' in the given S3 Bucket.

```
Remove-S3ObjectTagSet -Key 'testfile.txt' -BucketName 'amzn-s3-demo-bucket' -
Select '^Key'
```

Output:

```
Confirm
Are you sure you want to perform this action?
Performing the operation "Remove-S3ObjectTagSet (DeleteObjectTagging)" on target
 "testfile.txt".
[Y] Yes  [A] Yes to All  [N] No  [L] No to All  [S] Suspend  [?] Help (default is
 "Y"): Y
testfile.txt
```

- For API details, see DeleteObjectTagging in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command removes all the tags associated with the object with key 'testfile.txt' in the given S3 Bucket.

```
Remove-S3ObjectTagSet -Key 'testfile.txt' -BucketName 'amzn-s3-demo-bucket' -
Select '^Key'
```

Output:

```
Confirm
Are you sure you want to perform this action?
Performing the operation "Remove-S3ObjectTagSet (DeleteObjectTagging)" on target
 "testfile.txt".
[Y] Yes  [A] Yes to All  [N] No  [L] No to All  [S] Suspend  [?] Help (default is
 "Y"): Y
testfile.txt
```

- For API details, see DeleteObjectTagging in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteObjects` with an AWS SDK or CLI

The following code examples show how to use `DeleteObjects`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Learn the basics
- Delete all objects in a bucket
- Get started with S3

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete all objects in an S3 bucket.

```
        /// <summary>
        /// Delete all of the objects stored in an existing Amazon S3 bucket.
        /// </summary>
        /// <param name="client">An initialized Amazon S3 client object.</param>
        /// <param name="bucketName">The name of the bucket from which the
        /// contents will be deleted.</param>
        /// <returns>A boolean value that represents the success or failure of
        /// deleting all of the objects in the bucket.</returns>
        public static async Task<bool> DeleteBucketContentsAsync(IAmazonS3
client, string bucketName)
        {
            // Iterate over the contents of the bucket and delete all objects.
            var request = new ListObjectsV2Request
            {
                BucketName = bucketName,
            };

            try
            {
                ListObjectsV2Response response;

                do
                {
                    response = await client.ListObjectsV2Async(request);
                    response.S3Objects
                        .ForEach(async obj => await
client.DeleteObjectAsync(bucketName, obj.Key));

                    // If the response is truncated, set the request
ContinuationToken
```

```
                    // from the NextContinuationToken property of the response.
                    request.ContinuationToken = response.NextContinuationToken;
                }
                while (response.IsTruncated);

                return true;
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Error deleting objects: {ex.Message}");
                return false;
            }
        }
```

Delete multiple objects in a non-versioned S3 bucket.

```
    using System;
    using System.Collections.Generic;
    using System.Threading.Tasks;
    using Amazon.S3;
    using Amazon.S3.Model;

    /// <summary>
    /// This example shows how to delete multiple objects from an Amazon Simple
    /// Storage Service (Amazon S3) bucket.
    /// </summary>
    public class DeleteMultipleObjects
    {
        /// <summary>
        /// The Main method initializes the Amazon S3 client and the name of
        /// the bucket and then passes those values to MultiObjectDeleteAsync.
        /// </summary>
        public static async Task Main()
        {
            const string bucketName = "amzn-s3-demo-bucket";

            // If the Amazon S3 bucket from which you wish to delete objects is
not
            // located in the same AWS Region as the default user, define the
            // AWS Region for the Amazon S3 bucket as a parameter to the client
            // constructor.
```

```
            IAmazonS3 s3Client = new AmazonS3Client();

            await MultiObjectDeleteAsync(s3Client, bucketName);
        }

        /// <summary>
        /// This method uses the passed Amazon S3 client to first create and then
        /// delete three files from the named bucket.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used to
call
        /// Amazon S3 methods.</param>
        /// <param name="bucketName">The name of the Amazon S3 bucket where
objects
        /// will be created and then deleted.</param>
        public static async Task MultiObjectDeleteAsync(IAmazonS3 client, string
bucketName)
        {
            // Create three sample objects which we will then delete.
            var keysAndVersions = await PutObjectsAsync(client, 3, bucketName);

            // Now perform the multi-object delete, passing the key names and
            // version IDs. Since we are working with a non-versioned bucket,
            // the object keys collection includes null version IDs.
            DeleteObjectsRequest multiObjectDeleteRequest = new
DeleteObjectsRequest
            {
                BucketName = bucketName,
                Objects = keysAndVersions,
            };

            // You can add a specific object key to the delete request using the
            // AddKey method of the multiObjectDeleteRequest.
            try
            {
                DeleteObjectsResponse response = await
client.DeleteObjectsAsync(multiObjectDeleteRequest);
                Console.WriteLine("Successfully deleted all the {0} items",
response.DeletedObjects.Count);
            }
            catch (DeleteObjectsException e)
            {
                PrintDeletionErrorStatus(e);
            }
```

```
        }

        /// <summary>
        /// Prints the list of errors raised by the call to DeleteObjectsAsync.
        /// </summary>
        /// <param name="ex">A collection of exceptions returned by the call to
        /// DeleteObjectsAsync.</param>
        public static void PrintDeletionErrorStatus(DeleteObjectsException ex)
        {
            DeleteObjectsResponse errorResponse = ex.Response;
            Console.WriteLine("x {0}", errorResponse.DeletedObjects.Count);

            Console.WriteLine($"Successfully deleted
{errorResponse.DeletedObjects.Count}.");
            Console.WriteLine($"No. of objects failed to delete =
{errorResponse.DeleteErrors.Count}");

            Console.WriteLine("Printing error data...");
            foreach (DeleteError deleteError in errorResponse.DeleteErrors)
            {
                Console.WriteLine($"Object Key:
{deleteError.Key}\t{deleteError.Code}\t{deleteError.Message}");
            }
        }

        /// <summary>
        /// This method creates simple text file objects that can be used in
        /// the delete method.
        /// </summary>
        /// <param name="client">The Amazon S3 client used to call
PutObjectAsync.</param>
        /// <param name="number">The number of objects to create.</param>
        /// <param name="bucketName">The name of the bucket where the objects
        /// will be created.</param>
        /// <returns>A list of keys (object keys) and versions that the calling
        /// method will use to delete the newly created files.</returns>
        public static async Task<List<KeyVersion>> PutObjectsAsync(IAmazonS3
client, int number, string bucketName)
        {
            List<KeyVersion> keys = new List<KeyVersion>();
            for (int i = 0; i < number; i++)
            {
                string key = "ExampleObject-" + new System.Random().Next();
                PutObjectRequest request = new PutObjectRequest
```

```
                {
                    BucketName = bucketName,
                    Key = key,
                    ContentBody = "This is the content body!",
                };

                PutObjectResponse response = await
client.PutObjectAsync(request);

                // For non-versioned bucket operations, we only need the
                // object key.
                KeyVersion keyVersion = new KeyVersion
                {
                    Key = key,
                };
                keys.Add(keyVersion);
            }

            return keys;
        }
    }
```

Delete multiple objects in a versioned S3 bucket.

```
    using System;
    using System.Collections.Generic;
    using System.Threading.Tasks;
    using Amazon.S3;
    using Amazon.S3.Model;

    /// <summary>
    /// This example shows how to delete objects in a version-enabled Amazon
    /// Simple StorageService (Amazon S3) bucket.
    /// </summary>
    public class DeleteMultipleObjects
    {
        public static async Task Main()
        {
            string bucketName = "amzn-s3-demo-bucket";

            // If the AWS Region for your Amazon S3 bucket is different from
```

```
            // the AWS Region of the default user, define the AWS Region for
            // the Amazon S3 bucket and pass it to the client constructor
            // like this:
            // RegionEndpoint bucketRegion = RegionEndpoint.USWest2;
            IAmazonS3 s3Client;

            s3Client = new AmazonS3Client();
            await DeleteMultipleObjectsFromVersionedBucketAsync(s3Client,
bucketName);
        }

        /// <summary>
        /// This method removes multiple versions and objects from a
        /// version-enabled Amazon S3 bucket.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used to
call
        /// DeleteObjectVersionsAsync, DeleteObjectsAsync, and
        /// RemoveDeleteMarkersAsync.</param>
        /// <param name="bucketName">The name of the bucket from which to delete
        /// objects.</param>
        public static async Task
DeleteMultipleObjectsFromVersionedBucketAsync(IAmazonS3 client, string
bucketName)
        {
            // Delete objects (specifying object version in the request).
            await DeleteObjectVersionsAsync(client, bucketName);

            // Delete objects (without specifying object version in the request).
            var deletedObjects = await DeleteObjectsAsync(client, bucketName);

            // Additional exercise - remove the delete markers Amazon S3 returned
from
            // the preceding response. This results in the objects reappearing
            // in the bucket (you can verify the appearance/disappearance of
            // objects in the console).
            await RemoveDeleteMarkersAsync(client, bucketName, deletedObjects);
        }

        /// <summary>
        /// Creates and then deletes non-versioned Amazon S3 objects and then
deletes
        /// them again. The method returns a list of the Amazon S3 objects
deleted.
```

```
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used to
call
        /// PubObjectsAsync and NonVersionedDeleteAsync.</param>
        /// <param name="bucketName">The name of the bucket where the objects
        /// will be created and then deleted.</param>
        /// <returns>A list of DeletedObjects.</returns>
        public static async Task<List<DeletedObject>>
DeleteObjectsAsync(IAmazonS3 client, string bucketName)
        {
            // Upload the sample objects.
            var keysAndVersions2 = await PutObjectsAsync(client, bucketName, 3);

            // Delete objects using only keys. Amazon S3 creates a delete marker
and
            // returns its version ID in the response.
            List<DeletedObject> deletedObjects = await
NonVersionedDeleteAsync(client, bucketName, keysAndVersions2);
            return deletedObjects;
        }

        /// <summary>
        /// This method creates several temporary objects and then deletes them.
        /// </summary>
        /// <param name="client">The S3 client.</param>
        /// <param name="bucketName">Name of the bucket.</param>
        /// <returns>Async task.</returns>
        public static async Task DeleteObjectVersionsAsync(IAmazonS3 client,
string bucketName)
        {
            // Upload the sample objects.
            var keysAndVersions1 = await PutObjectsAsync(client, bucketName, 3);

            // Delete the specific object versions.
            await VersionedDeleteAsync(client, bucketName, keysAndVersions1);
        }

        /// <summary>
        /// Displays the list of information about deleted files to the console.
        /// </summary>
        /// <param name="e">Error information from the delete process.</param>
        private static void DisplayDeletionErrors(DeleteObjectsException e)
        {
            var errorResponse = e.Response;
```

```
            Console.WriteLine($"No. of objects successfully deleted =
 {errorResponse.DeletedObjects.Count}");
            Console.WriteLine($"No. of objects failed to delete =
 {errorResponse.DeleteErrors.Count}");
            Console.WriteLine("Printing error data...");
            foreach (var deleteError in errorResponse.DeleteErrors)
            {
                Console.WriteLine($"Object Key:
 {deleteError.Key}\t{deleteError.Code}\t{deleteError.Message}");
            }
        }

        /// <summary>
        /// Delete multiple objects from a version-enabled bucket.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used to
 call
        /// DeleteObjectVersionsAsync, DeleteObjectsAsync, and
        /// RemoveDeleteMarkersAsync.</param>
        /// <param name="bucketName">The name of the bucket from which to delete
        /// objects.</param>
        /// <param name="keys">A list of key names for the objects to delete.</
param>
        private static async Task VersionedDeleteAsync(IAmazonS3 client, string
 bucketName, List<KeyVersion> keys)
        {
            var multiObjectDeleteRequest = new DeleteObjectsRequest
            {
                BucketName = bucketName,
                Objects = keys, // This includes the object keys and specific
 version IDs.
            };

            try
            {
                Console.WriteLine("Executing VersionedDelete...");
                DeleteObjectsResponse response = await
 client.DeleteObjectsAsync(multiObjectDeleteRequest);
                Console.WriteLine($"Successfully deleted all the
 {response.DeletedObjects.Count} items");
            }
            catch (DeleteObjectsException ex)
            {
                DisplayDeletionErrors(ex);
```

```
            }
        }

        /// <summary>
        /// Deletes multiple objects from a non-versioned Amazon S3 bucket.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used to
 call
        /// DeleteObjectVersionsAsync, DeleteObjectsAsync, and
        /// RemoveDeleteMarkersAsync.</param>
        /// <param name="bucketName">The name of the bucket from which to delete
        /// objects.</param>
        /// <param name="keys">A list of key names for the objects to delete.</
param>
        /// <returns>A list of the deleted objects.</returns>
        private static async Task<List<DeletedObject>>
 NonVersionedDeleteAsync(IAmazonS3 client, string bucketName, List<KeyVersion>
 keys)
        {
            // Create a request that includes only the object key names.
            DeleteObjectsRequest multiObjectDeleteRequest = new
 DeleteObjectsRequest();
            multiObjectDeleteRequest.BucketName = bucketName;

            foreach (var key in keys)
            {
                multiObjectDeleteRequest.AddKey(key.Key);
            }

            // Execute DeleteObjectsAsync.
            // The DeleteObjectsAsync method adds a delete marker for each
            // object deleted. You can verify that the objects were removed
            // using the Amazon S3 console.
            DeleteObjectsResponse response;
            try
            {
                Console.WriteLine("Executing NonVersionedDelete...");
                response = await
 client.DeleteObjectsAsync(multiObjectDeleteRequest);
                Console.WriteLine("Successfully deleted all the {0} items",
 response.DeletedObjects.Count);
            }
            catch (DeleteObjectsException ex)
            {
```

```
                DisplayDeletionErrors(ex);
                throw; // Some deletions failed. Investigate before continuing.
            }

            // This response contains the DeletedObjects list which we use to
delete the delete markers.
            return response.DeletedObjects;
        }

        /// <summary>
        /// Deletes the markers left after deleting the temporary objects.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used to
call
        /// DeleteObjectVersionsAsync, DeleteObjectsAsync, and
        /// RemoveDeleteMarkersAsync.</param>
        /// <param name="bucketName">The name of the bucket from which to delete
        /// objects.</param>
        /// <param name="deletedObjects">A list of the objects that were
deleted.</param>
        private static async Task RemoveDeleteMarkersAsync(IAmazonS3 client,
string bucketName, List<DeletedObject> deletedObjects)
        {
            var keyVersionList = new List<KeyVersion>();

            foreach (var deletedObject in deletedObjects)
            {
                KeyVersion keyVersion = new KeyVersion
                {
                    Key = deletedObject.Key,
                    VersionId = deletedObject.DeleteMarkerVersionId,
                };
                keyVersionList.Add(keyVersion);
            }

            // Create another request to delete the delete markers.
            var multiObjectDeleteRequest = new DeleteObjectsRequest
            {
                BucketName = bucketName,
                Objects = keyVersionList,
            };

            // Now, delete the delete marker to bring your objects back to the
bucket.
```

```
            try
            {
                Console.WriteLine("Removing the delete markers .....");
                var deleteObjectResponse = await
 client.DeleteObjectsAsync(multiObjectDeleteRequest);
                Console.WriteLine($"Successfully deleted the
 {deleteObjectResponse.DeletedObjects.Count} delete markers");
            }
            catch (DeleteObjectsException ex)
            {
                DisplayDeletionErrors(ex);
            }
        }

        /// <summary>
        /// Create temporary Amazon S3 objects to show how object deletion wors
 in an
        /// Amazon S3 bucket with versioning enabled.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used to
 call
        /// PutObjectAsync to create temporary objects for the example.</param>
        /// <param name="bucketName">A string representing the name of the S3
        /// bucket where we will create the temporary objects.</param>
        /// <param name="number">The number of temporary objects to create.</
param>
        /// <returns>A list of the KeyVersion objects.</returns>
        private static async Task<List<KeyVersion>> PutObjectsAsync(IAmazonS3
 client, string bucketName, int number)
        {
            var keys = new List<KeyVersion>();

            for (var i = 0; i < number; i++)
            {
                string key = "ObjectToDelete-" + new System.Random().Next();
                PutObjectRequest request = new PutObjectRequest
                {
                    BucketName = bucketName,
                    Key = key,
                    ContentBody = "This is the content body!",
                };

                var response = await client.PutObjectAsync(request);
                KeyVersion keyVersion = new KeyVersion
```

```
                {
                    Key = key,
                    VersionId = response.VersionId,
                };

                keys.Add(keyVersion);
            }

            return keys;
        }
    }
```

- For API details, see DeleteObjects in *AWS SDK for .NET API Reference*.

Bash

AWS CLI with Bash script

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
###############################################################################
# function errecho
#
# This function outputs everything sent to it to STDERR (standard error output).
###############################################################################
function errecho() {
  printf "%s\n" "$*" 1>&2
}

###############################################################################
# function delete_items_in_bucket
#
# This function deletes the specified list of keys from the specified bucket.
#
# Parameters:
#       $1 - The name of the bucket.
```

```
#       $2 - A list of keys in the bucket to delete.

# Returns:
#       0 - If successful.
#       1 - If it fails.
###############################################################################
function delete_items_in_bucket() {
  local bucket_name=$1
  local keys=$2
  local response

  # Create the JSON for the items to delete.
  local delete_items
  delete_items="{\"Objects\":["
  for key in $keys; do
    delete_items="$delete_items{\"Key\": \"$key\"},"
  done
  delete_items=${delete_items%?} # Remove the final comma.
  delete_items="$delete_items]}"

  response=$(aws s3api delete-objects \
    --bucket "$bucket_name" \
    --delete "$delete_items")

  # shellcheck disable=SC2181
  if [[ $? -ne 0 ]]; then
    errecho "ERROR:  AWS reports s3api delete-object operation failed.\n
$response"
    return 1
  fi
}
```

- For API details, see DeleteObjects in *AWS CLI Command Reference*.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::deleteObjects(const std::vector<Aws::String> &objectKeys,
                               const Aws::String &fromBucket,
                               const Aws::S3::S3ClientConfiguration
 &clientConfig) {
    Aws::S3::S3Client client(clientConfig);
    Aws::S3::Model::DeleteObjectsRequest request;

    Aws::S3::Model::Delete deleteObject;
    for (const Aws::String &objectKey: objectKeys) {

 deleteObject.AddObjects(Aws::S3::Model::ObjectIdentifier().WithKey(objectKey));
    }

    request.SetDelete(deleteObject);
    request.SetBucket(fromBucket);

    Aws::S3::Model::DeleteObjectsOutcome outcome =
            client.DeleteObjects(request);

    if (!outcome.IsSuccess()) {
        auto err = outcome.GetError();
        std::cerr << "Error deleting objects. " <<
                  err.GetExceptionName() << ": " << err.GetMessage() <<
 std::endl;
    } else {
        std::cout << "Successfully deleted the objects.";
        for (size_t i = 0; i < objectKeys.size(); ++i) {
            std::cout << objectKeys[i];
            if (i < objectKeys.size() - 1) {
                std::cout << ", ";
            }
        }
```

```
        std::cout << " from bucket " << fromBucket << "." << std::endl;
    }

    return outcome.IsSuccess();
}
```

- For API details, see DeleteObjects in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The following command deletes an object from a bucket named `amzn-s3-demo-bucket`:

```
aws s3api delete-objects --bucket amzn-s3-demo-bucket --delete file://delete.json
```

`delete.json` is a JSON document in the current directory that specifies the object to delete:

```
{
  "Objects": [
    {
      "Key": "test1.txt"
    }
  ],
  "Quiet": false
}
```

Output:

```
{
    "Deleted": [
        {
            "DeleteMarkerVersionId": "mYAT5Mc6F7aeUL8SS7FAAqUPO1koHwzU",
            "Key": "test1.txt",
            "DeleteMarker": true
        }
    ]
}
```

- For API details, see DeleteObjects in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "log"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// S3Actions wraps S3 service actions.
type S3Actions struct {
 S3Client  *s3.Client
 S3Manager *manager.Uploader
}



// DeleteObjects deletes a list of objects from a bucket.
func (actor S3Actions) DeleteObjects(ctx context.Context, bucket string, objects
 []types.ObjectIdentifier, bypassGovernance bool) error {
 if len(objects) == 0 {
  return nil
 }
```

```
 input := s3.DeleteObjectsInput{
  Bucket: aws.String(bucket),
  Delete: &types.Delete{
   Objects: objects,
   Quiet:   aws.Bool(true),
  },
 }
 if bypassGovernance {
  input.BypassGovernanceRetention = aws.Bool(true)
 }
 delOut, err := actor.S3Client.DeleteObjects(ctx, &input)
 if err != nil || len(delOut.Errors) > 0 {
  log.Printf("Error deleting objects from bucket %s.\n", bucket)
  if err != nil {
   var noBucket *types.NoSuchBucket
   if errors.As(err, &noBucket) {
    log.Printf("Bucket %s does not exist.\n", bucket)
    err = noBucket
   }
  } else if len(delOut.Errors) > 0 {
   for _, outErr := range delOut.Errors {
    log.Printf("%s: %s\n", *outErr.Key, *outErr.Message)
   }
   err = fmt.Errorf("%s", *delOut.Errors[0].Message)
  }
 } else {
  for _, delObjs := range delOut.Deleted {
   err = s3.NewObjectNotExistsWaiter(actor.S3Client).Wait(
    ctx, &s3.HeadObjectInput{Bucket: aws.String(bucket), Key: delObjs.Key},
 time.Minute)
   if err != nil {
    log.Printf("Failed attempt to wait for object %s to be deleted.\n",
 *delObjs.Key)
   } else {
    log.Printf("Deleted %s.\n", *delObjs.Key)
   }
  }
 }
 return err
}
```

- For API details, see DeleteObjects in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import software.amazon.awssdk.core.sync.RequestBody;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.PutObjectRequest;
import software.amazon.awssdk.services.s3.model.ObjectIdentifier;
import software.amazon.awssdk.services.s3.model.Delete;
import software.amazon.awssdk.services.s3.model.DeleteObjectsRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.util.ArrayList;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */

public class DeleteMultiObjects {
    public static void main(String[] args) {
        final String usage = """

            Usage:    <bucketName>

            Where:
               bucketName - the Amazon S3 bucket name.
```

```
            """;

        if (args.length != 1) {
            System.out.println(usage);
            System.exit(1);
        }

        String bucketName = args[0];
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        deleteBucketObjects(s3, bucketName);
        s3.close();
    }

    /**
     * Deletes multiple objects from an Amazon S3 bucket.
     *
     * @param s3 An Amazon S3 client object.
     * @param bucketName The name of the Amazon S3 bucket to delete objects from.
     */
    public static void deleteBucketObjects(S3Client s3, String bucketName) {
        // Upload three sample objects to the specfied Amazon S3 bucket.
        ArrayList<ObjectIdentifier> keys = new ArrayList<>();
        PutObjectRequest putOb;
        ObjectIdentifier objectId;

        for (int i = 0; i < 3; i++) {
            String keyName = "delete object example " + i;
            objectId = ObjectIdentifier.builder()
                .key(keyName)
                .build();

            putOb = PutObjectRequest.builder()
                .bucket(bucketName)
                .key(keyName)
                .build();

            s3.putObject(putOb, RequestBody.fromString(keyName));
            keys.add(objectId);
        }
```

```
        System.out.println(keys.size() + " objects successfully created.");

        // Delete multiple objects in one request.
        Delete del = Delete.builder()
            .objects(keys)
            .build();

        try {
            DeleteObjectsRequest multiObjectDeleteRequest =
 DeleteObjectsRequest.builder()
                .bucket(bucketName)
                .delete(del)
                .build();

            s3.deleteObjects(multiObjectDeleteRequest);
            System.out.println("Multiple objects are deleted!");

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }
}
```

- For API details, see DeleteObjects in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete multiple objects.

```
import {
  DeleteObjectsCommand,
  S3Client,
```

```
  S3ServiceException,
  waitUntilObjectNotExists,
} from "@aws-sdk/client-s3";

/**
 * Delete multiple objects from an S3 bucket.
 * @param {{ bucketName: string, keys: string[] }}
 */
export const main = async ({ bucketName, keys }) => {
  const client = new S3Client({});

  try {
    const { Deleted } = await client.send(
      new DeleteObjectsCommand({
        Bucket: bucketName,
        Delete: {
          Objects: keys.map((k) => ({ Key: k })),
        },
      }),
    );
    for (const key in keys) {
      await waitUntilObjectNotExists(
        { client },
        { Bucket: bucketName, Key: key },
      );
    }
    console.log(
      `Successfully deleted ${Deleted.length} objects from S3 bucket. Deleted
 objects:`,
    );
    console.log(Deleted.map((d) => ` • ${d.Key}`).join("\n"));
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while deleting objects from ${bucketName}. The bucket
 doesn't exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while deleting objects from ${bucketName}.
 ${caught.name}: ${caught.message}`,
```

```
      );
    } else {
      throw caught;
    }
  }
};
```

- For API details, see DeleteObjects in *AWS SDK for JavaScript API Reference*.

Kotlin

SDK for Kotlin

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
suspend fun deleteBucketObjects(
    bucketName: String,
    objectName: String,
) {
    val objectId =
        ObjectIdentifier {
            key = objectName
        }

    val delOb =
        Delete {
            objects = listOf(objectId)
        }

    val request =
        DeleteObjectsRequest {
            bucket = bucketName
            delete = delOb
        }

    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->
        s3.deleteObjects(request)
```

```
        println("$objectName was deleted from $bucketName")
    }
}
```

- For API details, see DeleteObjects in *AWS SDK for Kotlin API reference*.

PHP

SDK for PHP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete a set of objects from a list of keys.

```
        $s3client = new Aws\S3\S3Client(['region' => 'us-west-2']);

        try {
            $objects = [];
            foreach ($contents['Contents'] as $content) {
                $objects[] = [
                    'Key' => $content['Key'],
                ];
            }
            $this->s3client->deleteObjects([
                'Bucket' => $this->bucketName,
                'Delete' => [
                    'Objects' => $objects,
                ],
            ]);
            $check = $this->s3client->listObjectsV2([
                'Bucket' => $this->bucketName,
            ]);
            if (isset($check['Contents']) && count($check['Contents']) > 0) {
                throw new Exception("Bucket wasn't empty.");
            }
            echo "Deleted all objects and folders from $this->bucketName.\n";
        } catch (Exception $exception) {
```

```
            echo "Failed to delete $fileName from $this->bucketName with error:
 " . $exception->getMessage();
            exit("Please fix error with object deletion before continuing.");
        }
```

- For API details, see DeleteObjects in *AWS SDK for PHP API Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command removes the object "sample.txt" from bucket "test-files". You are prompted for confirmation before the command executes; to suppress the prompt use the -Force switch.

```
Remove-S3Object -BucketName amzn-s3-demo-bucket -Key sample.txt
```

Example 2: This command removes the specified version of object "sample.txt" from bucket "test-files", assuming the bucket has been configured to enable object versions.

```
Remove-S3Object -BucketName amzn-s3-demo-bucket -Key sample.txt -VersionId
 HLbxnx6V9omT6AQYVpks8mmFKQcejpqt
```

Example 3: This command removes objects "sample1.txt", "sample2.txt" and "sample3.txt" from bucket "test-files" as a single batch operation. The service response will list all keys processed, regardless of the success or error status of the deletion. To obtain only errors for keys that were not able to be processed by the service add the -ReportErrorsOnly parameter (this parameter can also be specified with the alias -Quiet.

```
Remove-S3Object -BucketName amzn-s3-demo-bucket -KeyCollection @( "sample1.txt",
 "sample2.txt", "sample3.txt" )
```

Example 4: This example uses an inline expression with the -KeyCollection parameter to obtain the keys of the objects to delete. Get-S3Object returns a collection of Amazon.S3.Model.S3Object instances, each of which has a Key member of type string identifying the object.

```
Remove-S3Object -bucketname "amzn-s3-demo-bucket" -KeyCollection (Get-S3Object
 "test-files" -KeyPrefix "prefix/subprefix" | select -ExpandProperty Key)
```

Example 5: This example obtains all objects that have a key prefix "prefix/subprefix" in the bucket and deletes them. Note that the incoming objects are processed one at a time. For large collections consider passing the collection to the cmdlet's -InputObject (alias -S3ObjectCollection) parameter to enable the deletion to occur as a batch with a single call to the service.

```
Get-S3Object -BucketName "amzn-s3-demo-bucket" -KeyPrefix "prefix/subprefix" |
 Remove-S3Object -Force
```

Example 6: This example pipes a collection of Amazon.S3.Model.S3ObjectVersion instances that represent delete markers to the cmdlet for deletion. Note that the incoming objects are processed one at a time. For large collections consider passing the collection to the cmdlet's -InputObject (alias -S3ObjectCollection) parameter to enable the deletion to occur as a batch with a single call to the service.

```
(Get-S3Version -BucketName "amzn-s3-demo-bucket").Versions | Where
 {$_.IsDeleteMarker -eq "True"} | Remove-S3Object -Force
```

Example 7: This script shows how to perform a batch delete of a set of objects (in this case delete markers) by constructing an array of objects to be used with the -KeyAndVersionCollection parameter.

```
$keyVersions = @()
$markers = (Get-S3Version -BucketName $BucketName).Versions | Where
 {$_.IsDeleteMarker -eq "True"}
foreach ($marker in $markers) { $keyVersions += @{ Key = $marker.Key; VersionId =
 $marker.VersionId } }
Remove-S3Object -BucketName $BucketName -KeyAndVersionCollection $keyVersions -
Force
```

- For API details, see DeleteObjects in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command removes the object "sample.txt" from bucket "test-files". You are prompted for confirmation before the command executes; to suppress the prompt use the -Force switch.

```
Remove-S3Object -BucketName amzn-s3-demo-bucket -Key sample.txt
```

Example 2: This command removes the specified version of object "sample.txt" from bucket "test-files", assuming the bucket has been configured to enable object versions.

```
Remove-S3Object -BucketName amzn-s3-demo-bucket -Key sample.txt -VersionId
 HLbxnx6V9omT6AQYVpks8mmFKQcejpqt
```

Example 3: This command removes objects "sample1.txt", "sample2.txt" and "sample3.txt" from bucket "test-files" as a single batch operation. The service response will list all keys processed, regardless of the success or error status of the deletion. To obtain only errors for keys that were not able to be processed by the service add the -ReportErrorsOnly parameter (this parameter can also be specified with the alias -Quiet.

```
Remove-S3Object -BucketName amzn-s3-demo-bucket -KeyCollection @( "sample1.txt",
 "sample2.txt", "sample3.txt" )
```

Example 4: This example uses an inline expression with the -KeyCollection parameter to obtain the keys of the objects to delete. Get-S3Object returns a collection of Amazon.S3.Model.S3Object instances, each of which has a Key member of type string identifying the object.

```
Remove-S3Object -bucketname "amzn-s3-demo-bucket" -KeyCollection (Get-S3Object
 "test-files" -KeyPrefix "prefix/subprefix" | select -ExpandProperty Key)
```

Example 5: This example obtains all objects that have a key prefix "prefix/subprefix" in the bucket and deletes them. Note that the incoming objects are processed one at a time. For large collections consider passing the collection to the cmdlet's -InputObject (alias -S3ObjectCollection) parameter to enable the deletion to occur as a batch with a single call to the service.

```
Get-S3Object -BucketName "amzn-s3-demo-bucket" -KeyPrefix "prefix/subprefix" |
 Remove-S3Object -Force
```

Example 6: This example pipes a collection of Amazon.S3.Model.S3ObjectVersion instances that represent delete markers to the cmdlet for deletion. Note that the incoming objects are processed one at a time. For large collections consider passing the

collection to the cmdlet's -InputObject (alias -S3ObjectCollection) parameter to enable the deletion to occur as a batch with a single call to the service.

```
(Get-S3Version -BucketName "amzn-s3-demo-bucket").Versions | Where
 {$_.IsDeleteMarker -eq "True"} | Remove-S3Object -Force
```

Example 7: This script shows how to perform a batch delete of a set of objects (in this case delete markers) by constructing an array of objects to be used with the -KeyAndVersionCollection parameter.

```
$keyVersions = @()
$markers = (Get-S3Version -BucketName $BucketName).Versions | Where
 {$_.IsDeleteMarker -eq "True"}
foreach ($marker in $markers) { $keyVersions += @{ Key = $marker.Key; VersionId =
 $marker.VersionId } }
Remove-S3Object -BucketName $BucketName -KeyAndVersionCollection $keyVersions -
Force
```

- For API details, see DeleteObjects in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete a set of objects by using a list of object keys.

```
class ObjectWrapper:
    """Encapsulates S3 object actions."""

    def __init__(self, s3_object):
        """
        :param s3_object: A Boto3 Object resource. This is a high-level resource
 in Boto3
                          that wraps object actions in a class-like structure.
```

```
        """
        self.object = s3_object
        self.key = self.object.key


    @staticmethod
    def delete_objects(bucket, object_keys):
        """
        Removes a list of objects from a bucket.
        This operation is done as a batch in a single request.

        :param bucket: The bucket that contains the objects. This is a Boto3
Bucket
                       resource.
        :param object_keys: The list of keys that identify the objects to remove.
        :return: The response that contains data about which objects were deleted
                 and any that could not be deleted.
        """
        try:
            response = bucket.delete_objects(
                Delete={"Objects": [{"Key": key} for key in object_keys]}
            )
            if "Deleted" in response:
                logger.info(
                    "Deleted objects '%s' from bucket '%s'.",
                    [del_obj["Key"] for del_obj in response["Deleted"]],
                    bucket.name,
                )
            if "Errors" in response:
                logger.warning(
                    "Could not delete objects '%s' from bucket '%s'.",
                    [
                        f"{del_obj['Key']}: {del_obj['Code']}"
                        for del_obj in response["Errors"]
                    ],
                    bucket.name,
                )
        except ClientError:
            logger.exception("Couldn't delete any objects from bucket %s.",
bucket.name)
            raise
        else:
            return response
```

Delete all objects in a bucket.

```
class ObjectWrapper:
    """Encapsulates S3 object actions."""

    def __init__(self, s3_object):
        """
        :param s3_object: A Boto3 Object resource. This is a high-level resource
 in Boto3
                          that wraps object actions in a class-like structure.
        """
        self.object = s3_object
        self.key = self.object.key


    @staticmethod
    def empty_bucket(bucket):
        """
        Remove all objects from a bucket.

        :param bucket: The bucket to empty. This is a Boto3 Bucket resource.
        """
        try:
            bucket.objects.delete()
            logger.info("Emptied bucket '%s'.", bucket.name)
        except ClientError:
            logger.exception("Couldn't empty bucket '%s'.", bucket.name)
            raise
```

Permanently delete a versioned object by deleting all of its versions.

```
def permanently_delete_object(bucket, object_key):
    """
    Permanently deletes a versioned object by deleting all of its versions.

    Usage is shown in the usage_demo_single_object function at the end of this
 module.

    :param bucket: The bucket that contains the object.
```

```
    :param object_key: The object to delete.
    """
    try:
        bucket.object_versions.filter(Prefix=object_key).delete()
        logger.info("Permanently deleted all versions of object %s.", object_key)
    except ClientError:
        logger.exception("Couldn't delete all versions of %s.", object_key)
        raise
```

- For API details, see DeleteObjects in *AWS SDK for Python (Boto3) API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
  # Deletes the objects in an Amazon S3 bucket and deletes the bucket.
  #
  # @param bucket [Aws::S3::Bucket] The bucket to empty and delete.
  def delete_bucket(bucket)
    puts("\nDo you want to delete all of the objects as well as the bucket (y/n)?
")
    answer = gets.chomp.downcase
    if answer == 'y'
      bucket.objects.batch_delete!
      bucket.delete
      puts("Emptied and deleted bucket #{bucket.name}.\n")
    end
  rescue Aws::Errors::ServiceError => e
    puts("Couldn't empty and delete bucket #{bucket.name}.")
    puts("\t#{e.code}: #{e.message}")
    raise
  end
```

- For API details, see DeleteObjects in *AWS SDK for Ruby API Reference*.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
/// Delete the objects in a bucket.
pub async fn delete_objects(
    client: &aws_sdk_s3::Client,
    bucket_name: &str,
    objects_to_delete: Vec<String>,
) -> Result<(), S3ExampleError> {
    // Push into a mut vector to use `?` early return errors while building
 object keys.
    let mut delete_object_ids: Vec<aws_sdk_s3::types::ObjectIdentifier> = vec![];
    for obj in objects_to_delete {
        let obj_id = aws_sdk_s3::types::ObjectIdentifier::builder()
            .key(obj)
            .build()
            .map_err(|err| {
                S3ExampleError::new(format!("Failed to build key for
 delete_object: {err:?}"))
            })?;
        delete_object_ids.push(obj_id);
    }

    client
        .delete_objects()
        .bucket(bucket_name)
        .delete(
            aws_sdk_s3::types::Delete::builder()
                .set_objects(Some(delete_object_ids))
                .build()
                .map_err(|err| {
```

```
                    S3ExampleError::new(format!("Failed to build delete_object
 input {err:?}"))
                })?,
        )
        .send()
        .await?;
    Ok(())
}
```

- For API details, see DeleteObjects in *AWS SDK for Rust API reference*.

Swift

SDK for Swift

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import AWSS3

    public func deleteObjects(bucket: String, keys: [String]) async throws {
        let input = DeleteObjectsInput(
            bucket: bucket,
            delete: S3ClientTypes.Delete(
                objects: keys.map { S3ClientTypes.ObjectIdentifier(key: $0) },
                quiet: true
            )
        )

        do {
            _ = try await client.deleteObjects(input: input)
        } catch {
            print("ERROR: deleteObjects:", dump(error))
            throw error
        }
    }
```

- For API details, see DeleteObjects in *AWS SDK for Swift API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeletePublicAccessBlock` with a CLI

The following code examples show how to use `DeletePublicAccessBlock`.

CLI

AWS CLI

To delete the block public access configuration for a bucket

The following `delete-public-access-block` example removes the block public access configuration on the specified bucket.

```
aws s3api delete-public-access-block \
    --bucket amzn-s3-demo-bucket
```

This command produces no output.

- For API details, see DeletePublicAccessBlock in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command turns off the block public access setting for the given bucket.

```
Remove-S3PublicAccessBlock -BucketName 'amzn-s3-demo-bucket' -Force -Select
 '^BucketName'
```

Output:

```
amzn-s3-demo-bucket
```

- For API details, see DeletePublicAccessBlock in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command turns off the block public access setting for the given bucket.

```
Remove-S3PublicAccessBlock -BucketName 'amzn-s3-demo-bucket' -Force -Select
 '^BucketName'
```

Output:

```
amzn-s3-demo-bucket
```

- For API details, see DeletePublicAccessBlock in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketAccelerateConfiguration` with a CLI

The following code examples show how to use `GetBucketAccelerateConfiguration`.

CLI

AWS CLI

To retrieve the accelerate configuration of a bucket

The following `get-bucket-accelerate-configuration` example retrieves the accelerate configuration for the specified bucket.

```
aws s3api get-bucket-accelerate-configuration \
    --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "Status": "Enabled"
}
```

- For API details, see GetBucketAccelerateConfiguration in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command returns the value Enabled, if the transfer acceleration settings is enabled for the bucket specified.

```
Get-S3BucketAccelerateConfiguration -BucketName 'amzn-s3-demo-bucket'
```

Output:

```
Value
-----
Enabled
```

- For API details, see GetBucketAccelerateConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command returns the value Enabled, if the transfer acceleration settings is enabled for the bucket specified.

```
Get-S3BucketAccelerateConfiguration -BucketName 'amzn-s3-demo-bucket'
```

Output:

```
Value
-----
Enabled
```

- For API details, see GetBucketAccelerateConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketAcl` with an AWS SDK or CLI

The following code examples show how to use `GetBucketAcl`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Check if a bucket exists
- Manage access control lists (ACLs)

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
        /// <summary>
        /// Get the access control list (ACL) for the new bucket.
        /// </summary>
        /// <param name="client">The initialized client object used to get the
        /// access control list (ACL) of the bucket.</param>
        /// <param name="newBucketName">The name of the newly created bucket.</
param>
        /// <returns>An S3AccessControlList.</returns>
        public static async Task<S3AccessControlList>
 GetACLForBucketAsync(IAmazonS3 client, string newBucketName)
        {
            // Retrieve bucket ACL to show that the ACL was properly applied to
            // the new bucket.
            GetACLResponse getACLResponse = await client.GetACLAsync(new
 GetACLRequest
            {
                BucketName = newBucketName,
            });

            return getACLResponse.AccessControlList;
```

```
        }
```

- For API details, see GetBucketAcl in *AWS SDK for .NET API Reference*.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::getBucketAcl(const Aws::String &bucketName,
                              const Aws::S3::S3ClientConfiguration &clientConfig)
 {
    Aws::S3::S3Client s3Client(clientConfig);

    Aws::S3::Model::GetBucketAclRequest request;
    request.SetBucket(bucketName);

    Aws::S3::Model::GetBucketAclOutcome outcome =
            s3Client.GetBucketAcl(request);

    if (!outcome.IsSuccess()) {
        const Aws::S3::S3Error &err = outcome.GetError();
        std::cerr << "Error: getBucketAcl: "
                  << err.GetExceptionName() << ": " << err.GetMessage() <<
 std::endl;
    } else {
        Aws::Vector<Aws::S3::Model::Grant> grants =
                outcome.GetResult().GetGrants();

        for (auto it = grants.begin(); it != grants.end(); it++) {
            Aws::S3::Model::Grant grant = *it;
            Aws::S3::Model::Grantee grantee = grant.GetGrantee();

            std::cout << "For bucket " << bucketName << ": "
                      << std::endl << std::endl;
```

```
            if (grantee.TypeHasBeenSet()) {
                std::cout << "Type:          "
                          << getGranteeTypeString(grantee.GetType()) <<
 std::endl;
            }

            if (grantee.DisplayNameHasBeenSet()) {
                std::cout << "Display name:  "
                          << grantee.GetDisplayName() << std::endl;
            }

            if (grantee.EmailAddressHasBeenSet()) {
                std::cout << "Email address: "
                          << grantee.GetEmailAddress() << std::endl;
            }

            if (grantee.IDHasBeenSet()) {
                std::cout << "ID:            "
                          << grantee.GetID() << std::endl;
            }

            if (grantee.URIHasBeenSet()) {
                std::cout << "URI:           "
                          << grantee.GetURI() << std::endl;
            }

            std::cout << "Permission:    " <<
                      getPermissionString(grant.GetPermission()) <<
                      std::endl << std::endl;
        }
    }

    return outcome.IsSuccess();
}

//! Routine which converts a built-in type enumeration to a human-readable
 string.
/*!
 \param type: Type enumeration.
 \return String: Human-readable string.
*/

Aws::String getGranteeTypeString(const Aws::S3::Model::Type &type) {
```

```
    switch (type) {
        case Aws::S3::Model::Type::AmazonCustomerByEmail:
            return "Email address of an AWS account";
        case Aws::S3::Model::Type::CanonicalUser:
            return "Canonical user ID of an AWS account";
        case Aws::S3::Model::Type::Group:
            return "Predefined Amazon S3 group";
        case Aws::S3::Model::Type::NOT_SET:
            return "Not set";
        default:
            return "Type unknown";
    }
}

//! Routine which converts a built-in type enumeration to a human-readable
 string.
/*!
 \param permission: Permission enumeration.
 \return String: Human-readable string.
*/

Aws::String getPermissionString(const Aws::S3::Model::Permission &permission) {
    switch (permission) {
        case Aws::S3::Model::Permission::FULL_CONTROL:
            return "Can list objects in this bucket, create/overwrite/delete "
                   "objects in this bucket, and read/write this "
                   "bucket's permissions";
        case Aws::S3::Model::Permission::NOT_SET:
            return "Permission not set";
        case Aws::S3::Model::Permission::READ:
            return "Can list objects in this bucket";
        case Aws::S3::Model::Permission::READ_ACP:
            return "Can read this bucket's permissions";
        case Aws::S3::Model::Permission::WRITE:
            return "Can create, overwrite, and delete objects in this bucket";
        case Aws::S3::Model::Permission::WRITE_ACP:
            return "Can write this bucket's permissions";
        default:
            return "Permission unknown";
    }

    return "Permission unknown";
}
```

- For API details, see GetBucketAcl in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The following command retrieves the access control list for a bucket named `amzn-s3-demo-bucket`:

```
aws s3api get-bucket-acl --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "Owner": {
        "DisplayName": "my-username",
        "ID": "7009a8971cd538e11f6b6606438875e7c86c5b672f46db45460ddcd087d36c32"
    },
    "Grants": [
        {
            "Grantee": {
                "DisplayName": "my-username",
                "ID":
 "7009a8971cd538e11f6b6606438875e7c86c5b672f46db45460ddcd087d36c32"
            },
            "Permission": "FULL_CONTROL"
        }
    ]
}
```

- For API details, see GetBucketAcl in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.GetObjectAclRequest;
import software.amazon.awssdk.services.s3.model.GetObjectAclResponse;
import software.amazon.awssdk.services.s3.model.Grant;

import java.util.List;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */

public class GetAcl {
    public static void main(String[] args) {
        final String usage = """

            Usage:
              <bucketName> <objectKey>

            Where:
              bucketName - The Amazon S3 bucket to get the access control list
 (ACL) for.
              objectKey - The object to get the ACL for.\s
            """;
```

```
        if (args.length != 2) {
            System.out.println(usage);
            System.exit(1);
        }

        String bucketName = args[0];
        String objectKey = args[1];
        System.out.println("Retrieving ACL for object: " + objectKey);
        System.out.println("in bucket: " + bucketName);
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        getBucketACL(s3, objectKey, bucketName);
        s3.close();
        System.out.println("Done!");
    }

    /**
     * Retrieves the Access Control List (ACL) for an object in an Amazon S3
bucket.
     *
     * @param s3 The S3Client object used to interact with the Amazon S3 service.
     * @param objectKey The key of the object for which the ACL is to be
retrieved.
     * @param bucketName The name of the bucket containing the object.
     * @return The ID of the grantee who has permission on the object, or an
empty string if an error occurs.
     */
    public static String getBucketACL(S3Client s3, String objectKey, String
bucketName) {
        try {
            GetObjectAclRequest aclReq = GetObjectAclRequest.builder()
                .bucket(bucketName)
                .key(objectKey)
                .build();

            GetObjectAclResponse aclRes = s3.getObjectAcl(aclReq);
            List<Grant> grants = aclRes.grants();
            String grantee = "";
            for (Grant grant : grants) {
```

```
                System.out.format("  %s: %s\n", grant.grantee().id(),
 grant.permission());
                grantee = grant.grantee().id();
            }

            return grantee;
        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }

        return "";
    }
}
```

- For API details, see GetBucketAcl in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Get the ACL permissions.

```
import {
  GetBucketAclCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Retrieves the Access Control List (ACL) for an S3 bucket.
 * @param {{ bucketName: string }}
 */
export const main = async ({ bucketName }) => {
  const client = new S3Client({});
```

```
  try {
    const response = await client.send(
      new GetBucketAclCommand({
        Bucket: bucketName,
      }),
    );
    console.log(`ACL for bucket "${bucketName}":`);
    console.log(JSON.stringify(response, null, 2));
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while getting ACL for ${bucketName}. The bucket doesn't
 exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while getting ACL for ${bucketName}. ${caught.name}:
 ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

- For more information, see AWS SDK for JavaScript Developer Guide.
- For API details, see GetBucketAcl in *AWS SDK for JavaScript API Reference*.

PowerShell

Tools for PowerShell V5

Example 1: The command gets the details of the object owner of the S3 object.

```
(Get-S3BucketACL -BucketName 'amzn-s3-demo-bucket' -Select *).Owner
```

Output:

```
DisplayName Id
----------- --
testusername
 9988776a6554433d22f1100112e334acb45566778899009e9887bd7f66c5f544
```

- For API details, see GetBucketAcl in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class BucketWrapper:
    """Encapsulates S3 bucket actions."""

    def __init__(self, bucket):
        """
        :param bucket: A Boto3 Bucket resource. This is a high-level resource in
 Boto3
                       that wraps bucket actions in a class-like structure.
        """
        self.bucket = bucket
        self.name = bucket.name


    def get_acl(self):
        """
        Get the ACL of the bucket.

        :return: The ACL of the bucket.
        """
        try:
            acl = self.bucket.Acl()
            logger.info(
                "Got ACL for bucket %s. Owner is %s.", self.bucket.name,
 acl.owner
```

```
            )
        except ClientError:
            logger.exception("Couldn't get ACL for bucket %s.", self.bucket.name)
            raise
        else:
            return acl
```

- For API details, see GetBucketAcl in *AWS SDK for Python (Boto3) API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketAnalyticsConfiguration` with a CLI

The following code examples show how to use `GetBucketAnalyticsConfiguration`.

CLI

AWS CLI

To retrieve the analytics configuration for a bucket with a specific ID

The following `get-bucket-analytics-configuration` example displays the analytics configuration for the specified bucket and ID.

```
aws s3api get-bucket-analytics-configuration \
    --bucket amzn-s3-demo-bucket \
    --id 1
```

Output:

```
{
    "AnalyticsConfiguration": {
        "StorageClassAnalysis": {},
        "Id": "1"
    }
}
```

- For API details, see GetBucketAnalyticsConfiguration in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command returns the details of the analytics filter with the name 'testfilter' in the given S3 bucket.

```
Get-S3BucketAnalyticsConfiguration -BucketName 'amzn-s3-demo-bucket' -AnalyticsId
 'testfilter'
```

- For API details, see GetBucketAnalyticsConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command returns the details of the analytics filter with the name 'testfilter' in the given S3 bucket.

```
Get-S3BucketAnalyticsConfiguration -BucketName 'amzn-s3-demo-bucket' -AnalyticsId
 'testfilter'
```

- For API details, see GetBucketAnalyticsConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketCors` with an AWS SDK or CLI

The following code examples show how to use `GetBucketCors`.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
        /// <summary>
        /// Retrieve the CORS configuration applied to the Amazon S3 bucket.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used
        /// to retrieve the CORS configuration.</param>
        /// <returns>The created CORS configuration object.</returns>
        private static async Task<CORSConfiguration>
 RetrieveCORSConfigurationAsync(AmazonS3Client client)
        {
            GetCORSConfigurationRequest request = new
 GetCORSConfigurationRequest()
            {
                BucketName = BucketName,
            };
            var response = await client.GetCORSConfigurationAsync(request);
            var configuration = response.Configuration;
            PrintCORSRules(configuration);
            return configuration;
        }
```

- For API details, see GetBucketCors in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

The following command retrieves the Cross-Origin Resource Sharing configuration for a bucket named `amzn-s3-demo-bucket`:

```
aws s3api get-bucket-cors --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "CORSRules": [
        {
            "AllowedHeaders": [
                "*"
            ],
```

```
            "ExposeHeaders": [
                "x-amz-server-side-encryption"
            ],
            "AllowedMethods": [
                "PUT",
                "POST",
                "DELETE"
            ],
            "MaxAgeSeconds": 3000,
            "AllowedOrigins": [
                "http://www.example.com"
            ]
        },
        {
            "AllowedHeaders": [
                "Authorization"
            ],
            "MaxAgeSeconds": 3000,
            "AllowedMethods": [
                "GET"
            ],
            "AllowedOrigins": [
                "*"
            ]
        }
    ]
}
```

- For API details, see GetBucketCors in *AWS CLI Command Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Get the CORS policy for the bucket.

```
import {
  GetBucketCorsCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Log the Cross-Origin Resource Sharing (CORS) configuration information
 * set for the bucket.
 * @param {{ bucketName: string }}
 */
export const main = async ({ bucketName }) => {
  const client = new S3Client({});
  const command = new GetBucketCorsCommand({
    Bucket: bucketName,
  });

  try {
    const { CORSRules } = await client.send(command);
    console.log(JSON.stringify(CORSRules));
    CORSRules.forEach((cr, i) => {
      console.log(
        `\nCORSRule ${i + 1}`,
        `\n${"-".repeat(10)}`,
        `\nAllowedHeaders: ${cr.AllowedHeaders}`,
        `\nAllowedMethods: ${cr.AllowedMethods}`,
        `\nAllowedOrigins: ${cr.AllowedOrigins}`,
        `\nExposeHeaders: ${cr.ExposeHeaders}`,
        `\nMaxAgeSeconds: ${cr.MaxAgeSeconds}`,
      );
    });
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while getting bucket CORS rules for ${bucketName}. The
 bucket doesn't exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
```

```
        `Error from S3 while getting bucket CORS rules for ${bucketName}.
 ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

- For more information, see AWS SDK for JavaScript Developer Guide.
- For API details, see GetBucketCors in *AWS SDK for JavaScript API Reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class BucketWrapper:
    """Encapsulates S3 bucket actions."""

    def __init__(self, bucket):
        """
        :param bucket: A Boto3 Bucket resource. This is a high-level resource in
 Boto3
                       that wraps bucket actions in a class-like structure.
        """
        self.bucket = bucket
        self.name = bucket.name


    def get_cors(self):
        """
        Get the CORS rules for the bucket.

        :return The CORS rules for the specified bucket.
```

```
        """
        try:
            cors = self.bucket.Cors()
            logger.info(
                "Got CORS rules %s for bucket '%s'.", cors.cors_rules,
 self.bucket.name
            )
        except ClientError:
            logger.exception(("Couldn't get CORS for bucket %s.",
 self.bucket.name))
            raise
        else:
            return cors
```

- For API details, see GetBucketCors in *AWS SDK for Python (Boto3) API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
require 'aws-sdk-s3'

# Wraps Amazon S3 bucket CORS configuration.
class BucketCorsWrapper
  attr_reader :bucket_cors

  # @param bucket_cors [Aws::S3::BucketCors] A bucket CORS object configured with
 an existing bucket.
  def initialize(bucket_cors)
    @bucket_cors = bucket_cors
  end

  # Gets the CORS configuration of a bucket.
  #
```

```
  # @return [Aws::S3::Type::GetBucketCorsOutput, nil] The current CORS
 configuration for the bucket.
  def cors
    @bucket_cors.data
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't get CORS configuration for #{@bucket_cors.bucket.name}. Here's
 why: #{e.message}"
    nil
  end

end
```

- For API details, see GetBucketCors in *AWS SDK for Ruby API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketEncryption` with an AWS SDK or CLI

The following code examples show how to use `GetBucketEncryption`.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    /// <summary>
    /// Get and print the encryption settings of a bucket.
    /// </summary>
    /// <param name="bucketName">Name of the bucket.</param>
    /// <returns>Async task.</returns>
    public static async Task GetEncryptionSettings(string bucketName)
    {
        // Check and print the bucket encryption settings.
```

```
        Console.WriteLine($"Getting encryption settings for bucket
{bucketName}.");

        try
        {
            var settings =
                await _s3Client.GetBucketEncryptionAsync(
                    new GetBucketEncryptionRequest() { BucketName =
bucketName });

            foreach (var encryptionSettings in
settings?.ServerSideEncryptionConfiguration?.ServerSideEncryptionRules!)
            {
                Console.WriteLine(
                    $"\tAlgorithm:
{encryptionSettings.ServerSideEncryptionByDefault.ServerSideEncryptionAlgorithm}");
                Console.WriteLine(
                    $"\tKey:
{encryptionSettings.ServerSideEncryptionByDefault.ServerSideEncryptionKeyManagementServi
            }
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine(ex.ErrorCode == "InvalidBucketName"
                ? $"Bucket {bucketName} was not found."
                : $"Unable to get bucket encryption for bucket {bucketName},
{ex.Message}");
        }
    }
```

- For API details, see GetBucketEncryption in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

To retrieve the server-side encryption configuration for a bucket

The following `get-bucket-encryption` example retrieves the server-side encryption configuration for the bucket `amzn-s3-demo-bucket`.

```
aws s3api get-bucket-encryption \
```

```
    --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "ServerSideEncryptionConfiguration": {
        "Rules": [
            {
                "ApplyServerSideEncryptionByDefault": {
                    "SSEAlgorithm": "AES256"
                }
            }
        ]
    }
}
```

- For API details, see GetBucketEncryption in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command returns all the server side encryption rules associated with the given bucket.

```
Get-S3BucketEncryption -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see GetBucketEncryption in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command returns all the server side encryption rules associated with the given bucket.

```
Get-S3BucketEncryption -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see GetBucketEncryption in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketInventoryConfiguration` with a CLI

The following code examples show how to use `GetBucketInventoryConfiguration`.

CLI

AWS CLI

To retrieve the inventory configuration for a bucket

The following `get-bucket-inventory-configuration` example retrieves the inventory configuration for the specified bucket with ID 1.

```
aws s3api get-bucket-inventory-configuration \
    --bucket amzn-s3-demo-bucket \
    --id 1
```

Output:

```
{
    "InventoryConfiguration": {
        "IsEnabled": true,
        "Destination": {
            "S3BucketDestination": {
                "Format": "ORC",
                "Bucket": "arn:aws:s3:::amzn-s3-demo-bucket",
                "AccountId": "123456789012"
            }
        },
        "IncludedObjectVersions": "Current",
        "Id": "1",
        "Schedule": {
            "Frequency": "Weekly"
        }
    }
}
```

- For API details, see GetBucketInventoryConfiguration in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command returns the details of the inventory named 'testinventory' for the given S3 bucket.

```
Get-S3BucketInventoryConfiguration -BucketName 'amzn-s3-demo-bucket' -InventoryId
 'testinventory'
```

- For API details, see GetBucketInventoryConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command returns the details of the inventory named 'testinventory' for the given S3 bucket.

```
Get-S3BucketInventoryConfiguration -BucketName 'amzn-s3-demo-bucket' -InventoryId
 'testinventory'
```

- For API details, see GetBucketInventoryConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketLifecycleConfiguration` with an AWS SDK or CLI

The following code examples show how to use `GetBucketLifecycleConfiguration`.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
        /// <summary>
        /// Returns a configuration object for the supplied bucket name.
        /// </summary>
        /// <param name="client">The S3 client object used to call
        /// the GetLifecycleConfigurationAsync method.</param>
        /// <param name="bucketName">The name of the S3 bucket for which a
        /// configuration will be created.</param>
        /// <returns>Returns a new LifecycleConfiguration object.</returns>
        public static async Task<LifecycleConfiguration>
 RetrieveLifecycleConfigAsync(IAmazonS3 client, string bucketName)
        {
            var request = new GetLifecycleConfigurationRequest()
            {
                BucketName = bucketName,
            };
            var response = await client.GetLifecycleConfigurationAsync(request);
            var configuration = response.Configuration;
            return configuration;
        }
```

- For API details, see GetBucketLifecycleConfiguration in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

The following command retrieves the lifecycle configuration for a bucket named `amzn-s3-demo-bucket`:

```
aws s3api get-bucket-lifecycle-configuration --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "Rules": [
        {
            "ID": "Move rotated logs to Glacier",
            "Prefix": "rotated/",
```

```
            "Status": "Enabled",
            "Transitions": [
                {
                    "Date": "2015-11-10T00:00:00.000Z",
                    "StorageClass": "GLACIER"
                }
            ]
        },
        {
            "Status": "Enabled",
            "Prefix": "",
            "NoncurrentVersionTransitions": [
                {
                    "NoncurrentDays": 0,
                    "StorageClass": "GLACIER"
                }
            ],
            "ID": "Move old versions to Glacier"
        }
    ]
}
```

- For API details, see GetBucketLifecycleConfiguration in *AWS CLI Command Reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class BucketWrapper:
    """Encapsulates S3 bucket actions."""

    def __init__(self, bucket):
        """
        :param bucket: A Boto3 Bucket resource. This is a high-level resource in
 Boto3
                       that wraps bucket actions in a class-like structure.
```

```
        """
        self.bucket = bucket
        self.name = bucket.name


    def get_lifecycle_configuration(self):
        """
        Get the lifecycle configuration of the bucket.

        :return: The lifecycle rules of the specified bucket.
        """
        try:
            config = self.bucket.LifecycleConfiguration()
            logger.info(
                "Got lifecycle rules %s for bucket '%s'.",
                config.rules,
                self.bucket.name,
            )
        except:
            logger.exception(
                "Couldn't get lifecycle rules for bucket '%s'.", self.bucket.name
            )
            raise
        else:
            return config.rules
```

- For API details, see GetBucketLifecycleConfiguration in *AWS SDK for Python (Boto3) API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketLocation` with an AWS SDK or CLI

The following code examples show how to use `GetBucketLocation`.

CLI

AWS CLI

The following command retrieves the location constraint for a bucket named `amzn-s3-demo-bucket`, if a constraint exists:

```
aws s3api get-bucket-location --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "LocationConstraint": "us-west-2"
}
```

- For API details, see GetBucketLocation in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command returns the location constraint for the bucket 'amzn-s3-demo-bucket', if a constraint exists.

```
Get-S3BucketLocation -BucketName 'amzn-s3-demo-bucket'
```

Output:

```
Value
-----
ap-south-1
```

- For API details, see GetBucketLocation in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command returns the location constraint for the bucket 'amzn-s3-demo-bucket', if a constraint exists.

```
Get-S3BucketLocation -BucketName 'amzn-s3-demo-bucket'
```

Output:

```
Value
-----
ap-south-1
```

- For API details, see GetBucketLocation in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
async fn show_buckets(
    strict: bool,
    client: &Client,
    region: BucketLocationConstraint,
) -> Result<(), S3ExampleError> {
    let mut buckets = client.list_buckets().into_paginator().send();

    let mut num_buckets = 0;
    let mut in_region = 0;

    while let Some(Ok(output)) = buckets.next().await {
        for bucket in output.buckets() {
            num_buckets += 1;
            if strict {
                let r = client
                    .get_bucket_location()
                    .bucket(bucket.name().unwrap_or_default())
                    .send()
                    .await?;

                if r.location_constraint() == Some(&region) {
                    println!("{}", bucket.name().unwrap_or_default());
                    in_region += 1;
```

```
                }
            } else {
                println!("{}", bucket.name().unwrap_or_default());
            }
        }
    }

    println!();
    if strict {
        println!(
            "Found {} buckets in the {} region out of a total of {} buckets.",
            in_region, region, num_buckets
        );
    } else {
        println!("Found {} buckets in all regions.", num_buckets);
    }

    Ok(())
}
```

- For API details, see GetBucketLocation in *AWS SDK for Rust API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketLogging` with a CLI

The following code examples show how to use `GetBucketLogging`.

CLI

AWS CLI

To retrieve the logging status for a bucket

The following `get-bucket-logging` example retrieves the logging status for the specified bucket.

```
aws s3api get-bucket-logging \
    --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "LoggingEnabled": {
        "TargetPrefix": "",
        "TargetBucket": "amzn-s3-demo-bucket-logs"
          }
}
```

- For API details, see GetBucketLogging in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command returns the logging status for the specified bucket.

```
Get-S3BucketLogging -BucketName 'amzn-s3-demo-bucket'
```

Output:

```
TargetBucketName   Grants TargetPrefix
----------------   ------ ------------
testbucket1        {}     testprefix
```

- For API details, see GetBucketLogging in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command returns the logging status for the specified bucket.

```
Get-S3BucketLogging -BucketName 'amzn-s3-demo-bucket'
```

Output:

```
TargetBucketName   Grants TargetPrefix
----------------   ------ ------------
testbucket1        {}     testprefix
```

- For API details, see GetBucketLogging in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketMetricsConfiguration` with a CLI

The following code examples show how to use `GetBucketMetricsConfiguration`.

CLI

AWS CLI

To retrieve the metrics configuration for a bucket with a specific ID

The following `get-bucket-metrics-configuration` example displays the metrics configuration for the specified bucket and ID.

```
aws s3api get-bucket-metrics-configuration \
    --bucket amzn-s3-demo-bucket \
    --id 123
```

Output:

```
{
    "MetricsConfiguration": {
        "Filter": {
            "Prefix": "logs"
        },
        "Id": "123"
    }
}
```

- For API details, see GetBucketMetricsConfiguration in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command returns the details about the metrics filter named 'testfilter' for the given S3 bucket.

```
Get-S3BucketMetricsConfiguration -BucketName 'amzn-s3-demo-bucket' -MetricsId
 'testfilter'
```

- For API details, see GetBucketMetricsConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command returns the details about the metrics filter named 'testfilter' for the given S3 bucket.

```
Get-S3BucketMetricsConfiguration -BucketName 'amzn-s3-demo-bucket' -MetricsId
 'testfilter'
```

- For API details, see GetBucketMetricsConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketNotification` with a CLI

The following code examples show how to use `GetBucketNotification`.

CLI

AWS CLI

The following command retrieves the notification configuration for a bucket named `amzn-s3-demo-bucket`:

```
aws s3api get-bucket-notification --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "TopicConfiguration": {
        "Topic": "arn:aws:sns:us-west-2:123456789012:my-notification-topic",
```

```
        "Id": "YmQzMmEwM2EjZWVlI0NGItNzVtZjI1MC00ZjgyLWZDBiZWNl",
        "Event": "s3:ObjectCreated:*",
        "Events": [
            "s3:ObjectCreated:*"
        ]
    }
}
```

- For API details, see GetBucketNotification in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This example retrieves notification configuration of the given bucket

```
Get-S3BucketNotification -BucketName amzn-s3-demo-bucket | select -ExpandProperty
 TopicConfigurations
```

Output:

```
Id   Topic
--   -----
mimo arn:aws:sns:eu-west-1:123456789012:topic-1
```

- For API details, see GetBucketNotification in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This example retrieves notification configuration of the given bucket

```
Get-S3BucketNotification -BucketName amzn-s3-demo-bucket | select -ExpandProperty
 TopicConfigurations
```

Output:

```
Id   Topic
--   -----
mimo arn:aws:sns:eu-west-1:123456789012:topic-1
```

- For API details, see GetBucketNotification in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketPolicy` with an AWS SDK or CLI

The following code examples show how to use `GetBucketPolicy`.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::getBucketPolicy(const Aws::String &bucketName,
                                 const Aws::S3::S3ClientConfiguration
 &clientConfig) {
    Aws::S3::S3Client s3Client(clientConfig);

    Aws::S3::Model::GetBucketPolicyRequest request;
    request.SetBucket(bucketName);

    Aws::S3::Model::GetBucketPolicyOutcome outcome =
            s3Client.GetBucketPolicy(request);

    if (!outcome.IsSuccess()) {
        const Aws::S3::S3Error &err = outcome.GetError();
        std::cerr << "Error: getBucketPolicy: "
                  << err.GetExceptionName() << ": " << err.GetMessage() <<
 std::endl;
    } else {
        Aws::StringStream policy_stream;
        Aws::String line;
```

```
        outcome.GetResult().GetPolicy() >> line;
        policy_stream << line;

        std::cout << "Retrieve the policy for bucket '" << bucketName << "':\n\n"
 <<
                  policy_stream.str() << std::endl;
    }

    return outcome.IsSuccess();
}
```

- For API details, see GetBucketPolicy in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The following command retrieves the bucket policy for a bucket named `amzn-s3-demo-bucket`:

```
aws s3api get-bucket-policy --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "Policy": "{\"Version\":\"2008-10-17\",\"Statement\":[{\"Sid\":\"\",\"Effect
\":\"Allow\",\"Principal\":\"*\",\"Action\":\"s3:GetObject\",\"Resource\":
\"arn:aws:s3:::amzn-s3-demo-bucket/*\"},{\"Sid\":\"\",\"Effect\":\"Deny\",
\"Principal\":\"*\",\"Action\":\"s3:GetObject\",\"Resource\":\"arn:aws:s3:::amzn-
s3-demo-bucket/secret/*\"}]}"
}
```

Get and put a bucket policyThe following example shows how you can download an Amazon S3 bucket policy, make modifications to the file, and then use `put-bucket-policy` to apply the modified bucket policy. To download the bucket policy to a file, you can run:

```
aws s3api get-bucket-policy --bucket amzn-s3-demo-bucket --query Policy --output
 text > policy.json
```

You can then modify the `policy.json` file as needed. Finally you can apply this modified policy back to the S3 bucket by running:

`policy.json` file as needed. Finally you can apply this modified policy back to the S3 bucket by running:

file as needed. Finally you can apply this modified policy back to the S3 bucket by running:

```
aws s3api put-bucket-policy --bucket amzn-s3-demo-bucket --policy file://
policy.json
```

- For API details, see GetBucketPolicy in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.GetBucketPolicyRequest;
import software.amazon.awssdk.services.s3.model.GetBucketPolicyResponse;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */

public class GetBucketPolicy {
```

```
    public static void main(String[] args) {
        final String usage = """

            Usage:
                <bucketName>

            Where:
                bucketName - The Amazon S3 bucket to get the policy from.
            """;

        if (args.length != 1) {
            System.out.println(usage);
            System.exit(1);
        }

        String bucketName = args[0];
        System.out.format("Getting policy for bucket: \"%s\"\n\n", bucketName);
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        String polText = getPolicy(s3, bucketName);
        System.out.println("Policy Text: " + polText);
        s3.close();
    }

    /**
     * Retrieves the policy for the specified Amazon S3 bucket.
     *
     * @param s3 the {@link S3Client} instance to use for making the request
     * @param bucketName the name of the S3 bucket for which to retrieve the
policy
     * @return the policy text for the specified bucket, or an empty string if an
error occurs
     */
    public static String getPolicy(S3Client s3, String bucketName) {
        String policyText;
        System.out.format("Getting policy for bucket: \"%s\"\n\n", bucketName);
        GetBucketPolicyRequest policyReq = GetBucketPolicyRequest.builder()
            .bucket(bucketName)
            .build();

        try {
```

```
            GetBucketPolicyResponse policyRes = s3.getBucketPolicy(policyReq);
            policyText = policyRes.policy();
            return policyText;

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }

        return "";
    }
}
```

- For API details, see GetBucketPolicy in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Get the bucket policy.

```
import {
  GetBucketPolicyCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Logs the policy for a specified bucket.
 * @param {{ bucketName: string }}
 */
export const main = async ({ bucketName }) => {
  const client = new S3Client({});

  try {
```

```
    const { Policy } = await client.send(
      new GetBucketPolicyCommand({
        Bucket: bucketName,
      }),
    );
    console.log(`Policy for "${bucketName}":\n${Policy}`);
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while getting policy from ${bucketName}. The bucket
 doesn't exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while getting policy from ${bucketName}.  ${caught.name}:
 ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

- For more information, see AWS SDK for JavaScript Developer Guide.
- For API details, see GetBucketPolicy in *AWS SDK for JavaScript API Reference*.

Kotlin

SDK for Kotlin

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
suspend fun getPolicy(bucketName: String): String? {
```

```
    println("Getting policy for bucket $bucketName")

    val request =
        GetBucketPolicyRequest {
            bucket = bucketName
        }

    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->
        val policyRes = s3.getBucketPolicy(request)
        return policyRes.policy
    }
}
```

- For API details, see GetBucketPolicy in *AWS SDK for Kotlin API reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command outputs the bucket policy associated with the given S3 bucket.

```
Get-S3BucketPolicy -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see GetBucketPolicy in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command outputs the bucket policy associated with the given S3 bucket.

```
Get-S3BucketPolicy -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see GetBucketPolicy in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class BucketWrapper:
    """Encapsulates S3 bucket actions."""

    def __init__(self, bucket):
        """
        :param bucket: A Boto3 Bucket resource. This is a high-level resource in
 Boto3
                       that wraps bucket actions in a class-like structure.
        """
        self.bucket = bucket
        self.name = bucket.name


    def get_policy(self):
        """
        Get the security policy of the bucket.

        :return: The security policy of the specified bucket, in JSON format.
        """
        try:
            policy = self.bucket.Policy()
            logger.info(
                "Got policy %s for bucket '%s'.", policy.policy, self.bucket.name
            )
        except ClientError:
            logger.exception("Couldn't get policy for bucket '%s'.",
 self.bucket.name)
            raise
        else:
            return json.loads(policy.policy)
```

- For API details, see GetBucketPolicy in *AWS SDK for Python (Boto3) API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
# Wraps an Amazon S3 bucket policy.
class BucketPolicyWrapper
  attr_reader :bucket_policy

  # @param bucket_policy [Aws::S3::BucketPolicy] A bucket policy object
 configured with an existing bucket.
  def initialize(bucket_policy)
    @bucket_policy = bucket_policy
  end

  # Gets the policy of a bucket.
  #
  # @return [Aws::S3::GetBucketPolicyOutput, nil] The current bucket policy.
  def policy
    policy = @bucket_policy.data.policy
    policy.respond_to?(:read) ? policy.read : policy
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't get the policy for #{@bucket_policy.bucket.name}. Here's why:
 #{e.message}"
    nil
  end

end
```

- For API details, see GetBucketPolicy in *AWS SDK for Ruby API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketPolicyStatus` with a CLI

The following code examples show how to use `GetBucketPolicyStatus`.

CLI

AWS CLI

To retrieve the policy status for a bucket indicating whether the bucket is public

The following `get-bucket-policy-status` example retrieves the policy status for the bucket `amzn-s3-demo-bucket`.

```
aws s3api get-bucket-policy-status \
    --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "PolicyStatus": {
        "IsPublic": false
    }
}
```

- For API details, see GetBucketPolicyStatus in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command returns policy status for the given S3 bucket, indicating whether the bucket is public.

```
Get-S3BucketPolicyStatus -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see GetBucketPolicyStatus in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command returns policy status for the given S3 bucket, indicating whether the bucket is public.

```
Get-S3BucketPolicyStatus -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see GetBucketPolicyStatus in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketReplication` with an AWS SDK or CLI

The following code examples show how to use `GetBucketReplication`.

CLI

AWS CLI

The following command retrieves the replication configuration for a bucket named `amzn-s3-demo-bucket`:

```
aws s3api get-bucket-replication --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "ReplicationConfiguration": {
        "Rules": [
            {
                "Status": "Enabled",
                "Prefix": "",
                "Destination": {
                    "Bucket": "arn:aws:s3:::amzn-s3-demo-bucket-backup",
                    "StorageClass": "STANDARD"
                },
                "ID": "ZmUwNzE4ZmQ4tMjVhOS00MTlkLOGI4NDkzZTIWJjNTUtYTA1"
            }
```

```
        ],
        "Role": "arn:aws:iam::123456789012:role/s3-replication-role"
    }
}
```

- For API details, see GetBucketReplication in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
   /**
    * Retrieves the replication details for the specified S3 bucket.
    *
    * @param s3Client           the S3 client used to interact with the S3
service
    * @param sourceBucketName   the name of the S3 bucket to retrieve the
replication details for
    *
    * @throws S3Exception if there is an error retrieving the replication
details
    */
   public static void getReplicationDetails(S3Client s3Client, String
sourceBucketName) {
       GetBucketReplicationRequest getRequest =
GetBucketReplicationRequest.builder()
           .bucket(sourceBucketName)
           .build();

       try {
           ReplicationConfiguration replicationConfig =
s3Client.getBucketReplication(getRequest).replicationConfiguration();
           ReplicationRule rule = replicationConfig.rules().get(0);
           System.out.println("Retrieved destination bucket: " +
rule.destination().bucket());
           System.out.println("Retrieved priority: " + rule.priority());
```

```
            System.out.println("Retrieved source-bucket replication rule status:
" + rule.status());

        } catch (S3Exception e) {
            System.err.println("Failed to retrieve replication details: " +
e.awsErrorDetails().errorMessage());
        }
    }
```

- For API details, see GetBucketReplication in *AWS SDK for Java 2.x API Reference*.

PowerShell

Tools for PowerShell V4

Example 1: Returns the replication configuration information set on the bucket named 'amzn-s3-demo-bucket'.

```
Get-S3BucketReplication -BucketName amzn-s3-demo-bucket
```

- For API details, see GetBucketReplication in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: Returns the replication configuration information set on the bucket named 'amzn-s3-demo-bucket'.

```
Get-S3BucketReplication -BucketName amzn-s3-demo-bucket
```

- For API details, see GetBucketReplication in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketRequestPayment` with a CLI

The following code examples show how to use `GetBucketRequestPayment`.

CLI

AWS CLI

To retrieve the request payment configuration for a bucket

The following `get-bucket-request-payment` example retrieves the requester pays configuration for the specified bucket.

```
aws s3api get-bucket-request-payment \
    --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "Payer": "BucketOwner"
}
```

- For API details, see GetBucketRequestPayment in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: Returns the request payment configuration for the bucket named 'amzn-s3-demo-bucket'. By default, the bucket owner pays for downloads from the bucket.

```
Get-S3BucketRequestPayment -BucketName amzn-s3-demo-bucket
```

- For API details, see GetBucketRequestPayment in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: Returns the request payment configuration for the bucket named 'amzn-s3-demo-bucket'. By default, the bucket owner pays for downloads from the bucket.

```
Get-S3BucketRequestPayment -BucketName amzn-s3-demo-bucket
```

- For API details, see GetBucketRequestPayment in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketTagging` with a CLI

The following code examples show how to use `GetBucketTagging`.

CLI

AWS CLI

The following command retrieves the tagging configuration for a bucket named `amzn-s3-demo-bucket`:

```
aws s3api get-bucket-tagging --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "TagSet": [
        {
            "Value": "marketing",
            "Key": "organization"
        }
    ]
}
```

- For API details, see GetBucketTagging in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command returns all the tags associated with the given bucket.

```
Get-S3BucketTagging -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see GetBucketTagging in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command returns all the tags associated with the given bucket.

```
Get-S3BucketTagging -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see GetBucketTagging in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketVersioning` with a CLI

The following code examples show how to use `GetBucketVersioning`.

CLI

AWS CLI

The following command retrieves the versioning configuration for a bucket named `amzn-s3-demo-bucket`:

```
aws s3api get-bucket-versioning --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "Status": "Enabled"
}
```

- For API details, see GetBucketVersioning in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command returns the status of versioning with respect to the given bucket.

```
Get-S3BucketVersioning -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see GetBucketVersioning in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command returns the status of versioning with respect to the given bucket.

```
Get-S3BucketVersioning -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see GetBucketVersioning in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketWebsite` with an AWS SDK or CLI

The following code examples show how to use `GetBucketWebsite`.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
                // Get the website configuration.
                GetBucketWebsiteRequest getRequest = new
GetBucketWebsiteRequest()
                {
                    BucketName = bucketName,
                };
```

```
                GetBucketWebsiteResponse getResponse = await
 client.GetBucketWebsiteAsync(getRequest);
                Console.WriteLine($"Index document:
 {getResponse.WebsiteConfiguration.IndexDocumentSuffix}");
                Console.WriteLine($"Error document:
 {getResponse.WebsiteConfiguration.ErrorDocument}");
```

- For API details, see GetBucketWebsite in *AWS SDK for .NET API Reference*.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::getWebsiteConfig(const Aws::String &bucketName,
                                  const Aws::S3::S3ClientConfiguration
 &clientConfig) {
    Aws::S3::S3Client s3Client(clientConfig);

    Aws::S3::Model::GetBucketWebsiteRequest request;
    request.SetBucket(bucketName);

    Aws::S3::Model::GetBucketWebsiteOutcome outcome =
            s3Client.GetBucketWebsite(request);

    if (!outcome.IsSuccess()) {
        const Aws::S3::S3Error &err = outcome.GetError();

        std::cerr << "Error: GetBucketWebsite: "
                  << err.GetMessage() << std::endl;
    } else {
        Aws::S3::Model::GetBucketWebsiteResult websiteResult =
 outcome.GetResult();

        std::cout << "Success: GetBucketWebsite: "
```

```
                    << std::endl << std::endl
                    << "For bucket '" << bucketName << "':"
                    << std::endl
                    << "Index page : "
                    << websiteResult.GetIndexDocument().GetSuffix()
                    << std::endl
                    << "Error page: "
                    << websiteResult.GetErrorDocument().GetKey()
                    << std::endl;
    }

    return outcome.IsSuccess();
}
```

- For API details, see GetBucketWebsite in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The following command retrieves the static website configuration for a bucket named `amzn-s3-demo-bucket`:

```
aws s3api get-bucket-website --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "IndexDocument": {
        "Suffix": "index.html"
    },
    "ErrorDocument": {
        "Key": "error.html"
    }
}
```

- For API details, see GetBucketWebsite in *AWS CLI Command Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Get the website configuration.

```
import {
  GetBucketWebsiteCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Log the website configuration for a bucket.
 * @param {{ bucketName }}
 */
export const main = async ({ bucketName }) => {
  const client = new S3Client({});

  try {
    const response = await client.send(
      new GetBucketWebsiteCommand({
        Bucket: bucketName,
      }),
    );
    console.log(
      `Your bucket is set up to host a website with the following configuration:
\n${JSON.stringify(response, null, 2)}`,
    );
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchWebsiteConfiguration"
    ) {
      console.error(
        `Error from S3 while getting website configuration for ${bucketName}. The
 bucket isn't configured as a website.`,
```

```
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while getting website configuration for ${bucketName}.
 ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

- For API details, see GetBucketWebsite in *AWS SDK for JavaScript API Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command returns the details of the static website configurations of the given S3 bucket.

```
Get-S3BucketWebsite -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see GetBucketWebsite in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command returns the details of the static website configurations of the given S3 bucket.

```
Get-S3BucketWebsite -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see GetBucketWebsite in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetObject` with an AWS SDK or CLI

The following code examples show how to use `GetObject`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Learn the basics
- Get an object from a bucket if it has been modified
- Get an object from a Multi-Region Access Point
- Get started with encryption
- Get started with S3
- Make conditional requests
- Track uploads and downloads

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
/// <summary>
/// Shows how to download an object from an Amazon S3 bucket to the
/// local computer.
/// </summary>
/// <param name="client">An initialized Amazon S3 client object.</param>
/// <param name="bucketName">The name of the bucket where the object is
/// currently stored.</param>
/// <param name="objectName">The name of the object to download.</param>
/// <param name="filePath">The path, including filename, where the
/// downloaded object will be stored.</param>
/// <returns>A boolean value indicating the success or failure of the
/// download process.</returns>
public static async Task<bool> DownloadObjectFromBucketAsync(
    IAmazonS3 client,
    string bucketName,
    string objectName,
    string filePath)
```

```
        {
            // Create a GetObject request
            var request = new GetObjectRequest
            {
                BucketName = bucketName,
                Key = objectName,
            };

            // Issue request and remember to dispose of the response
            using GetObjectResponse response = await
 client.GetObjectAsync(request);

            try
            {
                // Save object to local file
                await response.WriteResponseStreamToFileAsync($"{filePath}\
\{objectName}", true, CancellationToken.None);
                return response.HttpStatusCode == System.Net.HttpStatusCode.OK;
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Error saving {objectName}: {ex.Message}");
                return false;
            }
        }
```

Get an object using a conditional request.

```
    /// <summary>
    /// Retrieves an object from Amazon S3 with a conditional request.
    /// </summary>
    /// <param name="objectKey">The key of the object to retrieve.</param>
    /// <param name="sourceBucket">The source bucket of the object.</param>
    /// <param name="conditionType">The type of condition: 'IfMatch',
 'IfNoneMatch', 'IfModifiedSince', 'IfUnmodifiedSince'.</param>
    /// <param name="conditionDateValue">The value to use for the condition for
 dates.</param>
    /// <param name="etagConditionalValue">The value to use for the condition for
 etags.</param>
    /// <returns>True if the conditional read is successful, False otherwise.</
returns>
```

```
    public async Task<bool> GetObjectConditional(string objectKey, string
 sourceBucket,
        S3ConditionType conditionType, DateTime? conditionDateValue = null,
 string? etagConditionalValue = null)
    {
        try
        {
            var getObjectRequest = new GetObjectRequest
            {
                BucketName = sourceBucket,
                Key = objectKey
            };

            switch (conditionType)
            {
                case S3ConditionType.IfMatch:
                    getObjectRequest.EtagToMatch = etagConditionalValue;
                    break;
                case S3ConditionType.IfNoneMatch:
                    getObjectRequest.EtagToNotMatch = etagConditionalValue;
                    break;
                case S3ConditionType.IfModifiedSince:
                    getObjectRequest.ModifiedSinceDateUtc =
 conditionDateValue.GetValueOrDefault();
                    break;
                case S3ConditionType.IfUnmodifiedSince:
                    getObjectRequest.UnmodifiedSinceDateUtc =
 conditionDateValue.GetValueOrDefault();
                    break;
                default:
                    throw new ArgumentOutOfRangeException(nameof(conditionType),
 conditionType, null);
            }

            var response = await _amazonS3.GetObjectAsync(getObjectRequest);
            var sampleBytes = new byte[20];
            await response.ResponseStream.ReadAsync(sampleBytes, 0, 20);
            _logger.LogInformation($"Conditional read
 successful. Here are the first 20 bytes of the object:
\n{System.Text.Encoding.UTF8.GetString(sampleBytes)}");
            return true;
        }
        catch (AmazonS3Exception e)
        {
```

```
            if (e.ErrorCode == "PreconditionFailed")
            {
                _logger.LogError("Conditional read failed: Precondition failed");
            }
            else if (e.ErrorCode == "NotModified")
            {
                _logger.LogError("Conditional read failed: Object not modified");
            }
            else
            {
                _logger.LogError($"Unexpected error: {e.ErrorCode}");
                throw;
            }
            return false;
        }
    }
```

- For API details, see GetObject in *AWS SDK for .NET API Reference*.

Bash

AWS CLI with Bash script

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
###############################################################################
# function errecho
#
# This function outputs everything sent to it to STDERR (standard error output).
###############################################################################
function errecho() {
  printf "%s\n" "$*" 1>&2
}

###############################################################################
# function download_object_from_bucket
#
```

```
# This function downloads an object in a bucket to a file.
#
# Parameters:
#       $1 - The name of the bucket to download the object from.
#       $2 - The path and file name to store the downloaded bucket.
#       $3 - The key (name) of the object in the bucket.
#
# Returns:
#       0 - If successful.
#       1 - If it fails.
##############################################################################
function download_object_from_bucket() {
  local bucket_name=$1
  local destination_file_name=$2
  local object_name=$3
  local response

  response=$(aws s3api get-object \
    --bucket "$bucket_name" \
    --key "$object_name" \
    "$destination_file_name")

  # shellcheck disable=SC2181
  if [[ ${?} -ne 0 ]]; then
    errecho "ERROR: AWS reports put-object operation failed.\n$response"
    return 1
  fi
}
```

- For API details, see GetObject in *AWS CLI Command Reference*.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::getObject(const Aws::String &objectKey,
                           const Aws::String &fromBucket,
                           const Aws::S3::S3ClientConfiguration &clientConfig) {
    Aws::S3::S3Client client(clientConfig);

    Aws::S3::Model::GetObjectRequest request;
    request.SetBucket(fromBucket);
    request.SetKey(objectKey);

    Aws::S3::Model::GetObjectOutcome outcome =
            client.GetObject(request);

    if (!outcome.IsSuccess()) {
        const Aws::S3::S3Error &err = outcome.GetError();
        std::cerr << "Error: getObject: " <<
                  err.GetExceptionName() << ": " << err.GetMessage() <<
 std::endl;
    } else {
        std::cout << "Successfully retrieved '" << objectKey << "' from '"
                  << fromBucket << "'." << std::endl;
    }

    return outcome.IsSuccess();
}
```

- For API details, see GetObject in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The following example uses the `get-object` command to download an object from Amazon S3:

```
aws s3api get-object --bucket text-content --key dir/
my_images.tar.bz2 my_images.tar.bz2
```

Note that the outfile parameter is specified without an option name such as "--outfile". The name of the output file must be the last parameter in the command.

The example below demonstrates the use of `--range` to download a specific byte range from an object. Note the byte ranges needs to be prefixed with "bytes=":

```
aws s3api get-object --bucket text-content --key dir/my_data --
range bytes=8888-9999 my_data_range
```

For more information about retrieving objects, see Getting Objects in the *Amazon S3 Developer Guide*.

- For API details, see GetObject in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "io"
 "log"
 "os"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// BucketBasics encapsulates the Amazon Simple Storage Service (Amazon S3)
 actions
```

```
// used in the examples.
// It contains S3Client, an Amazon S3 service client that is used to perform
 bucket
// and object actions.
type BucketBasics struct {
 S3Client *s3.Client
}



// DownloadFile gets an object from a bucket and stores it in a local file.
func (basics BucketBasics) DownloadFile(ctx context.Context, bucketName string,
 objectKey string, fileName string) error {
 result, err := basics.S3Client.GetObject(ctx, &s3.GetObjectInput{
  Bucket: aws.String(bucketName),
  Key:    aws.String(objectKey),
 })
 if err != nil {
  var noKey *types.NoSuchKey
  if errors.As(err, &noKey) {
   log.Printf("Can't get object %s from bucket %s. No such key exists.\n",
 objectKey, bucketName)
   err = noKey
  } else {
   log.Printf("Couldn't get object %v:%v. Here's why: %v\n", bucketName,
 objectKey, err)
  }
  return err
 }
 defer result.Body.Close()
 file, err := os.Create(fileName)
 if err != nil {
  log.Printf("Couldn't create file %v. Here's why: %v\n", fileName, err)
  return err
 }
 defer file.Close()
 body, err := io.ReadAll(result.Body)
 if err != nil {
  log.Printf("Couldn't read object body from %v. Here's why: %v\n", objectKey,
 err)
 }
 _, err = file.Write(body)
 return err
}
```

- For API details, see GetObject in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Read data as a byte array using an S3Client.

```
   /**
    * Asynchronously retrieves the bytes of an object from an Amazon S3 bucket
and writes them to a local file.
    *
    * @param bucketName the name of the S3 bucket containing the object
    * @param keyName    the key (or name) of the S3 object to retrieve
    * @param path       the local file path where the object's bytes will be
written
    * @return a {@link CompletableFuture} that completes when the object bytes
have been written to the local file
    */
   public CompletableFuture<Void> getObjectBytesAsync(String bucketName, String
keyName, String path) {
       GetObjectRequest objectRequest = GetObjectRequest.builder()
           .key(keyName)
           .bucket(bucketName)
           .build();

       CompletableFuture<ResponseBytes<GetObjectResponse>> response =
getAsyncClient().getObject(objectRequest, AsyncResponseTransformer.toBytes());
       return response.thenAccept(objectBytes -> {
           try {
               byte[] data = objectBytes.asByteArray();
               Path filePath = Paths.get(path);
```

```
                Files.write(filePath, data);
                logger.info("Successfully obtained bytes from an S3 object");
            } catch (IOException ex) {
                throw new RuntimeException("Failed to write data to file", ex);
            }
        }).whenComplete((resp, ex) -> {
            if (ex != null) {
                throw new RuntimeException("Failed to get object bytes from S3",
 ex);
            }
        });
    }
```

Use an S3TransferManager to download an object in an S3 bucket to a local file. View the complete file and test.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.core.sync.RequestBody;
import software.amazon.awssdk.transfer.s3.S3TransferManager;
import software.amazon.awssdk.transfer.s3.model.CompletedFileDownload;
import software.amazon.awssdk.transfer.s3.model.DownloadFileRequest;
import software.amazon.awssdk.transfer.s3.model.FileDownload;
import software.amazon.awssdk.transfer.s3.progress.LoggingTransferListener;

import java.io.IOException;
import java.net.URISyntaxException;
import java.net.URL;
import java.nio.file.Files;
import java.nio.file.Path;
import java.nio.file.Paths;
import java.util.UUID;

    public Long downloadFile(S3TransferManager transferManager, String
 bucketName,
                             String key, String downloadedFileWithPath) {
        DownloadFileRequest downloadFileRequest = DownloadFileRequest.builder()
                .getObjectRequest(b -> b.bucket(bucketName).key(key))
                .destination(Paths.get(downloadedFileWithPath))
                .build();
```

```
        FileDownload downloadFile =
 transferManager.downloadFile(downloadFileRequest);

        CompletedFileDownload downloadResult =
 downloadFile.completionFuture().join();
        logger.info("Content length [{}]",
 downloadResult.response().contentLength());
        return downloadResult.response().contentLength();
    }
```

Read tags that belong to an object using an S3Client.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.GetObjectTaggingRequest;
import software.amazon.awssdk.services.s3.model.GetObjectTaggingResponse;
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.services.s3.model.Tag;

import java.util.List;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */

public class GetObjectTags {
    public static void main(String[] args) {
        final String usage = """

            Usage:
                <bucketName> <keyName>\s

            Where:
                bucketName - The Amazon S3 bucket name.\s
                keyName - A key name that represents the object.\s
```

```
            """;

        if (args.length != 2) {
            System.out.println(usage);
            System.exit(1);
        }

        String bucketName = args[0];
        String keyName = args[1];
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        listTags(s3, bucketName, keyName);
        s3.close();
    }

    /**
     * Lists the tags associated with an Amazon S3 object.
     *
     * @param s3 the S3Client object used to interact with the Amazon S3 service
     * @param bucketName the name of the S3 bucket that contains the object
     * @param keyName the key (name) of the S3 object
     */
    public static void listTags(S3Client s3, String bucketName, String keyName) {
        try {
            GetObjectTaggingRequest getTaggingRequest = GetObjectTaggingRequest
                .builder()
                .key(keyName)
                .bucket(bucketName)
                .build();

            GetObjectTaggingResponse tags =
s3.getObjectTagging(getTaggingRequest);
            List<Tag> tagSet = tags.tagSet();
            for (Tag tag : tagSet) {
                System.out.println(tag.key());
                System.out.println(tag.value());
            }

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
```

```
        }
    }
}
```

Get a URL for an object using an S3Client.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.GetUrlRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.net.URL;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */

public class GetObjectUrl {
    public static void main(String[] args) {
        final String usage = """

            Usage:
                <bucketName> <keyName>\s

            Where:
                bucketName - The Amazon S3 bucket name.
                keyName - A key name that represents the object.\s
            """;

        if (args.length != 2) {
            System.out.println(usage);
            System.exit(1);
        }

        String bucketName = args[0];
```

```
        String keyName = args[1];
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        getURL(s3, bucketName, keyName);
        s3.close();
    }

    /**
     * Retrieves the URL for a specific object in an Amazon S3 bucket.
     *
     * @param s3 the S3Client object used to interact with the Amazon S3 service
     * @param bucketName the name of the S3 bucket where the object is stored
     * @param keyName the name of the object for which the URL should be
 retrieved
     * @throws S3Exception if there is an error retrieving the URL for the
 specified object
     */
    public static void getURL(S3Client s3, String bucketName, String keyName) {
        try {
            GetUrlRequest request = GetUrlRequest.builder()
                .bucket(bucketName)
                .key(keyName)
                .build();

            URL url = s3.utilities().getUrl(request);
            System.out.println("The URL for  " + keyName + " is " + url);

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }
}
```

Get an object by using the S3Presigner client object using an S3Client.

```
import java.io.IOException;
import java.io.InputStream;
```

```
import java.io.OutputStream;
import java.net.HttpURLConnection;
import java.time.Duration;

import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.model.GetObjectRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;
import
 software.amazon.awssdk.services.s3.presigner.model.GetObjectPresignRequest;
import
 software.amazon.awssdk.services.s3.presigner.model.PresignedGetObjectRequest;
import software.amazon.awssdk.services.s3.presigner.S3Presigner;
import software.amazon.awssdk.utils.IoUtils;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */
public class GetObjectPresignedUrl {
    public static void main(String[] args) {
        final String USAGE = """

            Usage:
                <bucketName> <keyName>\s

            Where:
                bucketName - The Amazon S3 bucket name.\s
                keyName - A key name that represents a text file.\s
            """;

        if (args.length != 2) {
            System.out.println(USAGE);
            System.exit(1);
        }

        String bucketName = args[0];
        String keyName = args[1];
        Region region = Region.US_EAST_1;
        S3Presigner presigner = S3Presigner.builder()
```

```
            .region(region)
            .build();

        getPresignedUrl(presigner, bucketName, keyName);
        presigner.close();
    }

    /**
     * Generates a pre-signed URL for an Amazon S3 object.
     *
     * @param presigner The {@link S3Presigner} instance to use for generating
the pre-signed URL.
     * @param bucketName The name of the Amazon S3 bucket where the object is
stored.
     * @param keyName The key name (file name) of the object in the Amazon S3
bucket.
     *
     * @throws S3Exception If there is an error interacting with the Amazon S3
service.
     * @throws IOException If there is an error opening the HTTP connection or
reading/writing the request/response.
     */
    public static void getPresignedUrl(S3Presigner presigner, String bucketName,
String keyName) {
        try {
            GetObjectRequest getObjectRequest = GetObjectRequest.builder()
                .bucket(bucketName)
                .key(keyName)
                .build();

            GetObjectPresignRequest getObjectPresignRequest =
GetObjectPresignRequest.builder()
                .signatureDuration(Duration.ofMinutes(60))
                .getObjectRequest(getObjectRequest)
                .build();

            PresignedGetObjectRequest presignedGetObjectRequest =
presigner.presignGetObject(getObjectPresignRequest);
            String theUrl = presignedGetObjectRequest.url().toString();
            System.out.println("Presigned URL: " + theUrl);
            HttpURLConnection connection = (HttpURLConnection)
presignedGetObjectRequest.url().openConnection();
            presignedGetObjectRequest.httpRequest().headers().forEach((header,
values) -> {
```

```
                values.forEach(value -> {
                    connection.addRequestProperty(header, value);
                });
            });

            // Send any request payload that the service needs (not needed when
            // isBrowserExecutable is true).
            if (presignedGetObjectRequest.signedPayload().isPresent()) {
                connection.setDoOutput(true);

                try (InputStream signedPayload =
 presignedGetObjectRequest.signedPayload().get().asInputStream();
                     OutputStream httpOutputStream =
 connection.getOutputStream()) {
                    IoUtils.copy(signedPayload, httpOutputStream);
                }
            }

            // Download the result of executing the request.
            try (InputStream content = connection.getInputStream()) {
                System.out.println("Service returned response: ");
                IoUtils.copy(content, System.out);
            }

        } catch (S3Exception | IOException e) {
            e.printStackTrace();
        }
    }
}
```

Get an object by using a ResponseTransformer object and S3Client.

```
import software.amazon.awssdk.core.ResponseBytes;
import software.amazon.awssdk.core.sync.ResponseTransformer;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.GetObjectRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.services.s3.model.GetObjectResponse;

import java.io.File;
```

```
import java.io.FileOutputStream;
import java.io.IOException;
import java.io.OutputStream;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */

public class GetObjectData {
    public static void main(String[] args) {
        final String usage = """

            Usage:
                <bucketName> <keyName> <path>

            Where:
                bucketName - The Amazon S3 bucket name.\s
                keyName - The key name.\s
                path - The path where the file is written to.\s
            """;

        if (args.length != 3) {
            System.out.println(usage);
            System.exit(1);
        }

        String bucketName = args[0];
        String keyName = args[1];
        String path = args[2];
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        getObjectBytes(s3, bucketName, keyName, path);
        s3.close();
    }
```

```
    /**
     * Retrieves the bytes of an object stored in an Amazon S3 bucket and saves
 them to a local file.
     *
     * @param s3 The S3Client instance used to interact with the Amazon S3
 service.
     * @param bucketName The name of the S3 bucket where the object is stored.
     * @param keyName The key (or name) of the S3 object.
     * @param path The local file path where the object's bytes will be saved.
     * @throws IOException If an I/O error occurs while writing the bytes to the
 local file.
     * @throws S3Exception If an error occurs while retrieving the object from
 the S3 bucket.
     */
    public static void getObjectBytes(S3Client s3, String bucketName, String
 keyName, String path) {
        try {
            GetObjectRequest objectRequest = GetObjectRequest
                .builder()
                .key(keyName)
                .bucket(bucketName)
                .build();

            ResponseBytes<GetObjectResponse> objectBytes =
 s3.getObject(objectRequest, ResponseTransformer.toBytes());
            byte[] data = objectBytes.asByteArray();

            // Write the data to a local file.
            File myFile = new File(path);
            OutputStream os = new FileOutputStream(myFile);
            os.write(data);
            System.out.println("Successfully obtained bytes from an S3 object");
            os.close();

        } catch (IOException ex) {
            ex.printStackTrace();
        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }
}
```

- For API details, see GetObject in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Download the object.

```
import {
  GetObjectCommand,
  NoSuchKey,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Get a single object from a specified S3 bucket.
 * @param {{ bucketName: string, key: string }}
 */
export const main = async ({ bucketName, key }) => {
  const client = new S3Client({});

  try {
    const response = await client.send(
      new GetObjectCommand({
        Bucket: bucketName,
        Key: key,
      }),
    );
    // The Body object also has 'transformToByteArray' and 'transformToWebStream'
 methods.
    const str = await response.Body.transformToString();
    console.log(str);
  } catch (caught) {
    if (caught instanceof NoSuchKey) {
      console.error(
```

```
        `Error from S3 while getting object "${key}" from "${bucketName}". No
 such key exists.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while getting object from ${bucketName}.  ${caught.name}:
 ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

Download the object on condition its ETag matches the one provided.

```
import {
  GetObjectCommand,
  NoSuchKey,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Get a single object from a specified S3 bucket.
 * @param {{ bucketName: string, key: string, eTag: string }}
 */
export const main = async ({ bucketName, key, eTag }) => {
  const client = new S3Client({});

  try {
    const response = await client.send(
      new GetObjectCommand({
        Bucket: bucketName,
        Key: key,
        IfMatch: eTag,
      }),
    );
    // The Body object also has 'transformToByteArray' and 'transformToWebStream'
 methods.
    const str = await response.Body.transformToString();
```

```
    console.log("Success. Here is text of the file:", str);
  } catch (caught) {
    if (caught instanceof NoSuchKey) {
      console.error(
        `Error from S3 while getting object "${key}" from "${bucketName}". No
 such key exists.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while getting object from ${bucketName}.  ${caught.name}:
 ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};

// Call function if run directly
import { parseArgs } from "node:util";
import {
  isMain,
  validateArgs,
} from "@aws-doc-sdk-examples/lib/utils/util-node.js";

const loadArgs = () => {
  const options = {
    bucketName: {
      type: "string",
      required: true,
    },
    key: {
      type: "string",
      required: true,
    },
    eTag: {
      type: "string",
      required: true,
    },
  };
  const results = parseArgs({ options });
  const { errors } = validateArgs({ options }, results);
  return { errors, results };
};
```

```
if (isMain(import.meta.url)) {
  const { errors, results } = loadArgs();
  if (!errors) {
    main(results.values);
  } else {
    console.error(errors.join("\n"));
  }
}
```

Download the object on condition its ETag does not match the one provided.

```
import {
  GetObjectCommand,
  NoSuchKey,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Get a single object from a specified S3 bucket.
 * @param {{ bucketName: string, key: string, eTag: string }}
 */
export const main = async ({ bucketName, key, eTag }) => {
  const client = new S3Client({});

  try {
    const response = await client.send(
      new GetObjectCommand({
        Bucket: bucketName,
        Key: key,
        IfNoneMatch: eTag,
      }),
    );
    // The Body object also has 'transformToByteArray' and 'transformToWebStream'
 methods.
    const str = await response.Body.transformToString();
    console.log("Success. Here is text of the file:", str);
  } catch (caught) {
    if (caught instanceof NoSuchKey) {
      console.error(
```

```
        `Error from S3 while getting object "${key}" from "${bucketName}". No
 such key exists.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while getting object from ${bucketName}. ${caught.name}:
 ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};

// Call function if run directly
import { parseArgs } from "node:util";
import {
  isMain,
  validateArgs,
} from "@aws-doc-sdk-examples/lib/utils/util-node.js";

const loadArgs = () => {
  const options = {
    bucketName: {
      type: "string",
      required: true,
    },
    key: {
      type: "string",
      required: true,
    },
    eTag: {
      type: "string",
      required: true,
    },
  };
  const results = parseArgs({ options });
  const { errors } = validateArgs({ options }, results);
  return { errors, results };
};

if (isMain(import.meta.url)) {
  const { errors, results } = loadArgs();
  if (!errors) {
```

```
    main(results.values);
  } else {
    console.error(errors.join("\n"));
  }
}
```

Download the object using on condition it has been created or modified in a given timeframe.

```
import {
  GetObjectCommand,
  NoSuchKey,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Get a single object from a specified S3 bucket.
 * @param {{ bucketName: string, key: string }}
 */
export const main = async ({ bucketName, key }) => {
  const client = new S3Client({});
  const date = new Date();
  date.setDate(date.getDate() - 1);
  try {
    const response = await client.send(
      new GetObjectCommand({
        Bucket: bucketName,
        Key: key,
        IfModifiedSince: date,
      }),
    );
    // The Body object also has 'transformToByteArray' and 'transformToWebStream'
 methods.
    const str = await response.Body.transformToString();
    console.log("Success. Here is text of the file:", str);
  } catch (caught) {
    if (caught instanceof NoSuchKey) {
      console.error(
        `Error from S3 while getting object "${key}" from "${bucketName}". No
 such key exists.`,
```

```
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while getting object from ${bucketName}.  ${caught.name}:
 ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};

// Call function if run directly
import { parseArgs } from "node:util";
import {
  isMain,
  validateArgs,
} from "@aws-doc-sdk-examples/lib/utils/util-node.js";

const loadArgs = () => {
  const options = {
    bucketName: {
      type: "string",
      required: true,
    },
    key: {
      type: "string",
      required: true,
    },
  };
  const results = parseArgs({ options });
  const { errors } = validateArgs({ options }, results);
  return { errors, results };
};

if (isMain(import.meta.url)) {
  const { errors, results } = loadArgs();
  if (!errors) {
    main(results.values);
  } else {
    console.error(errors.join("\n"));
  }
}
```

Download the object using on condition it has not been created or modified in a given timeframe.

```
import {
  GetObjectCommand,
  NoSuchKey,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Get a single object from a specified S3 bucket.
 * @param {{ bucketName: string, key: string }}
 */
export const main = async ({ bucketName, key }) => {
  const client = new S3Client({});
  const date = new Date();
  date.setDate(date.getDate() - 1);
  try {
    const response = await client.send(
      new GetObjectCommand({
        Bucket: bucketName,
        Key: key,
        IfUnmodifiedSince: date,
      }),
    );
    // The Body object also has 'transformToByteArray' and 'transformToWebStream'
 methods.
    const str = await response.Body.transformToString();
    console.log("Success. Here is text of the file:", str);
  } catch (caught) {
    if (caught instanceof NoSuchKey) {
      console.error(
        `Error from S3 while getting object "${key}" from "${bucketName}". No
 such key exists.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while getting object from ${bucketName}.  ${caught.name}:
 ${caught.message}`,
```

```
      );
    } else {
      throw caught;
    }
  }
};

// Call function if run directly
import { parseArgs } from "node:util";
import {
  isMain,
  validateArgs,
} from "@aws-doc-sdk-examples/lib/utils/util-node.js";

const loadArgs = () => {
  const options = {
    bucketName: {
      type: "string",
      required: true,
    },
    key: {
      type: "string",
      required: true,
    },
  };
  const results = parseArgs({ options });
  const { errors } = validateArgs({ options }, results);
  return { errors, results };
};

if (isMain(import.meta.url)) {
  const { errors, results } = loadArgs();
  if (!errors) {
    main(results.values);
  } else {
    console.error(errors.join("\n"));
  }
}
```

- For more information, see AWS SDK for JavaScript Developer Guide.
- For API details, see GetObject in *AWS SDK for JavaScript API Reference*.

Kotlin

SDK for Kotlin

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
suspend fun getObjectBytes(
    bucketName: String,
    keyName: String,
    path: String,
) {
    val request =
        GetObjectRequest {
            key = keyName
            bucket = bucketName
        }

    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->
        s3.getObject(request) { resp ->
            val myFile = File(path)
            resp.body?.writeToFile(myFile)
            println("Successfully read $keyName from $bucketName")
        }
    }
}
```

- For API details, see GetObject in *AWS SDK for Kotlin API reference*.

PHP

SDK for PHP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Get an object.

```
        $s3client = new Aws\S3\S3Client(['region' => 'us-west-2']);

        try {
            $file = $this->s3client->getObject([
                'Bucket' => $this->bucketName,
                'Key' => $fileName,
            ]);
            $body = $file->get('Body');
            $body->rewind();
            echo "Downloaded the file and it begins with: {$body->read(26)}.\n";
        } catch (Exception $exception) {
            echo "Failed to download $fileName from $this->bucketName with error:
" . $exception->getMessage();
            exit("Please fix error with file downloading before continuing.");
        }
```

- For API details, see GetObject in *AWS SDK for PHP API Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command retrieves item "sample.txt" from bucket "test-files" and saves it to a file named "local-sample.txt" in the current location. The file "local-sample.txt" does not have to exist before this command is called.

```
Read-S3Object -BucketName amzn-s3-demo-bucket -Key sample.txt -File local-
sample.txt
```

Example 2: This command retrieves virtual directory "DIR" from bucket "test-files" and saves it to a folder named "Local-DIR" in the current location. The folder "Local-DIR" does not have to exist before this command is called.

```
Read-S3Object -BucketName amzn-s3-demo-bucket -KeyPrefix DIR -Folder Local-DIR
```

Example 3: Downloads all objects with keys ending in '.json' from buckets with 'config' in the bucket name to files in the specified folder. The object keys are used to set the filenames.

```
Get-S3Bucket | ? { $_.BucketName -like '*config*' } | Get-S3Object | ? { $_.Key -
like '*.json' } | Read-S3Object -Folder C:\ConfigObjects
```

- For API details, see GetObject in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command retrieves item "sample.txt" from bucket "test-files" and saves it to a file named "local-sample.txt" in the current location. The file "local-sample.txt" does not have to exist before this command is called.

```
Read-S3Object -BucketName amzn-s3-demo-bucket -Key sample.txt -File local-
sample.txt
```

Example 2: This command retrieves virtual directory "DIR" from bucket "test-files" and saves it to a folder named "Local-DIR" in the current location. The folder "Local-DIR" does not have to exist before this command is called.

```
Read-S3Object -BucketName amzn-s3-demo-bucket -KeyPrefix DIR -Folder Local-DIR
```

Example 3: Downloads all objects with keys ending in '.json' from buckets with 'config' in the bucket name to files in the specified folder. The object keys are used to set the filenames.

```
Get-S3Bucket | ? { $_.BucketName -like '*config*' } | Get-S3Object | ? { $_.Key -
like '*.json' } | Read-S3Object -Folder C:\ConfigObjects
```

- For API details, see GetObject in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class ObjectWrapper:
    """Encapsulates S3 object actions."""

    def __init__(self, s3_object):
        """
        :param s3_object: A Boto3 Object resource. This is a high-level resource
 in Boto3
                          that wraps object actions in a class-like structure.
        """
        self.object = s3_object
        self.key = self.object.key


    def get(self):
        """
        Gets the object.

        :return: The object data in bytes.
        """
        try:
            body = self.object.get()["Body"].read()
            logger.info(
                "Got object '%s' from bucket '%s'.",
                self.object.key,
                self.object.bucket_name,
            )
        except ClientError:
            logger.exception(
                "Couldn't get object '%s' from bucket '%s'.",
                self.object.key,
                self.object.bucket_name,
            )
```

```
            raise
        else:
            return body



```

Get an object using a conditional request.

```
class S3ConditionalRequests:
    """Encapsulates S3 conditional request operations."""

    def __init__(self, s3_client):
        self.s3 = s3_client

    @classmethod
    def from_client(cls):
        """
        Instantiates this class from a Boto3 client.
        """
        s3_client = boto3.client("s3")
        return cls(s3_client)



    def get_object_conditional(
        self,
        object_key: str,
        source_bucket: str,
        condition_type: str,
        condition_value: str,
    ):
        """
        Retrieves an object from Amazon S3 with a conditional request.

        :param object_key: The key of the object to retrieve.
        :param source_bucket: The source bucket of the object.
        :param condition_type: The type of condition: 'IfMatch', 'IfNoneMatch',
 'IfModifiedSince', 'IfUnmodifiedSince'.
        :param condition_value: The value to use for the condition.
        """
        try:
            response = self.s3.get_object(
                Bucket=source_bucket,
```

```
                Key=object_key,
                **{condition_type: condition_value},
            )
            sample_bytes = response["Body"].read(20)
            print(
                f"\tConditional read successful. Here are the first 20 bytes of
 the object:\n"
            )
            print(f"\t{sample_bytes}")
        except ClientError as e:
            error_code = e.response["Error"]["Code"]
            if error_code == "PreconditionFailed":
                print("\tConditional read failed: Precondition failed")
            elif error_code == "304":  # Not modified error code.
                print("\tConditional read failed: Object not modified")
            else:
                logger.error(f"Unexpected error: {error_code}")
                raise
```

- For API details, see GetObject in *AWS SDK for Python (Boto3) API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Get an object.

```
require 'aws-sdk-s3'

# Wraps Amazon S3 object actions.
class ObjectGetWrapper
  attr_reader :object

  # @param object [Aws::S3::Object] An existing Amazon S3 object.
```

```
  def initialize(object)
    @object = object
  end

  # Gets the object directly to a file.
  #
  # @param target_path [String] The path to the file where the object is
 downloaded.
  # @return [Aws::S3::Types::GetObjectOutput, nil] The retrieved object data if
 successful; otherwise nil.
  def get_object(target_path)
    @object.get(response_target: target_path)
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't get object #{@object.key}. Here's why: #{e.message}"
  end
end

# Example usage:
def run_demo
  bucket_name = "amzn-s3-demo-bucket"
  object_key = "my-object.txt"
  target_path = "my-object-as-file.txt"

  wrapper = ObjectGetWrapper.new(Aws::S3::Object.new(bucket_name, object_key))
  obj_data = wrapper.get_object(target_path)
  return unless obj_data

  puts "Object #{object_key} (#{obj_data.content_length} bytes} downloaded to
 #{target_path}."
end

run_demo if $PROGRAM_NAME == __FILE__
```

Get an object and report its server-side encryption state.

```
require 'aws-sdk-s3'

# Wraps Amazon S3 object actions.
class ObjectGetEncryptionWrapper
  attr_reader :object

  # @param object [Aws::S3::Object] An existing Amazon S3 object.
```

```
  def initialize(object)
    @object = object
  end

  # Gets the object into memory.
  #
  # @return [Aws::S3::Types::GetObjectOutput, nil] The retrieved object data if
 successful; otherwise nil.
  def object
    @object.get
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't get object #{@object.key}. Here's why: #{e.message}"
  end
end

# Example usage:
def run_demo
  bucket_name = "amzn-s3-demo-bucket"
  object_key = "my-object.txt"

  wrapper = ObjectGetEncryptionWrapper.new(Aws::S3::Object.new(bucket_name,
 object_key))
  obj_data = wrapper.get_object
  return unless obj_data

  encryption = obj_data.server_side_encryption.nil? ? 'no' :
 obj_data.server_side_encryption
  puts "Object #{object_key} uses #{encryption} encryption."
end

run_demo if $PROGRAM_NAME == __FILE__
```

- For API details, see GetObject in *AWS SDK for Ruby API Reference*.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
async fn get_object(client: Client, opt: Opt) -> Result<usize, S3ExampleError> {
    trace!("bucket:      {}", opt.bucket);
    trace!("object:      {}", opt.object);
    trace!("destination: {}", opt.destination.display());

    let mut file = File::create(opt.destination.clone()).map_err(|err| {
        S3ExampleError::new(format!(
            "Failed to initialize file for saving S3 download: {err:?}"
        ))
    })?;

    let mut object = client
        .get_object()
        .bucket(opt.bucket)
        .key(opt.object)
        .send()
        .await?;

    let mut byte_count = 0_usize;
    while let Some(bytes) = object.body.try_next().await.map_err(|err| {
        S3ExampleError::new(format!("Failed to read from S3 download stream:
 {err:?}"))
    })? {
        let bytes_len = bytes.len();
        file.write_all(&bytes).map_err(|err| {
            S3ExampleError::new(format!(
                "Failed to write from S3 download stream to local file: {err:?}"
            ))
        })?;
        trace!("Intermediate write of {bytes_len}");
        byte_count += bytes_len;
    }
```

```
    Ok(byte_count)
}
```

- For API details, see GetObject in *AWS SDK for Rust API reference*.

SAP ABAP

SDK for SAP ABAP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
   TRY.
       oo_result = lo_s3->getobject(           " oo_result is returned for
testing purposes. "
                 iv_bucket = iv_bucket_name
                 iv_key = iv_object_key ).
       DATA(lv_object_data) = oo_result->get_body( ).
       MESSAGE 'Object retrieved from S3 bucket.' TYPE 'I'.
     CATCH /aws1/cx_s3_nosuchbucket.
       MESSAGE 'Bucket does not exist.' TYPE 'E'.
     CATCH /aws1/cx_s3_nosuchkey.
       MESSAGE 'Object key does not exist.' TYPE 'E'.
   ENDTRY.
```

- For API details, see GetObject in *AWS SDK for SAP ABAP API reference*.

Swift

SDK for Swift

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import AWSS3

    public func downloadFile(bucket: String, key: String, to: String) async
 throws {
        let fileUrl = URL(fileURLWithPath: to).appendingPathComponent(key)

        let input = GetObjectInput(
            bucket: bucket,
            key: key
        )
        do {
            let output = try await client.getObject(input: input)

            guard let body = output.body else {
                throw HandlerError.getObjectBody("GetObjectInput missing body.")
            }

            guard let data = try await body.readData() else {
                throw HandlerError.readGetObjectBody("GetObjectInput unable to
 read data.")
            }

            try data.write(to: fileUrl)
        }
        catch {
            print("ERROR: ", dump(error, name: "Downloading a file."))
            throw error
        }
    }
```

```
import AWSS3
```

```
    public func readFile(bucket: String, key: String) async throws -> Data {
        let input = GetObjectInput(
            bucket: bucket,
            key: key
        )
        do {
            let output = try await client.getObject(input: input)

            guard let body = output.body else {
                throw HandlerError.getObjectBody("GetObjectInput missing body.")
            }

            guard let data = try await body.readData() else {
                throw HandlerError.readGetObjectBody("GetObjectInput unable to
read data.")
            }

            return data
        }
        catch {
            print("ERROR: ", dump(error, name: "Reading a file."))
            throw error
        }
  }
```

- For API details, see GetObject in *AWS SDK for Swift API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetObjectAcl` with an AWS SDK or CLI

The following code examples show how to use `GetObjectAcl`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Manage access control lists (ACLs)

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::getObjectAcl(const Aws::String &bucketName,
                              const Aws::String &objectKey,
                              const Aws::S3::S3ClientConfiguration &clientConfig)
 {
    Aws::S3::S3Client s3Client(clientConfig);

    Aws::S3::Model::GetObjectAclRequest request;
    request.SetBucket(bucketName);
    request.SetKey(objectKey);

    Aws::S3::Model::GetObjectAclOutcome outcome =
            s3Client.GetObjectAcl(request);

    if (!outcome.IsSuccess()) {
        const Aws::S3::S3Error &err = outcome.GetError();
        std::cerr << "Error: getObjectAcl: "
                  << err.GetExceptionName() << ": " << err.GetMessage() <<
 std::endl;
    } else {
        Aws::Vector<Aws::S3::Model::Grant> grants =
                outcome.GetResult().GetGrants();

        for (auto it = grants.begin(); it != grants.end(); it++) {
            std::cout << "For object " << objectKey << ": "
                      << std::endl << std::endl;

            Aws::S3::Model::Grant grant = *it;
            Aws::S3::Model::Grantee grantee = grant.GetGrantee();

            if (grantee.TypeHasBeenSet()) {
                std::cout << "Type:          "
```

```
                          << getGranteeTypeString(grantee.GetType()) <<
 std::endl;
            }

            if (grantee.DisplayNameHasBeenSet()) {
                std::cout << "Display name:  "
                          << grantee.GetDisplayName() << std::endl;
            }

            if (grantee.EmailAddressHasBeenSet()) {
                std::cout << "Email address: "
                          << grantee.GetEmailAddress() << std::endl;
            }

            if (grantee.IDHasBeenSet()) {
                std::cout << "ID:            "
                          << grantee.GetID() << std::endl;
            }

            if (grantee.URIHasBeenSet()) {
                std::cout << "URI:           "
                          << grantee.GetURI() << std::endl;
            }

            std::cout << "Permission:    " <<
                      getPermissionString(grant.GetPermission()) <<
                      std::endl << std::endl;
        }
    }

    return outcome.IsSuccess();
}

//! Routine which converts a built-in type enumeration to a human-readable
 string.
/*!
 \param type: Type enumeration.
 \return String: Human-readable string
*/
Aws::String getGranteeTypeString(const Aws::S3::Model::Type &type) {
    switch (type) {
        case Aws::S3::Model::Type::AmazonCustomerByEmail:
            return "Email address of an AWS account";
        case Aws::S3::Model::Type::CanonicalUser:
```

```
            return "Canonical user ID of an AWS account";
        case Aws::S3::Model::Type::Group:
            return "Predefined Amazon S3 group";
        case Aws::S3::Model::Type::NOT_SET:
            return "Not set";
        default:
            return "Type unknown";
    }
}

//! Routine which converts a built-in type enumeration to a human-readable
 string.
/*!
 \param permission: Permission enumeration.
 \return String: Human-readable string
*/
Aws::String getPermissionString(const Aws::S3::Model::Permission &permission) {
    switch (permission) {
        case Aws::S3::Model::Permission::FULL_CONTROL:
            return "Can read this object's data and its metadata, "
                   "and read/write this object's permissions";
        case Aws::S3::Model::Permission::NOT_SET:
            return "Permission not set";
        case Aws::S3::Model::Permission::READ:
            return "Can read this object's data and its metadata";
        case Aws::S3::Model::Permission::READ_ACP:
            return "Can read this object's permissions";
            // case Aws::S3::Model::Permission::WRITE // Not applicable.
        case Aws::S3::Model::Permission::WRITE_ACP:
            return "Can write this object's permissions";
        default:
            return "Permission unknown";
    }
}
```

- For API details, see GetObjectAcl in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The following command retrieves the access control list for an object in a bucket named `amzn-s3-demo-bucket`:

```
aws s3api get-object-acl --bucket amzn-s3-demo-bucket --key index.html
```

Output:

```
{
    "Owner": {
        "DisplayName": "my-username",
        "ID": "7009a8971cd538e11f6b6606438875e7c86c5b672f46db45460ddcd087d36c32"
    },
    "Grants": [
        {
            "Grantee": {
                "DisplayName": "my-username",
                "ID":
 "7009a8971cd538e11f6b6606438875e7c86c5b672f46db45460ddcd087d36c32"
            },
            "Permission": "FULL_CONTROL"
        },
        {
            "Grantee": {
                "URI": "http://acs.amazonaws.com/groups/global/AllUsers"
            },
            "Permission": "READ"
        }
    ]
}
```

- For API details, see GetObjectAcl in *AWS CLI Command Reference*.

Kotlin

SDK for Kotlin

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
suspend fun getBucketACL(
    objectKey: String,
    bucketName: String,
) {
    val request =
        GetObjectAclRequest {
            bucket = bucketName
            key = objectKey
        }

    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->
        val response = s3.getObjectAcl(request)
        response.grants?.forEach { grant ->
            println("Grant permission is ${grant.permission}")
        }
    }
}
```

- For API details, see GetObjectAcl in *AWS SDK for Kotlin API reference*.

PowerShell

Tools for PowerShell V5

Example 1: The command gets the details of the object owner of the S3 object.

```
(Get-S3ObjectACL -BucketName 'amzn-s3-demo-bucket' -key 'initialize.ps1' -Select
 *).Owner
```

Output:

```
DisplayName Id
----------- --
testusername
 9988776a6554433d22f1100112e334acb45566778899009e9887bd7f66c5f544
```

- For API details, see GetObjectAcl in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class ObjectWrapper:
    """Encapsulates S3 object actions."""

    def __init__(self, s3_object):
        """
        :param s3_object: A Boto3 Object resource. This is a high-level resource
 in Boto3
                          that wraps object actions in a class-like structure.
        """
        self.object = s3_object
        self.key = self.object.key


    def get_acl(self):
        """
        Gets the ACL of the object.

        :return: The ACL of the object.
        """
        try:
            acl = self.object.Acl()
            logger.info(
                "Got ACL for object %s owned by %s.",
                self.object.key,
```

```
                acl.owner["DisplayName"],
            )
        except ClientError:
            logger.exception("Couldn't get ACL for object %s.", self.object.key)
            raise
        else:
            return acl
```

- For API details, see GetObjectAcl in *AWS SDK for Python (Boto3) API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetObjectAttributes` with an AWS SDK or CLI

The following code examples show how to use `GetObjectAttributes`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Work with Amazon S3 object integrity

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
// ! Routine which retrieves the hash value of an object stored in an S3 bucket.
/*!
   \param bucket: The name of the S3 bucket where the object is stored.
   \param key: The unique identifier (key) of the object within the S3 bucket.
```

```
   \param hashMethod: The hashing algorithm used to calculate the hash value of
 the object.
   \param[out] hashData: The retrieved hash.
   \param[out] partHashes: The part hashes if available.
   \param client: The S3 client instance used to retrieve the object.
   \return bool: Function succeeded.
*/
bool AwsDoc::S3::retrieveObjectHash(const Aws::String &bucket, const Aws::String
 &key,
                                    AwsDoc::S3::HASH_METHOD hashMethod,
                                    Aws::String &hashData,
                                    std::vector<Aws::String> *partHashes,
                                    const Aws::S3::S3Client &client) {
    Aws::S3::Model::GetObjectAttributesRequest request;
    request.SetBucket(bucket);
    request.SetKey(key);

    if (hashMethod == MD5) {
        Aws::Vector<Aws::S3::Model::ObjectAttributes> attributes;
        attributes.push_back(Aws::S3::Model::ObjectAttributes::ETag);
        request.SetObjectAttributes(attributes);

        Aws::S3::Model::GetObjectAttributesOutcome outcome =
 client.GetObjectAttributes(
                request);
        if (outcome.IsSuccess()) {
            const Aws::S3::Model::GetObjectAttributesResult &result =
 outcome.GetResult();
            hashData = result.GetETag();
        } else {
            std::cerr << "Error retrieving object etag attributes." <<
                      outcome.GetError().GetMessage() << std::endl;
            return false;
        }
    } else { // hashMethod != MD5
        Aws::Vector<Aws::S3::Model::ObjectAttributes> attributes;
        attributes.push_back(Aws::S3::Model::ObjectAttributes::Checksum);
        request.SetObjectAttributes(attributes);

        Aws::S3::Model::GetObjectAttributesOutcome outcome =
 client.GetObjectAttributes(
                request);
        if (outcome.IsSuccess()) {
```

```
            const Aws::S3::Model::GetObjectAttributesResult &result =
 outcome.GetResult();
            switch (hashMethod) {
                case AwsDoc::S3::DEFAULT: // NOLINT(*-branch-clone)
                    break;  // Default is not supported.
#pragma clang diagnostic push
#pragma ide diagnostic ignored "UnreachableCode"
                case AwsDoc::S3::MD5:
                    break;  // MD5 is not supported.
#pragma clang diagnostic pop
                case AwsDoc::S3::SHA1:
                    hashData = result.GetChecksum().GetChecksumSHA1();
                    break;
                case AwsDoc::S3::SHA256:
                    hashData = result.GetChecksum().GetChecksumSHA256();
                    break;
                case AwsDoc::S3::CRC32:
                    hashData = result.GetChecksum().GetChecksumCRC32();
                    break;
                case AwsDoc::S3::CRC32C:
                    hashData = result.GetChecksum().GetChecksumCRC32C();
                    break;
                default:
                    std::cerr << "Unknown hash method." << std::endl;
                    return false;
            }
        } else {
            std::cerr << "Error retrieving object checksum attributes." <<
                      outcome.GetError().GetMessage() << std::endl;
            return false;
        }

        if (nullptr != partHashes) {
            attributes.clear();
            attributes.push_back(Aws::S3::Model::ObjectAttributes::ObjectParts);
            request.SetObjectAttributes(attributes);
            outcome = client.GetObjectAttributes(request);
            if (outcome.IsSuccess()) {
                const Aws::S3::Model::GetObjectAttributesResult &result =
 outcome.GetResult();
                const Aws::Vector<Aws::S3::Model::ObjectPart> parts =
 result.GetObjectParts().GetParts();
                for (const Aws::S3::Model::ObjectPart &part: parts) {
                    switch (hashMethod) {
```

```
                        case AwsDoc::S3::DEFAULT: // Default is not supported.
 NOLINT(*-branch-clone)
                            break;
                        case AwsDoc::S3::MD5: // MD5 is not supported.
                            break;
                        case AwsDoc::S3::SHA1:
                            partHashes->push_back(part.GetChecksumSHA1());
                            break;
                        case AwsDoc::S3::SHA256:
                            partHashes->push_back(part.GetChecksumSHA256());
                            break;
                        case AwsDoc::S3::CRC32:
                            partHashes->push_back(part.GetChecksumCRC32());
                            break;
                        case AwsDoc::S3::CRC32C:
                            partHashes->push_back(part.GetChecksumCRC32C());
                            break;
                        default:
                            std::cerr << "Unknown hash method." << std::endl;
                            return false;
                    }
                }
            } else {
                std::cerr << "Error retrieving object attributes for object
 parts." <<
                          outcome.GetError().GetMessage() << std::endl;
                return false;
            }
        }
    }

    return true;
}
```

- For API details, see GetObjectAttributes in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

To retrieves metadata from an object without returning the object itself

The following `get-object-attributes` example retrieves metadata from the object `doc1.rtf`.

```
aws s3api get-object-attributes \
    --bucket amzn-s3-demo-bucket \
    --key doc1.rtf \
    --object-attributes "StorageClass" "ETag" "ObjectSize"
```

Output:

```
{
    "LastModified": "2022-03-15T19:37:31+00:00",
    "VersionId": "IuCPjXTDzHNfldAuitVBIKJpF2p1fg4P",
    "ETag": "b662d79adeb7c8d787ea7eafb9ef6207",
    "StorageClass": "STANDARD",
    "ObjectSize": 405
}
```

For more information, see GetObjectAttributes in the Amazon S3 API Reference.

- For API details, see GetObjectAttributes in *AWS CLI Command Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetObjectLegalHold` with an AWS SDK or CLI

The following code examples show how to use `GetObjectLegalHold`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Lock Amazon S3 objects

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    /// <summary>
    /// Get the legal hold details for an S3 object.
    /// </summary>
    /// <param name="bucketName">The bucket of the object.</param>
    /// <param name="objectKey">The object key.</param>
    /// <returns>The object legal hold details.</returns>
    public async Task<ObjectLockLegalHold> GetObjectLegalHold(string bucketName,
        string objectKey)
    {
        try
        {
            var request = new GetObjectLegalHoldRequest()
            {
                BucketName = bucketName,
                Key = objectKey
            };

            var response = await _amazonS3.GetObjectLegalHoldAsync(request);
            Console.WriteLine($"\tObject legal hold for {objectKey} in
{bucketName}: " +
                              $"\n\tStatus: {response.LegalHold.Status}");
            return response.LegalHold;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"\tUnable to fetch legal hold: '{ex.Message}'");
            return new ObjectLockLegalHold();
        }
    }
```

- For API details, see GetObjectLegalHold in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

Retrieves the Legal Hold status of an object

The following `get-object-legal-hold` example retrieves the Legal Hold status for the specified object.

```
aws s3api get-object-legal-hold \
    --bucket amzn-s3-demo-bucket-with-object-lock \
    --key doc1.rtf
```

Output:

```
{
    "LegalHold": {
        "Status": "ON"
    }
}
```

- For API details, see GetObjectLegalHold in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "log"
 "time"
```

```
 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// S3Actions wraps S3 service actions.
type S3Actions struct {
 S3Client  *s3.Client
 S3Manager *manager.Uploader
}



// GetObjectLegalHold retrieves the legal hold status for an S3 object.
func (actor S3Actions) GetObjectLegalHold(ctx context.Context, bucket string, key
 string, versionId string) (*types.ObjectLockLegalHoldStatus, error) {
 var status *types.ObjectLockLegalHoldStatus
 input := &s3.GetObjectLegalHoldInput{
  Bucket:    aws.String(bucket),
  Key:       aws.String(key),
  VersionId: aws.String(versionId),
 }

 output, err := actor.S3Client.GetObjectLegalHold(ctx, input)
 if err != nil {
  var noSuchKeyErr *types.NoSuchKey
  var apiErr *smithy.GenericAPIError
  if errors.As(err, &noSuchKeyErr) {
   log.Printf("Object %s does not exist in bucket %s.\n", key, bucket)
   err = noSuchKeyErr
  } else if errors.As(err, &apiErr) {
   switch apiErr.ErrorCode() {
   case "NoSuchObjectLockConfiguration":
    log.Printf("Object %s does not have an object lock configuration.\n", key)
    err = nil
   case "InvalidRequest":
    log.Printf("Bucket %s does not have an object lock configuration.\n", bucket)
    err = nil
   }
  }
 } else {
```

```
  status = &output.LegalHold.Status
 }

 return status, err
}
```

- For API details, see GetObjectLegalHold in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    // Get the legal hold details for an S3 object.
    public ObjectLockLegalHold getObjectLegalHold(String bucketName, String
objectKey) {
        try {
            GetObjectLegalHoldRequest legalHoldRequest =
GetObjectLegalHoldRequest.builder()
                .bucket(bucketName)
                .key(objectKey)
                .build();

            GetObjectLegalHoldResponse response =
getClient().getObjectLegalHold(legalHoldRequest);
            System.out.println("Object legal hold for " + objectKey + " in " +
bucketName +
                ":\n\tStatus: " + response.legalHold().status());
            return response.legalHold();

        } catch (S3Exception ex) {
            System.out.println("\tUnable to fetch legal hold: '" +
ex.getMessage() + "'");
        }
```

```
        return null;
    }
```

- For API details, see GetObjectLegalHold in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import {
  GetObjectLegalHoldCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Get an object's current legal hold status.
 * @param {{ bucketName: string, key: string }}
 */
export const main = async ({ bucketName, key }) => {
  const client = new S3Client({});

  try {
    const response = await client.send(
      new GetObjectLegalHoldCommand({
        Bucket: bucketName,
        Key: key,
        // Optionally, you can provide additional parameters
        // ExpectedBucketOwner: "<account ID that is expected to own the
 bucket>",
        // VersionId: "<the specific version id of the object to check>",
      }),
    );
    console.log(`Legal Hold Status: ${response.LegalHold.Status}`);
```

```
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while getting legal hold status for ${key} in
 ${bucketName}. The bucket doesn't exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while getting legal hold status for ${key} in
 ${bucketName} from ${bucketName}.  ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};

// Call function if run directly
import { parseArgs } from "node:util";
import {
  isMain,
  validateArgs,
} from "@aws-doc-sdk-examples/lib/utils/util-node.js";

const loadArgs = () => {
  const options = {
    bucketName: {
      type: "string",
      required: true,
    },
    key: {
      type: "string",
      required: true,
    },
  };
  const results = parseArgs({ options });
  const { errors } = validateArgs({ options }, results);
  return { errors, results };
};

if (isMain(import.meta.url)) {
```

```
  const { errors, results } = loadArgs();
  if (!errors) {
    main(results.values);
  } else {
    console.error(errors.join("\n"));
  }
}
```

- For API details, see GetObjectLegalHold in *AWS SDK for JavaScript API Reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Put an object legal hold.

```
def get_legal_hold(s3_client, bucket: str, key: str) -> None:
    """
    Get the legal hold status of a specific file in a bucket.

    Args:
        s3_client: Boto3 S3 client.
        bucket: The name of the bucket containing the file.
        key: The key of the file to get the legal hold status of.
    """
    print()
    logger.info("Getting legal hold status of file [%s] in bucket [%s]", key,
 bucket)
    try:
        response = s3_client.get_object_legal_hold(Bucket=bucket, Key=key)
        legal_hold_status = response["LegalHold"]["Status"]
        logger.debug(
            "Legal hold status of file [%s] in bucket [%s] is [%s]",
            key,
            bucket,
```

```
            legal_hold_status,
        )
    except Exception as e:
        logger.error(
            "Failed to get legal hold status of file [%s] in bucket [%s]: %s",
            key,
            bucket,
            e,
        )
```

- For API details, see GetObjectLegalHold in *AWS SDK for Python (Boto3) API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetObjectLockConfiguration` with an AWS SDK or CLI

The following code examples show how to use `GetObjectLockConfiguration`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Lock Amazon S3 objects

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    /// <summary>
    /// Get the object lock configuration details for an S3 bucket.
```

```
    /// </summary>
    /// <param name="bucketName">The bucket to get details.</param>
    /// <returns>The bucket's object lock configuration details.</returns>
    public async Task<ObjectLockConfiguration>
GetBucketObjectLockConfiguration(string bucketName)
    {
        try
        {
            var request = new GetObjectLockConfigurationRequest()
            {
                BucketName = bucketName
            };

            var response = await
_amazonS3.GetObjectLockConfigurationAsync(request);
            Console.WriteLine($"\tBucket object lock config for {bucketName} in
{bucketName}: " +
                              $"\n\tEnabled:
{response.ObjectLockConfiguration.ObjectLockEnabled}" +
                              $"\n\tRule:
{response.ObjectLockConfiguration.Rule?.DefaultRetention}");

            return response.ObjectLockConfiguration;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"\tUnable to fetch object lock config:
'{ex.Message}'");
            return new ObjectLockConfiguration();
        }
    }
```

- For API details, see GetObjectLockConfiguration in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

To retrieve an object lock configuration for a bucket

The following `get-object-lock-configuration` example retrieves the object lock configuration for the specified bucket.

```
aws s3api get-object-lock-configuration \
    --bucket amzn-s3-demo-bucket-with-object-lock
```

Output:

```
{
    "ObjectLockConfiguration": {
        "ObjectLockEnabled": "Enabled",
        "Rule": {
            "DefaultRetention": {
                "Mode": "COMPLIANCE",
                "Days": 50
            }
        }
    }
}
```

- For API details, see GetObjectLockConfiguration in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "log"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
```

```
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// S3Actions wraps S3 service actions.
type S3Actions struct {
 S3Client  *s3.Client
 S3Manager *manager.Uploader
}



// GetObjectLockConfiguration retrieves the object lock configuration for an S3
 bucket.
func (actor S3Actions) GetObjectLockConfiguration(ctx context.Context, bucket
 string) (*types.ObjectLockConfiguration, error) {
 var lockConfig *types.ObjectLockConfiguration
 input := &s3.GetObjectLockConfigurationInput{
  Bucket: aws.String(bucket),
 }

 output, err := actor.S3Client.GetObjectLockConfiguration(ctx, input)
 if err != nil {
  var noBucket *types.NoSuchBucket
  var apiErr *smithy.GenericAPIError
  if errors.As(err, &noBucket) {
   log.Printf("Bucket %s does not exist.\n", bucket)
   err = noBucket
  } else if errors.As(err, &apiErr) && apiErr.ErrorCode() ==
 "ObjectLockConfigurationNotFoundError" {
   log.Printf("Bucket %s does not have an object lock configuration.\n", bucket)
   err = nil
  }
 } else {
  lockConfig = output.ObjectLockConfiguration
 }

 return lockConfig, err
}
```

- For API details, see GetObjectLockConfiguration in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
   // Get the object lock configuration details for an S3 bucket.
   public void getBucketObjectLockConfiguration(String bucketName) {
       GetObjectLockConfigurationRequest objectLockConfigurationRequest =
GetObjectLockConfigurationRequest.builder()
           .bucket(bucketName)
           .build();

       GetObjectLockConfigurationResponse response =
getClient().getObjectLockConfiguration(objectLockConfigurationRequest);
       System.out.println("Bucket object lock config for "+bucketName +":  ");
       System.out.println("\tEnabled:
"+response.objectLockConfiguration().objectLockEnabled());
       System.out.println("\tRule: "+
response.objectLockConfiguration().rule().defaultRetention());
   }
```

- For API details, see GetObjectLockConfiguration in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import {
```

```
  GetObjectLockConfigurationCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Gets the Object Lock configuration for a bucket.
 * @param {{ bucketName: string }}
 */
export const main = async ({ bucketName }) => {
  const client = new S3Client({});

  try {
    const { ObjectLockConfiguration } = await client.send(
      new GetObjectLockConfigurationCommand({
        Bucket: bucketName,
        // Optionally, you can provide additional parameters
        // ExpectedBucketOwner: "<account ID that is expected to own the
 bucket>",
      }),
    );
    console.log(
      `Object Lock Configuration:\n${JSON.stringify(ObjectLockConfiguration)}`,
    );
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while getting object lock configuration for ${bucketName}.
 The bucket doesn't exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while getting object lock configuration for ${bucketName}.
  ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

```
// Call function if run directly
import { parseArgs } from "node:util";
import {
  isMain,
  validateArgs,
} from "@aws-doc-sdk-examples/lib/utils/util-node.js";

const loadArgs = () => {
  const options = {
    bucketName: {
      type: "string",
      required: true,
    },
  };
  const results = parseArgs({ options });
  const { errors } = validateArgs({ options }, results);
  return { errors, results };
};

if (isMain(import.meta.url)) {
  const { errors, results } = loadArgs();
  if (!errors) {
    main(results.values);
  } else {
    console.error(errors.join("\n"));
  }
}
```

- For API details, see GetObjectLockConfiguration in *AWS SDK for JavaScript API Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command returns the value 'Enabled' if Object lock configuration is enabled for the given S3 bucket.

```
Get-S3ObjectLockConfiguration -BucketName 'amzn-s3-demo-bucket' -Select
 ObjectLockConfiguration.ObjectLockEnabled
```

Output:

```
Value
-----
Enabled
```

- For API details, see GetObjectLockConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command returns the value 'Enabled' if Object lock configuration is enabled for the given S3 bucket.

```
Get-S3ObjectLockConfiguration -BucketName 'amzn-s3-demo-bucket' -Select
 ObjectLockConfiguration.ObjectLockEnabled
```

Output:

```
Value
-----
Enabled
```

- For API details, see GetObjectLockConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Get the object lock configuration.

```
def is_object_lock_enabled(s3_client, bucket: str) -> bool:
    """
    Check if object lock is enabled for a bucket.
```

```
    Args:
        s3_client: Boto3 S3 client.
        bucket: The name of the bucket to check.

    Returns:
        True if object lock is enabled, False otherwise.
    """
    try:
        response = s3_client.get_object_lock_configuration(Bucket=bucket)
        return (
            "ObjectLockConfiguration" in response
            and response["ObjectLockConfiguration"]["ObjectLockEnabled"] ==
"Enabled"
        )
    except s3_client.exceptions.ClientError as e:
        if e.response["Error"]["Code"] == "ObjectLockConfigurationNotFoundError":
            return False
        else:
            raise
```

- For API details, see GetObjectLockConfiguration in *AWS SDK for Python (Boto3) API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetObjectRetention` with an AWS SDK or CLI

The following code examples show how to use `GetObjectRetention`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Lock Amazon S3 objects

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    /// <summary>
    /// Get the retention period for an S3 object.
    /// </summary>
    /// <param name="bucketName">The bucket of the object.</param>
    /// <param name="objectKey">The object key.</param>
    /// <returns>The object retention details.</returns>
    public async Task<ObjectLockRetention> GetObjectRetention(string bucketName,
        string objectKey)
    {
        try
        {
            var request = new GetObjectRetentionRequest()
            {
                BucketName = bucketName,
                Key = objectKey
            };

            var response = await _amazonS3.GetObjectRetentionAsync(request);
            Console.WriteLine($"\tObject retention for {objectKey} in
{bucketName}: " +
                              $"\n\t{response.Retention.Mode} until
{response.Retention.RetainUntilDate:d}.");
            return response.Retention;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"\tUnable to fetch object lock retention:
'{ex.Message}'");
            return new ObjectLockRetention();
        }
    }
```

- For API details, see GetObjectRetention in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

To retrieve the object retention configuration for an object

The following `get-object-retention` example retrieves the object retention configuration for the specified object.

```
aws s3api get-object-retention \
    --bucket amzn-s3-demo-bucket-with-object-lock \
    --key doc1.rtf
```

Output:

```
{
    "Retention": {
        "Mode": "GOVERNANCE",
        "RetainUntilDate": "2025-01-01T00:00:00.000Z"
    }
}
```

- For API details, see GetObjectRetention in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import (
 "bytes"
 "context"
```

```
 "errors"
 "fmt"
 "log"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// S3Actions wraps S3 service actions.
type S3Actions struct {
 S3Client  *s3.Client
 S3Manager *manager.Uploader
}



// GetObjectRetention retrieves the object retention configuration for an S3
 object.
func (actor S3Actions) GetObjectRetention(ctx context.Context, bucket string, key
 string) (*types.ObjectLockRetention, error) {
 var retention *types.ObjectLockRetention
 input := &s3.GetObjectRetentionInput{
  Bucket: aws.String(bucket),
  Key:    aws.String(key),
 }

 output, err := actor.S3Client.GetObjectRetention(ctx, input)
 if err != nil {
  var noKey *types.NoSuchKey
  var apiErr *smithy.GenericAPIError
  if errors.As(err, &noKey) {
   log.Printf("Object %s does not exist in bucket %s.\n", key, bucket)
   err = noKey
  } else if errors.As(err, &apiErr) {
   switch apiErr.ErrorCode() {
   case "NoSuchObjectLockConfiguration":
    err = nil
   case "InvalidRequest":
    log.Printf("Bucket %s does not have locking enabled.", bucket)
    err = nil
```

```
    }
   }
  } else {
   retention = output.Retention
  }

  return retention, err
 }
```

- For API details, see GetObjectRetention in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    // Get the retention period for an S3 object.
    public ObjectLockRetention getObjectRetention(String bucketName, String key){
        try {
            GetObjectRetentionRequest retentionRequest =
GetObjectRetentionRequest.builder()
                .bucket(bucketName)
                .key(key)
                .build();

            GetObjectRetentionResponse response =
getClient().getObjectRetention(retentionRequest);
            System.out.println("tObject retention for "+key +"
in "+ bucketName +": " + response.retention().mode() +" until "+
response.retention().retainUntilDate() +".");
            return response.retention();

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            return null;
```

```
        }
    }
```

- For API details, see GetObjectRetention in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import {
  GetObjectRetentionCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Log the "RetainUntilDate" for an object in an S3 bucket.
 * @param {{ bucketName: string, key: string }}
 */
export const main = async ({ bucketName, key }) => {
  const client = new S3Client({});

  try {
    const { Retention } = await client.send(
      new GetObjectRetentionCommand({
        Bucket: bucketName,
        Key: key,
      }),
    );
    console.log(
      `${key} in ${bucketName} will be retained until
 ${Retention.RetainUntilDate}`,
    );
  } catch (caught) {
```

```
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchObjectLockConfiguration"
    ) {
      console.warn(
        `The object "${key}" in the bucket "${bucketName}" does not have an
 ObjectLock configuration.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while getting object retention settings for
 "${bucketName}".  ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};

// Call function if run directly
import { parseArgs } from "node:util";
import {
  isMain,
  validateArgs,
} from "@aws-doc-sdk-examples/lib/utils/util-node.js";

const loadArgs = () => {
  const options = {
    bucketName: {
      type: "string",
      required: true,
    },
    key: {
      type: "string",
      required: true,
    },
  };
  const results = parseArgs({ options });
  const { errors } = validateArgs({ options }, results);
  return { errors, results };
};

if (isMain(import.meta.url)) {
  const { errors, results } = loadArgs();
```

```
  if (!errors) {
    main(results.values);
  } else {
    console.error(errors.join("\n"));
  }
}
```

- For API details, see GetObjectRetention in *AWS SDK for JavaScript API Reference*.

PowerShell

Tools for PowerShell V4

Example 1: The command returns the mode and date till the object would be retained.

```
Get-S3ObjectRetention -BucketName 'amzn-s3-demo-bucket' -Key 'testfile.txt'
```

- For API details, see GetObjectRetention in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: The command returns the mode and date till the object would be retained.

```
Get-S3ObjectRetention -BucketName 'amzn-s3-demo-bucket' -Key 'testfile.txt'
```

- For API details, see GetObjectRetention in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetObjectTagging` with a CLI

The following code examples show how to use `GetObjectTagging`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Get started with tags

CLI

AWS CLI

To retrieve the tags attached to an object

The following `get-object-tagging` example retrieves the values for the specified key from the specified object.

```
aws s3api get-object-tagging \
    --bucket amzn-s3-demo-bucket \
    --key doc1.rtf
```

Output:

```
{
    "TagSet": [
        {
            "Value": "confidential",
            "Key": "designation"
        }
    ]
}
```

The following `get-object-tagging` example tries to retrieve the tag sets of the object `doc2.rtf`, which has no tags.

```
aws s3api get-object-tagging \
    --bucket amzn-s3-demo-bucket \
    --key doc2.rtf
```

Output:

```
{
    "TagSet": []
}
```

The following `get-object-tagging` example retrieves the tag sets of the object `doc3.rtf`, which has multiple tags.

```
aws s3api get-object-tagging \
```

```
    --bucket amzn-s3-demo-bucket \
    --key doc3.rtf
```

Output:

```
{
    "TagSet": [
        {
            "Value": "confidential",
            "Key": "designation"
        },
        {
            "Value": "finance",
            "Key": "department"
        },
        {
            "Value": "payroll",
            "Key": "team"
        }
    ]
}
```

- For API details, see GetObjectTagging in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: The sample returns the tags associated with the object present on the given S3 bucket.

```
Get-S3ObjectTagSet -Key 'testfile.txt' -BucketName 'amzn-s3-demo-bucket'
```

Output:

```
Key  Value
---  -----
test value
```

- For API details, see GetObjectTagging in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: The sample returns the tags associated with the object present on the given S3 bucket.

```
Get-S3ObjectTagSet -Key 'testfile.txt' -BucketName 'amzn-s3-demo-bucket'
```

Output:

```
Key  Value
---  -----
test value
```

- For API details, see GetObjectTagging in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetPublicAccessBlock` with a CLI

The following code examples show how to use `GetPublicAccessBlock`.

CLI

AWS CLI

To set or modify the block public access configuration for a bucket

The following `get-public-access-block` example displays the block public access configuration for the specified bucket.

```
aws s3api get-public-access-block \
    --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "PublicAccessBlockConfiguration": {
```

```
        "IgnorePublicAcls": true,
        "BlockPublicPolicy": true,
        "BlockPublicAcls": true,
        "RestrictPublicBuckets": true
    }
}
```

- For API details, see GetPublicAccessBlock in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: The command returns the public access block configuration of the given S3 bucket.

```
Get-S3PublicAccessBlock -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see GetPublicAccessBlock in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: The command returns the public access block configuration of the given S3 bucket.

```
Get-S3PublicAccessBlock -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see GetPublicAccessBlock in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `HeadBucket` with an AWS SDK or CLI

The following code examples show how to use `HeadBucket`.

Bash

AWS CLI with Bash script

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
###############################################################################
# function bucket_exists
#
# This function checks to see if the specified bucket already exists.
#
# Parameters:
#       $1 - The name of the bucket to check.
#
# Returns:
#       0 - If the bucket already exists.
#       1 - If the bucket doesn't exist.
################################################################################
function bucket_exists() {
  local bucket_name
  bucket_name=$1

  # Check whether the bucket already exists.
  # We suppress all output - we're interested only in the return code.

  if aws s3api head-bucket \
    --bucket "$bucket_name" \
    >/dev/null 2>&1; then
    return 0 # 0 in Bash script means true.
  else
    return 1 # 1 in Bash script means false.
  fi
}
```

- For API details, see HeadBucket in *AWS CLI Command Reference*.

CLI

AWS CLI

The following command verifies access to a bucket named `amzn-s3-demo-bucket`:

```
aws s3api head-bucket --bucket amzn-s3-demo-bucket
```

If the bucket exists and you have access to it, no output is returned. Otherwise, an error message will be shown. For example:

```
A client error (404) occurred when calling the HeadBucket operation: Not Found
```

- For API details, see HeadBucket in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "io"
 "log"
 "os"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
```

```
)

// BucketBasics encapsulates the Amazon Simple Storage Service (Amazon S3)
 actions
// used in the examples.
// It contains S3Client, an Amazon S3 service client that is used to perform
 bucket
// and object actions.
type BucketBasics struct {
 S3Client *s3.Client
}



// BucketExists checks whether a bucket exists in the current account.
func (basics BucketBasics) BucketExists(ctx context.Context, bucketName string)
 (bool, error) {
 _, err := basics.S3Client.HeadBucket(ctx, &s3.HeadBucketInput{
  Bucket: aws.String(bucketName),
 })
 exists := true
 if err != nil {
  var apiError smithy.APIError
  if errors.As(err, &apiError) {
   switch apiError.(type) {
   case *types.NotFound:
    log.Printf("Bucket %v is available.\n", bucketName)
    exists = false
    err = nil
   default:
    log.Printf("Either you don't have access to bucket %v or another error
 occurred. "+
     "Here's what happened: %v\n", bucketName, err)
   }
  }
 } else {
  log.Printf("Bucket %v exists and you already own it.", bucketName)
 }

 return exists, err
}
```

- For API details, see HeadBucket in *AWS SDK for Go API Reference*.

PowerShell

Tools for PowerShell V5

Example 1: This command returns the output with HTTP status code 200 OK for existing bucket when user has permission to access it. BucketArn parameter is only supported for S3 directory buckets.

```
Get-S3HeadBucket -BucketName amzn-s3-demo-bucket
```

Output:

```
AccessPointAlias   : False
BucketArn          :
BucketLocationName :
BucketLocationType :
BucketRegion       : us-east-2
ResponseMetadata   : Amazon.Runtime.ResponseMetadata
ContentLength      : 0
HttpStatusCode     : OK
```

Example 2: This command throws error with HTTP status code NotFound for non-existent bucket.

```
Get-S3HeadBucket -BucketName amzn-s3-non-existing-bucket
```

Output:

```
Get-S3HeadBucket: Error making request with Error Code NotFound and Http Status
 Code NotFound. No further error information was returned by the service.
```

Example 3: This command throws error with HTTP status code Forbidden for existing bucket where user does not have permission to access it.

```
Get-S3HeadBucket -BucketName amzn-s3-no-access-bucket
```

Output:

```
Get-S3HeadBucket: Error making request with Error Code Forbidden and Http Status
 Code Forbidden. No further error information was returned by the service.
```

- For API details, see HeadBucket in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class BucketWrapper:
    """Encapsulates S3 bucket actions."""

    def __init__(self, bucket):
        """
        :param bucket: A Boto3 Bucket resource. This is a high-level resource in
 Boto3
                       that wraps bucket actions in a class-like structure.
        """
        self.bucket = bucket
        self.name = bucket.name


    def exists(self):
        """
        Determine whether the bucket exists and you have access to it.

        :return: True when the bucket exists; otherwise, False.
        """
        try:
            self.bucket.meta.client.head_bucket(Bucket=self.bucket.name)
            logger.info("Bucket %s exists.", self.bucket.name)
            exists = True
        except ClientError:
            logger.warning(
                "Bucket %s doesn't exist or you don't have access to it.",
```

```
                self.bucket.name,
            )
            exists = False
        return exists
```

- For API details, see HeadBucket in *AWS SDK for Python (Boto3) API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `HeadObject` with an AWS SDK or CLI

The following code examples show how to use `HeadObject`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Get started with S3

CLI

AWS CLI

The following command retrieves metadata for an object in a bucket named `amzn-s3-demo-bucket`:

```
aws s3api head-object --bucket amzn-s3-demo-bucket --key index.html
```

Output:

```
{
    "AcceptRanges": "bytes",
    "ContentType": "text/html",
    "LastModified": "Thu, 16 Apr 2015 18:19:14 GMT",
    "ContentLength": 77,
    "VersionId": "null",
    "ETag": "\"30a6ec7e1a9ad79c203d05a589c8b400\"",
    "Metadata": {}
```

```
}
```

- For API details, see HeadObject in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Determine the content type of an object.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.HeadObjectRequest;
import software.amazon.awssdk.services.s3.model.HeadObjectResponse;
import software.amazon.awssdk.services.s3.model.S3Exception;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */
public class GetObjectContentType {
    public static void main(String[] args) {
        final String usage = """

            Usage:
                <bucketName> <keyName>

            Where:
                bucketName - The Amazon S3 bucket name.\s
                keyName - The key name.\s
```

```
            """;

        if (args.length != 2) {
            System.out.println(usage);
            System.exit(1);
        }

        String bucketName = args[0];
        String keyName = args[1];
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        getContentType(s3, bucketName, keyName);
        s3.close();
    }

    /**
     * Retrieves the content type of an object stored in an Amazon S3 bucket.
     *
     * @param s3 an instance of the {@link S3Client} class, which is used to
 interact with the Amazon S3 service
     * @param bucketName the name of the S3 bucket where the object is stored
     * @param keyName the key (file name) of the object in the S3 bucket
     */
    public static void getContentType(S3Client s3, String bucketName, String
 keyName) {
        try {
            HeadObjectRequest objectRequest = HeadObjectRequest.builder()
                .key(keyName)
                .bucket(bucketName)
                .build();

            HeadObjectResponse objectHead = s3.headObject(objectRequest);
            String type = objectHead.contentType();
            System.out.println("The object content type is " + type);

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }
}
```

Get the restore status of an object.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.HeadObjectRequest;
import software.amazon.awssdk.services.s3.model.HeadObjectResponse;
import software.amazon.awssdk.services.s3.model.S3Exception;

public class GetObjectRestoreStatus {
    public static void main(String[] args) {
        final String usage = """

            Usage:
                <bucketName> <keyName>\s

            Where:
                bucketName - The Amazon S3 bucket name.\s
                keyName - A key name that represents the object.\s
            """;

        if (args.length != 2) {
            System.out.println(usage);
            System.exit(1);
        }

        String bucketName = args[0];
        String keyName = args[1];
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        checkStatus(s3, bucketName, keyName);
        s3.close();
    }

    /**
     * Checks the restoration status of an Amazon S3 object.
     *
```

```
     * @param s3         an instance of the {@link S3Client} class used to
 interact with the Amazon S3 service
     * @param bucketName the name of the Amazon S3 bucket where the object is
 stored
     * @param keyName    the name of the Amazon S3 object to be checked
     * @throws S3Exception if an error occurs while interacting with the Amazon
 S3 service
     */
    public static void checkStatus(S3Client s3, String bucketName, String
 keyName) {
        try {
            HeadObjectRequest headObjectRequest = HeadObjectRequest.builder()
                .bucket(bucketName)
                .key(keyName)
                .build();

            HeadObjectResponse response = s3.headObject(headObjectRequest);
            System.out.println("The Amazon S3 object restoration status is " +
 response.restore());

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }
}
```

- For API details, see HeadObject in *AWS SDK for Java 2.x API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
require 'aws-sdk-s3'
```

```
# Wraps Amazon S3 object actions.
class ObjectExistsWrapper
  attr_reader :object

  # @param object [Aws::S3::Object] An Amazon S3 object.
  def initialize(object)
    @object = object
  end

  # Checks whether the object exists.
  #
  # @return [Boolean] True if the object exists; otherwise false.
  def exists?
    @object.exists?
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't check existence of object
 #{@object.bucket.name}:#{@object.key}. Here's why: #{e.message}"
    false
  end
end

# Example usage:
def run_demo
  bucket_name = "amzn-s3-demo-bucket"
  object_key = "my-object.txt"

  wrapper = ObjectExistsWrapper.new(Aws::S3::Object.new(bucket_name, object_key))
  exists = wrapper.exists?

  puts "Object #{object_key} #{exists ? 'does' : 'does not'} exist."
end

run_demo if $PROGRAM_NAME == __FILE__
```

- For API details, see HeadObject in *AWS SDK for Ruby API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `ListBucketAnalyticsConfigurations` with a CLI

The following code examples show how to use `ListBucketAnalyticsConfigurations`.

CLI

AWS CLI

To retrieve a list of analytics configurations for a bucket

The following `list-bucket-analytics-configurations` retrieves a list of analytics configurations for the specified bucket.

```
aws s3api list-bucket-analytics-configurations \
    --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "AnalyticsConfigurationList": [
        {
            "StorageClassAnalysis": {},
            "Id": "1"
        }
    ],
    "IsTruncated": false
}
```

- For API details, see ListBucketAnalyticsConfigurations in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command returns the first 100 analytics configurations of the given S3 bucket.

```
Get-S3BucketAnalyticsConfigurationList -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see ListBucketAnalyticsConfigurations in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command returns the first 100 analytics configurations of the given S3 bucket.

```
Get-S3BucketAnalyticsConfigurationList -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see ListBucketAnalyticsConfigurations in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `ListBucketInventoryConfigurations` with a CLI

The following code examples show how to use `ListBucketInventoryConfigurations`.

CLI

AWS CLI

To retrieve a list of inventory configurations for a bucket

The following `list-bucket-inventory-configurations` example lists the inventory configurations for the specified bucket.

```
aws s3api list-bucket-inventory-configurations \
    --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "InventoryConfigurationList": [
        {
            "IsEnabled": true,
            "Destination": {
                "S3BucketDestination": {
                    "Format": "ORC",
                    "Bucket": "arn:aws:s3:::amzn-s3-demo-bucket",
```

```
                    "AccountId": "123456789012"
                }
            },
            "IncludedObjectVersions": "Current",
            "Id": "1",
            "Schedule": {
                "Frequency": "Weekly"
            }
        },
        {
            "IsEnabled": true,
            "Destination": {
                "S3BucketDestination": {
                    "Format": "CSV",
                    "Bucket": "arn:aws:s3:::amzn-s3-demo-bucket",
                    "AccountId": "123456789012"
                }
            },
            "IncludedObjectVersions": "Current",
            "Id": "2",
            "Schedule": {
                "Frequency": "Daily"
            }
        }
    ],
    "IsTruncated": false
}
```

- For API details, see ListBucketInventoryConfigurations in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command returns the first 100 inventory configurations of the given S3 bucket.

```
Get-S3BucketInventoryConfigurationList -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see ListBucketInventoryConfigurations in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command returns the first 100 inventory configurations of the given S3 bucket.

```
Get-S3BucketInventoryConfigurationList -BucketName 'amzn-s3-demo-bucket'
```

- For API details, see ListBucketInventoryConfigurations in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `ListBuckets` with an AWS SDK or CLI

The following code examples show how to use `ListBuckets`.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
namespace ListBucketsExample
{
    using System;
    using System.Collections.Generic;
    using System.Threading.Tasks;
    using Amazon.S3;
    using Amazon.S3.Model;

    /// <summary>
    /// This example uses the AWS SDK for .NET to list the Amazon Simple Storage
    /// Service (Amazon S3) buckets belonging to the default account.
    /// </summary>
```

```
    public class ListBuckets
    {
        private static IAmazonS3 _s3Client;

        /// <summary>
        /// Get a list of the buckets owned by the default user.
        /// </summary>
        /// <param name="client">An initialized Amazon S3 client object.</param>
        /// <returns>The response from the ListingBuckets call that contains a
        /// list of the buckets owned by the default user.</returns>
        public static async Task<ListBucketsResponse> GetBuckets(IAmazonS3
 client)
        {
            return await client.ListBucketsAsync();
        }

        /// <summary>
        /// This method lists the name and creation date for the buckets in
        /// the passed List of S3 buckets.
        /// </summary>
        /// <param name="bucketList">A List of S3 bucket objects.</param>
        public static void DisplayBucketList(List<S3Bucket> bucketList)
        {
            bucketList
                .ForEach(b => Console.WriteLine($"Bucket name: {b.BucketName},
 created on: {b.CreationDate}"));
        }

        public static async Task Main()
        {
            // The client uses the AWS Region of the default user.
            // If the Region where the buckets were created is different,
            // pass the Region to the client constructor. For example:
            // _s3Client = new AmazonS3Client(RegionEndpoint.USEast1);
            _s3Client = new AmazonS3Client();
            var response = await GetBuckets(_s3Client);
            DisplayBucketList(response.Buckets);
        }
    }
}
```

- For API details, see ListBuckets in *AWS SDK for .NET API Reference*.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::listBuckets(const Aws::S3::S3ClientConfiguration &clientConfig)
 {
    Aws::S3::S3Client client(clientConfig);

    auto outcome = client.ListBuckets();

    bool result = true;
    if (!outcome.IsSuccess()) {
        std::cerr << "Failed with error: " << outcome.GetError() << std::endl;
        result = false;
    } else {
        std::cout << "Found " << outcome.GetResult().GetBuckets().size() << "
 buckets\n";
        for (auto &&b: outcome.GetResult().GetBuckets()) {
            std::cout << b.GetName() << std::endl;
        }
    }

    return result;
}
```

- For API details, see ListBuckets in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The following command uses the `list-buckets` command to display the names of all your Amazon S3 buckets (across all regions):

```
aws s3api list-buckets --query "Buckets[].Name"
```

The query option filters the output of `list-buckets` down to only the bucket names.

For more information about buckets, see Working with Amazon S3 Buckets in the *Amazon S3 Developer Guide*.

- For API details, see ListBuckets in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "io"
 "log"
 "os"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// BucketBasics encapsulates the Amazon Simple Storage Service (Amazon S3)
 actions
// used in the examples.
```

```
// It contains S3Client, an Amazon S3 service client that is used to perform
 bucket
// and object actions.
type BucketBasics struct {
 S3Client *s3.Client
}



// ListBuckets lists the buckets in the current account.
func (basics BucketBasics) ListBuckets(ctx context.Context) ([]types.Bucket,
 error) {
 var err error
 var output *s3.ListBucketsOutput
 var buckets []types.Bucket
 bucketPaginator := s3.NewListBucketsPaginator(basics.S3Client,
 &s3.ListBucketsInput{})
 for bucketPaginator.HasMorePages() {
  output, err = bucketPaginator.NextPage(ctx)
  if err != nil {
   var apiErr smithy.APIError
   if errors.As(err, &apiErr) && apiErr.ErrorCode() == "AccessDenied" {
    fmt.Println("You don't have permission to list buckets for this account.")
    err = apiErr
   } else {
    log.Printf("Couldn't list buckets for your account. Here's why: %v\n", err)
   }
   break
  } else {
   buckets = append(buckets, output.Buckets...)
  }
 }
 return buckets, err
}
```

- For API details, see ListBuckets in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.paginators.ListBucketsIterable;
/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 *
 * For more information, see the following documentation topic:
 *
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */
public class ListBuckets {
    public static void main(String[] args) {
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        listAllBuckets(s3);

    }

    /**
     * Lists all the S3 buckets available in the current AWS account.
     *
     * @param s3 The {@link S3Client} instance to use for interacting with the
 Amazon S3 service.
     */
    public static void listAllBuckets(S3Client s3) {
        ListBucketsIterable response = s3.listBucketsPaginator();
        response.buckets().forEach(bucket ->
```

```
            System.out.println("Bucket Name: " + bucket.name()));
    }
```

- For API details, see ListBuckets in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

List the buckets.

```
import {
  paginateListBuckets,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * List the Amazon S3 buckets in your account.
 */
export const main = async () => {
  const client = new S3Client({});
  /** @type {?import('@aws-sdk/client-s3').Owner} */
  let Owner = null;

  /** @type {import('@aws-sdk/client-s3').Bucket[]} */
  const Buckets = [];

  try {
    const paginator = paginateListBuckets({ client }, {});

    for await (const page of paginator) {
      if (!Owner) {
        Owner = page.Owner;
      }
```

```
      Buckets.push(...page.Buckets);
    }

    console.log(
      `${Owner.DisplayName} owns ${Buckets.length} bucket${
        Buckets.length === 1 ? "" : "s"
      }:`,
    );
    console.log(`${Buckets.map((b) => ` • ${b.Name}`).join("\n")}`);
  } catch (caught) {
    if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while listing buckets.  ${caught.name}:
 ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

- For more information, see AWS SDK for JavaScript Developer Guide.
- For API details, see ListBuckets in *AWS SDK for JavaScript API Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command returns all S3 buckets.

```
Get-S3Bucket
```

Example 2: This command returns bucket named "test-files"

```
Get-S3Bucket -BucketName amzn-s3-demo-bucket
```

- For API details, see ListBuckets in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command returns all S3 buckets.

```
Get-S3Bucket
```

Example 2: This command returns bucket named "test-files"

```
Get-S3Bucket -BucketName amzn-s3-demo-bucket
```

- For API details, see ListBuckets in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class BucketWrapper:
    """Encapsulates S3 bucket actions."""

    def __init__(self, bucket):
        """
        :param bucket: A Boto3 Bucket resource. This is a high-level resource in
 Boto3
                       that wraps bucket actions in a class-like structure.
        """
        self.bucket = bucket
        self.name = bucket.name


    @staticmethod
    def list(s3_resource):
        """
        Get the buckets in all Regions for the current account.
```

```
        :param s3_resource: A Boto3 S3 resource. This is a high-level resource in
 Boto3
                            that contains collections and factory methods to
 create
                            other high-level S3 sub-resources.
        :return: The list of buckets.
        """
        try:
            buckets = list(s3_resource.buckets.all())
            logger.info("Got buckets: %s.", buckets)
        except ClientError:
            logger.exception("Couldn't get buckets.")
            raise
        else:
            return buckets
```

- For API details, see ListBuckets in *AWS SDK for Python (Boto3) API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
require 'aws-sdk-s3'

# Wraps Amazon S3 resource actions.
class BucketListWrapper
  attr_reader :s3_resource

  # @param s3_resource [Aws::S3::Resource] An Amazon S3 resource.
  def initialize(s3_resource)
    @s3_resource = s3_resource
  end

  # Lists buckets for the current account.
```

```
  #
  # @param count [Integer] The maximum number of buckets to list.
  def list_buckets(count)
    puts 'Found these buckets:'
    @s3_resource.buckets.each do |bucket|
      puts "\t#{bucket.name}"
      count -= 1
      break if count.zero?
    end
    true
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't list buckets. Here's why: #{e.message}"
    false
  end
end

# Example usage:
def run_demo
  wrapper = BucketListWrapper.new(Aws::S3::Resource.new)
  wrapper.list_buckets(25)
end

run_demo if $PROGRAM_NAME == __FILE__
```

- For API details, see ListBuckets in *AWS SDK for Ruby API Reference*.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
async fn show_buckets(
    strict: bool,
    client: &Client,
    region: BucketLocationConstraint,
) -> Result<(), S3ExampleError> {
```

```
    let mut buckets = client.list_buckets().into_paginator().send();

    let mut num_buckets = 0;
    let mut in_region = 0;

    while let Some(Ok(output)) = buckets.next().await {
        for bucket in output.buckets() {
            num_buckets += 1;
            if strict {
                let r = client
                    .get_bucket_location()
                    .bucket(bucket.name().unwrap_or_default())
                    .send()
                    .await?;

                if r.location_constraint() == Some(&region) {
                    println!("{}", bucket.name().unwrap_or_default());
                    in_region += 1;
                }
            } else {
                println!("{}", bucket.name().unwrap_or_default());
            }
        }
    }

    println!();
    if strict {
        println!(
            "Found {} buckets in the {} region out of a total of {} buckets.",
            in_region, region, num_buckets
        );
    } else {
        println!("Found {} buckets in all regions.", num_buckets);
    }

    Ok(())
}
```

- For API details, see ListBuckets in *AWS SDK for Rust API reference*.

Swift

SDK for Swift

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import AWSS3

    /// Return an array containing information about every available bucket.
    ///
    /// - Returns: An array of ``S3ClientTypes.Bucket`` objects describing
    ///   each bucket.
    public func getAllBuckets() async throws -> [S3ClientTypes.Bucket] {
        return try await client.listBuckets(input: ListBucketsInput())
    }
```

- For API details, see ListBuckets in *AWS SDK for Swift API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `ListMultipartUploads` with an AWS SDK or CLI

The following code examples show how to use `ListMultipartUploads`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Delete incomplete multipart uploads

CLI

AWS CLI

The following command lists all of the active multipart uploads for a bucket named `amzn-s3-demo-bucket`:

```
aws s3api list-multipart-uploads --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "Uploads": [
        {
            "Initiator": {
                "DisplayName": "username",
                "ID": "arn:aws:iam::0123456789012:user/username"
            },
            "Initiated": "2015-06-02T18:01:30.000Z",
            "UploadId":
 "dfRtDYU0WWCCcH43C3WFbkRONycyCpTJJvxu2i5GYkZljF.Yxwh6XG7WfS2vC4to6HiV6Yjlx.cph0gtNBtJ8P3
            "StorageClass": "STANDARD",
            "Key": "multipart/01",
            "Owner": {
                "DisplayName": "aws-account-name",
                "ID":
 "100719349fc3b6dcd7c820a124bf7aecd408092c3d7b51b38494939801fc248b"
            }
        }
    ],
    "CommonPrefixes": []
}
```

In progress multipart uploads incur storage costs in Amazon S3. Complete or abort an active multipart upload to remove its parts from your account.

- For API details, see ListMultipartUploads in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.ListMultipartUploadsRequest;
import software.amazon.awssdk.services.s3.model.ListMultipartUploadsResponse;
import software.amazon.awssdk.services.s3.model.MultipartUpload;
import software.amazon.awssdk.services.s3.model.S3Exception;
import java.util.List;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 *
 * For more information, see the following documentation topic:
 *
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */

public class ListMultipartUploads {
    public static void main(String[] args) {
        final String usage = """

                Usage:
                    <bucketName>\s

                Where:
                    bucketName - The name of the Amazon S3 bucket where an in-
progress multipart upload is occurring.
                """;

        if (args.length != 1) {
            System.out.println(usage);
```

```
            System.exit(1);
        }

        String bucketName = args[0];
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
                .region(region)
                .build();
        listUploads(s3, bucketName);
        s3.close();
    }

    /**
     * Lists the multipart uploads currently in progress in the specified Amazon
 S3 bucket.
     *
     * @param s3 the S3Client object used to interact with Amazon S3
     * @param bucketName the name of the Amazon S3 bucket to list the multipart
 uploads for
     */
    public static void listUploads(S3Client s3, String bucketName) {
        try {
            ListMultipartUploadsRequest listMultipartUploadsRequest =
 ListMultipartUploadsRequest.builder()
                    .bucket(bucketName)
                    .build();

            ListMultipartUploadsResponse response =
 s3.listMultipartUploads(listMultipartUploadsRequest);
            List<MultipartUpload> uploads = response.uploads();
            for (MultipartUpload upload : uploads) {
                System.out.println("Upload in progress: Key = \"" + upload.key()
 + "\", id = " + upload.uploadId());
            }

        } catch (S3Exception e) {
            System.err.println(e.getMessage());
            System.exit(1);
        }
    }
}
```

- For API details, see ListMultipartUploads in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `ListObjectVersions` with an AWS SDK or CLI

The following code examples show how to use `ListObjectVersions`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Get started with S3
- Work with versioned objects

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
using System;
using System.Threading.Tasks;
using Amazon.S3;
using Amazon.S3.Model;

/// <summary>
/// This example lists the versions of the objects in a version enabled
/// Amazon Simple Storage Service (Amazon S3) bucket.
/// </summary>
public class ListObjectVersions
{
    public static async Task Main()
    {
        string bucketName = "amzn-s3-demo-bucket";

        // If the AWS Region where your bucket is defined is different from
```

```
            // the AWS Region where the Amazon S3 bucket is defined, pass the
 constant
            // for the AWS Region to the client constructor like this:
            //      var client = new AmazonS3Client(RegionEndpoint.USWest2);
            IAmazonS3 client = new AmazonS3Client();
            await GetObjectListWithAllVersionsAsync(client, bucketName);
        }

        /// <summary>
        /// This method lists all versions of the objects within an Amazon S3
        /// version enabled bucket.
        /// </summary>
        /// <param name="client">The initialized client object used to call
        /// ListVersionsAsync.</param>
        /// <param name="bucketName">The name of the version enabled Amazon S3
 bucket
        /// for which you want to list the versions of the contained objects.</
param>
        public static async Task GetObjectListWithAllVersionsAsync(IAmazonS3
 client, string bucketName)
        {
            try
            {
                // When you instantiate the ListVersionRequest, you can
                // optionally specify a key name prefix in the request
                // if you want a list of object versions of a specific object.

                // For this example we set a small limit in MaxKeys to return
                // a small list of versions.
                ListVersionsRequest request = new ListVersionsRequest()
                {
                    BucketName = bucketName,
                    MaxKeys = 2,
                };

                do
                {
                    ListVersionsResponse response = await
 client.ListVersionsAsync(request);

                    // Process response.
                    foreach (S3ObjectVersion entry in response.Versions)
                    {
```

```
                        Console.WriteLine($"key: {entry.Key} size:
 {entry.Size}");
                    }

                    // If response is truncated, set the marker to get the next
                    // set of keys.
                    if (response.IsTruncated)
                    {
                        request.KeyMarker = response.NextKeyMarker;
                        request.VersionIdMarker = response.NextVersionIdMarker;
                    }
                    else
                    {
                        request = null;
                    }
                }
                while (request != null);
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Error: '{ex.Message}'");
            }
        }
    }
```

- For API details, see ListObjectVersions in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

The following command retrieves version information for an object in a bucket named `amzn-s3-demo-bucket`:

```
aws s3api list-object-versions --bucket amzn-s3-demo-bucket --prefix index.html
```

Output:

```
{
    "DeleteMarkers": [
```

```
        {
            "Owner": {
                "DisplayName": "my-username",
                "ID":
"7009a8971cd660687538875e7c86c5b672fe116bd438f46db45460ddcd036c32"
            },
            "IsLatest": true,
            "VersionId": "B2VsEK5saUNNHKcOAJj7hIE86RozToyq",
            "Key": "index.html",
            "LastModified": "2015-11-10T00:57:03.000Z"
        },
        {
            "Owner": {
                "DisplayName": "my-username",
                "ID":
"7009a8971cd660687538875e7c86c5b672fe116bd438f46db45460ddcd036c32"
            },
            "IsLatest": false,
            "VersionId": ".FLQEZscLIcfxSq.jsFJ.szUkmng2Yw6",
            "Key": "index.html",
            "LastModified": "2015-11-09T23:32:20.000Z"
        }
    ],
    "Versions": [
        {
            "LastModified": "2015-11-10T00:20:11.000Z",
            "VersionId": "Rb_l2T8UHDkFEwCgJjhlgPOZC0qJ.vpD",
            "ETag": "\"0622528de826c0df5db1258a23b80be5\"",
            "StorageClass": "STANDARD",
            "Key": "index.html",
            "Owner": {
                "DisplayName": "my-username",
                "ID":
"7009a8971cd660687538875e7c86c5b672fe116bd438f46db45460ddcd036c32"
            },
            "IsLatest": false,
            "Size": 38
        },
        {
            "LastModified": "2015-11-09T23:26:41.000Z",
            "VersionId": "rasWWGpgk9E4s0LyTJgusGeRQKLVIAFf",
            "ETag": "\"06225825b8028de826c0df5db1a23be5\"",
            "StorageClass": "STANDARD",
            "Key": "index.html",
```

```
            "Owner": {
                "DisplayName": "my-username",
                "ID":
 "7009a8971cd660687538875e7c86c5b672fe116bd438f46db45460ddcd036c32"
            },
            "IsLatest": false,
            "Size": 38
        },
        {
            "LastModified": "2015-11-09T22:50:50.000Z",
            "VersionId": "null",
            "ETag": "\"d1f45267a863c8392e07d24dd592f1b9\"",
            "StorageClass": "STANDARD",
            "Key": "index.html",
            "Owner": {
                "DisplayName": "my-username",
                "ID":
 "7009a8971cd660687538875e7c86c5b672fe116bd438f46db45460ddcd036c32"
            },
            "IsLatest": false,
            "Size": 533823
        }
    ]
}
```

- For API details, see ListObjectVersions in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import (
 "bytes"
 "context"
 "errors"
```

```
 "fmt"
 "log"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// S3Actions wraps S3 service actions.
type S3Actions struct {
 S3Client  *s3.Client
 S3Manager *manager.Uploader
}



// ListObjectVersions lists all versions of all objects in a bucket.
func (actor S3Actions) ListObjectVersions(ctx context.Context, bucket string)
 ([]types.ObjectVersion, error) {
 var err error
 var output *s3.ListObjectVersionsOutput
 var versions []types.ObjectVersion
 input := &s3.ListObjectVersionsInput{Bucket: aws.String(bucket)}
 versionPaginator := s3.NewListObjectVersionsPaginator(actor.S3Client, input)
 for versionPaginator.HasMorePages() {
  output, err = versionPaginator.NextPage(ctx)
  if err != nil {
   var noBucket *types.NoSuchBucket
   if errors.As(err, &noBucket) {
    log.Printf("Bucket %s does not exist.\n", bucket)
    err = noBucket
   }
   break
  } else {
   versions = append(versions, output.Versions...)
  }
 }
 return versions, err
}
```

- For API details, see ListObjectVersions in *AWS SDK for Go API Reference*.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
async fn show_versions(client: &Client, bucket: &str) -> Result<(), Error> {
    let resp = client.list_object_versions().bucket(bucket).send().await?;

    for version in resp.versions() {
        println!("{}", version.key().unwrap_or_default());
        println!("  version ID: {}", version.version_id().unwrap_or_default());
        println!();
    }

    Ok(())
}
```

- For API details, see ListObjectVersions in *AWS SDK for Rust API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `ListObjects` with a CLI

The following code examples show how to use `ListObjects`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Create a web page that lists Amazon S3 objects

CLI

AWS CLI

The following example uses the `list-objects` command to display the names of all the objects in the specified bucket:

```
aws s3api list-objects --bucket text-content --query 'Contents[].{Key: Key, Size:
 Size}'
```

The example uses the `--query` argument to filter the output of `list-objects` down to the key value and size for each object

For more information about objects, see Working with Amazon S3 Objects in the *Amazon S3 Developer Guide*.

- For API details, see ListObjects in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command retrieves the information about all of the items in the bucket "test-files".

```
Get-S3Object -BucketName amzn-s3-demo-bucket
```

Example 2: This command retrieves the information about the item "sample.txt" from bucket "test-files".

```
Get-S3Object -BucketName amzn-s3-demo-bucket -Key sample.txt
```

Example 3: This command retrieves the information about all items with the prefix "sample" from bucket "test-files".

```
Get-S3Object -BucketName amzn-s3-demo-bucket -KeyPrefix sample
```

- For API details, see ListObjects in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command retrieves the information about all of the items in the bucket "test-files".

```
Get-S3Object -BucketName amzn-s3-demo-bucket
```

Example 2: This command retrieves the information about the item "sample.txt" from bucket "test-files".

```
Get-S3Object -BucketName amzn-s3-demo-bucket -Key sample.txt
```

Example 3: This command retrieves the information about all items with the prefix "sample" from bucket "test-files".

```
Get-S3Object -BucketName amzn-s3-demo-bucket -KeyPrefix sample
```

- For API details, see ListObjects in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `ListObjectsV2` with an AWS SDK or CLI

The following code examples show how to use `ListObjectsV2`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Learn the basics
- Delete all objects in a bucket
- Get started with S3

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
        /// <summary>
        /// Shows how to list the objects in an Amazon S3 bucket.
        /// </summary>
        /// <param name="client">An initialized Amazon S3 client object.</param>
        /// <param name="bucketName">The name of the bucket for which to list
        /// the contents.</param>
        /// <returns>A boolean value indicating the success or failure of the
        /// copy operation.</returns>
        public static async Task<bool> ListBucketContentsAsync(IAmazonS3 client,
 string bucketName)
        {
            try
            {
                var request = new ListObjectsV2Request
                {
                    BucketName = bucketName,
                    MaxKeys = 5,
                };

                Console.WriteLine("--------------------------------------");
                Console.WriteLine($"Listing the contents of {bucketName}:");
                Console.WriteLine("--------------------------------------");

                ListObjectsV2Response response;

                do
                {
                    response = await client.ListObjectsV2Async(request);

                    response.S3Objects
```

```
                        .ForEach(obj => Console.WriteLine($"{obj.Key,-35}
{obj.LastModified.ToShortDateString(),10}{obj.Size,10}"));

                    // If the response is truncated, set the request
 ContinuationToken
                    // from the NextContinuationToken property of the response.
                    request.ContinuationToken = response.NextContinuationToken;
                }
                while (response.IsTruncated);

                return true;
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Error encountered on server.
 Message:'{ex.Message}' getting list of objects.");
                return false;
            }
        }
```

List objects with a paginator.

```
    using System;
    using System.Threading.Tasks;
    using Amazon.S3;
    using Amazon.S3.Model;

    /// <summary>
    /// The following example lists objects in an Amazon Simple Storage
    /// Service (Amazon S3) bucket.
    /// </summary>
    public class ListObjectsPaginator
    {
        private const string BucketName = "amzn-s3-demo-bucket";

        public static async Task Main()
        {
            IAmazonS3 s3Client = new AmazonS3Client();

            Console.WriteLine($"Listing the objects contained in {BucketName}:
\n");
```

```
            await ListingObjectsAsync(s3Client, BucketName);
        }

        /// <summary>
        /// This method uses a paginator to retrieve the list of objects in an
        /// an Amazon S3 bucket.
        /// </summary>
        /// <param name="client">An Amazon S3 client object.</param>
        /// <param name="bucketName">The name of the S3 bucket whose objects
        /// you want to list.</param>
        public static async Task ListingObjectsAsync(IAmazonS3 client, string
bucketName)
        {
            var listObjectsV2Paginator = client.Paginators.ListObjectsV2(new
ListObjectsV2Request
            {
                BucketName = bucketName,
            });

            await foreach (var response in listObjectsV2Paginator.Responses)
            {
                Console.WriteLine($"HttpStatusCode: {response.HttpStatusCode}");
                Console.WriteLine($"Number of Keys: {response.KeyCount}");
                foreach (var entry in response.S3Objects)
                {
                    Console.WriteLine($"Key = {entry.Key} Size = {entry.Size}");
                }
            }
        }
    }
```

- For API details, see ListObjectsV2 in *AWS SDK for .NET API Reference*.

Bash

AWS CLI with Bash script

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
###############################################################################
# function errecho
#
# This function outputs everything sent to it to STDERR (standard error output).
###############################################################################
function errecho() {
  printf "%s\n" "$*" 1>&2
}

###############################################################################
# function list_items_in_bucket
#
# This function displays a list of the files in the bucket with each file's
# size. The function uses the --query parameter to retrieve only the key and
# size fields from the Contents collection.
#
# Parameters:
#       $1 - The name of the bucket.
#
# Returns:
#       The list of files in text format.
#     And:
#       0 - If successful.
#       1 - If it fails.
###############################################################################
function list_items_in_bucket() {
  local bucket_name=$1
  local response

  response=$(aws s3api list-objects \
    --bucket "$bucket_name" \
    --output text \
```

```
    --query 'Contents[].{Key: Key, Size: Size}')

  # shellcheck disable=SC2181
  if [[ ${?} -eq 0 ]]; then
    echo "$response"
  else
    errecho "ERROR: AWS reports s3api list-objects operation failed.\n$response"
    return 1
  fi
}
```

- For API details, see ListObjectsV2 in *AWS CLI Command Reference*.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::listObjects(const Aws::String &bucketName,
                             Aws::Vector<Aws::String> &keysResult,
                             const Aws::S3::S3ClientConfiguration &clientConfig)
 {
    Aws::S3::S3Client s3Client(clientConfig);

    Aws::S3::Model::ListObjectsV2Request request;
    request.WithBucket(bucketName);

    Aws::String continuationToken; // Used for pagination.
    Aws::Vector<Aws::S3::Model::Object> allObjects;

    do {
        if (!continuationToken.empty()) {
            request.SetContinuationToken(continuationToken);
        }

        auto outcome = s3Client.ListObjectsV2(request);
```

```
        if (!outcome.IsSuccess()) {
            std::cerr << "Error: listObjects: " <<
                      outcome.GetError().GetMessage() << std::endl;
            return false;
        } else {
            Aws::Vector<Aws::S3::Model::Object> objects =
                    outcome.GetResult().GetContents();

            allObjects.insert(allObjects.end(), objects.begin(), objects.end());
            continuationToken = outcome.GetResult().GetNextContinuationToken();
        }
    } while (!continuationToken.empty());

    std::cout << allObjects.size() << " object(s) found:" << std::endl;

    for (const auto &object: allObjects) {
        std::cout << "  " << object.GetKey() << std::endl;
        keysResult.push_back(object.GetKey());
    }

    return true;
}
```

- For API details, see ListObjectsV2 in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

To get a list of objects in a bucket

The following `list-objects-v2` example lists the objects in the specified bucket.

```
aws s3api list-objects-v2 \
    --bucket amzn-s3-demo-bucket
```

Output:

```
{
    "Contents": [
```

```
        {
            "LastModified": "2019-11-05T23:11:50.000Z",
            "ETag": "\"621503c373607d548b37cff8778d992c\"",
            "StorageClass": "STANDARD",
            "Key": "doc1.rtf",
            "Size": 391
        },
        {
            "LastModified": "2019-11-05T23:11:50.000Z",
            "ETag": "\"a2cecc36ab7c7fe3a71a273b9d45b1b5\"",
            "StorageClass": "STANDARD",
            "Key": "doc2.rtf",
            "Size": 373
        },
        {
            "LastModified": "2019-11-05T23:11:50.000Z",
            "ETag": "\"08210852f65a2e9cb999972539a64d68\"",
            "StorageClass": "STANDARD",
            "Key": "doc3.rtf",
            "Size": 399
        },
        {
            "LastModified": "2019-11-05T23:11:50.000Z",
            "ETag": "\"d1852dd683f404306569471af106988e\"",
            "StorageClass": "STANDARD",
            "Key": "doc4.rtf",
            "Size": 6225
        }
    ]
}
```

- For API details, see ListObjectsV2 in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "io"
 "log"
 "os"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// BucketBasics encapsulates the Amazon Simple Storage Service (Amazon S3)
 actions
// used in the examples.
// It contains S3Client, an Amazon S3 service client that is used to perform
 bucket
// and object actions.
type BucketBasics struct {
 S3Client *s3.Client
}



// ListObjects lists the objects in a bucket.
func (basics BucketBasics) ListObjects(ctx context.Context, bucketName string)
 ([]types.Object, error) {
 var err error
 var output *s3.ListObjectsV2Output
 input := &s3.ListObjectsV2Input{
  Bucket: aws.String(bucketName),
 }
 var objects []types.Object
 objectPaginator := s3.NewListObjectsV2Paginator(basics.S3Client, input)
 for objectPaginator.HasMorePages() {
  output, err = objectPaginator.NextPage(ctx)
  if err != nil {
```

```
    var noBucket *types.NoSuchBucket
    if errors.As(err, &noBucket) {
     log.Printf("Bucket %s does not exist.\n", bucketName)
     err = noBucket
    }
    break
   } else {
    objects = append(objects, output.Contents...)
   }
  }
  return objects, err
 }
```

- For API details, see ListObjectsV2 in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    /**
     * Asynchronously lists all objects in the specified S3 bucket.
     *
     * @param bucketName the name of the S3 bucket to list objects for
     * @return a {@link CompletableFuture} that completes when all objects have
 been listed
     */
    public CompletableFuture<Void> listAllObjectsAsync(String bucketName) {
        ListObjectsV2Request initialRequest = ListObjectsV2Request.builder()
            .bucket(bucketName)
            .maxKeys(1)
            .build();
```

```
        ListObjectsV2Publisher paginator =
 getAsyncClient().listObjectsV2Paginator(initialRequest);
        return paginator.subscribe(response -> {
            response.contents().forEach(s3Object -> {
                logger.info("Object key: " + s3Object.key());
            });
        }).thenRun(() -> {
            logger.info("Successfully listed all objects in the bucket: " +
 bucketName);
        }).exceptionally(ex -> {
            throw new RuntimeException("Failed to list objects", ex);
        });
    }
```

List objects using pagination.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.ListObjectsV2Request;
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.services.s3.paginators.ListObjectsV2Iterable;

public class ListObjectsPaginated {
    public static void main(String[] args) {
        final String usage = """

            Usage:
                <bucketName>\s

            Where:
                bucketName - The Amazon S3 bucket from which objects are read.\s
            """;

        if (args.length != 1) {
            System.out.println(usage);
            System.exit(1);
        }

        String bucketName = args[0];
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
```

```
            .region(region)
            .build();

        listBucketObjects(s3, bucketName);
        s3.close();
    }

    /**
     * Lists the objects in the specified S3 bucket.
     *
     * @param s3 the S3Client instance used to interact with Amazon S3
     * @param bucketName the name of the S3 bucket to list the objects from
     */
    public static void listBucketObjects(S3Client s3, String bucketName) {
        try {
            ListObjectsV2Request listReq = ListObjectsV2Request.builder()
                .bucket(bucketName)
                .maxKeys(1)
                .build();

            ListObjectsV2Iterable listRes = s3.listObjectsV2Paginator(listReq);
            listRes.stream()
                .flatMap(r -> r.contents().stream())
                .forEach(content -> System.out.println(" Key: " + content.key() +
 " size = " + content.size()));

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }
}
```

- For API details, see ListObjectsV2 in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

List all of the objects in your bucket. If there is more than one object, IsTruncated and NextContinuationToken will be used to iterate over the full list.

```
import {
  S3Client,
  S3ServiceException,
  // This command supersedes the ListObjectsCommand and is the recommended way to
 list objects.
  paginateListObjectsV2,
} from "@aws-sdk/client-s3";

/**
 * Log all of the object keys in a bucket.
 * @param {{ bucketName: string, pageSize: string }}
 */
export const main = async ({ bucketName, pageSize }) => {
  const client = new S3Client({});
  /** @type {string[][]} */
  const objects = [];
  try {
    const paginator = paginateListObjectsV2(
      { client, /* Max items per page */ pageSize: Number.parseInt(pageSize) },
      { Bucket: bucketName },
    );

    for await (const page of paginator) {
      objects.push(page.Contents.map((o) => o.Key));
    }
    objects.forEach((objectList, pageNum) => {
      console.log(
        `Page ${pageNum + 1}\n------\n${objectList.map((o) => `•
 ${o}`).join("\n")}\n`,
```

```
      );
    });
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while listing objects for "${bucketName}". The bucket
 doesn't exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while listing objects for "${bucketName}".
 ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

- For API details, see ListObjectsV2 in *AWS SDK for JavaScript API Reference*.

Kotlin

SDK for Kotlin

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
suspend fun listBucketObjects(bucketName: String) {
    val request =
        ListObjectsRequest {
            bucket = bucketName
        }

    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->
```

```
        val response = s3.listObjects(request)
        response.contents?.forEach { myObject ->
            println("The name of the key is ${myObject.key}")
            println("The object is ${myObject.size?.let { calKb(it) }} KBs")
            println("The owner is ${myObject.owner}")
        }
    }
}

private fun calKb(intValue: Long): Long = intValue / 1024
```

- For API details, see ListObjectsV2 in *AWS SDK for Kotlin API reference*.

PHP

SDK for PHP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

List objects in a bucket.

```
        $s3client = new Aws\S3\S3Client(['region' => 'us-west-2']);

        try {
            $contents = $this->s3client->listObjectsV2([
                'Bucket' => $this->bucketName,
            ]);
            echo "The contents of your bucket are: \n";
            foreach ($contents['Contents'] as $content) {
                echo $content['Key'] . "\n";
            }
        } catch (Exception $exception) {
            echo "Failed to list objects in $this->bucketName with error: " .
 $exception->getMessage();
            exit("Please fix error with listing objects before continuing.");
        }
```

- For API details, see ListObjectsV2 in *AWS SDK for PHP API Reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class ObjectWrapper:
    """Encapsulates S3 object actions."""

    def __init__(self, s3_object):
        """
        :param s3_object: A Boto3 Object resource. This is a high-level resource
 in Boto3
                          that wraps object actions in a class-like structure.
        """
        self.object = s3_object
        self.key = self.object.key


    @staticmethod
    def list(bucket, prefix=None):
        """
        Lists the objects in a bucket, optionally filtered by a prefix.

        :param bucket: The bucket to query. This is a Boto3 Bucket resource.
        :param prefix: When specified, only objects that start with this prefix
 are listed.
        :return: The list of objects.
        """
        try:
            if not prefix:
                objects = list(bucket.objects.all())
            else:
                objects = list(bucket.objects.filter(Prefix=prefix))
```

```
            logger.info(
                "Got objects %s from bucket '%s'", [o.key for o in objects],
 bucket.name
            )
        except ClientError:
            logger.exception("Couldn't get objects for bucket '%s'.",
 bucket.name)
            raise
        else:
            return objects
```

- For API details, see ListObjectsV2 in *AWS SDK for Python (Boto3) API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
require 'aws-sdk-s3'

# Wraps Amazon S3 bucket actions.
class BucketListObjectsWrapper
  attr_reader :bucket

  # @param bucket [Aws::S3::Bucket] An existing Amazon S3 bucket.
  def initialize(bucket)
    @bucket = bucket
  end

  # Lists object in a bucket.
  #
  # @param max_objects [Integer] The maximum number of objects to list.
  # @return [Integer] The number of objects listed.
  def list_objects(max_objects)
    count = 0
```

```
    puts "The objects in #{@bucket.name} are:"
    @bucket.objects.each do |obj|
      puts "\t#{obj.key}"
      count += 1
      break if count == max_objects
    end
    count
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't list objects in bucket #{bucket.name}. Here's why:
 #{e.message}"
    0
  end
end

# Example usage:
def run_demo
  bucket_name = "amzn-s3-demo-bucket"

  wrapper = BucketListObjectsWrapper.new(Aws::S3::Bucket.new(bucket_name))
  count = wrapper.list_objects(25)
  puts "Listed #{count} objects."
end

run_demo if $PROGRAM_NAME == __FILE__
```

- For API details, see ListObjectsV2 in *AWS SDK for Ruby API Reference*.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
pub async fn list_objects(client: &aws_sdk_s3::Client, bucket: &str) ->
 Result<(), S3ExampleError> {
    let mut response = client
        .list_objects_v2()
```

```
        .bucket(bucket.to_owned())
        .max_keys(10) // In this example, go 10 at a time.
        .into_paginator()
        .send();

    while let Some(result) = response.next().await {
        match result {
            Ok(output) => {
                for object in output.contents() {
                    println!(" - {}", object.key().unwrap_or("Unknown"));
                }
            }
            Err(err) => {
                eprintln!("{err:?}")
            }
        }
    }

    Ok(())
}
```

- For API details, see ListObjectsV2 in *AWS SDK for Rust API reference*.

SAP ABAP

SDK for SAP ABAP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    TRY.
        oo_result = lo_s3->listobjectsv2(         " oo_result is returned for
testing purposes. "
          iv_bucket = iv_bucket_name ).
        MESSAGE 'Retrieved list of objects in S3 bucket.' TYPE 'I'.
      CATCH /aws1/cx_s3_nosuchbucket.
        MESSAGE 'Bucket does not exist.' TYPE 'E'.
    ENDTRY.
```

- For API details, see ListObjectsV2 in *AWS SDK for SAP ABAP API reference*.

Swift

SDK for Swift

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import AWSS3

    public func listBucketFiles(bucket: String) async throws -> [String] {
        do {
            let input = ListObjectsV2Input(
                bucket: bucket
            )

            // Use "Paginated" to get all the objects.
            // This lets the SDK handle the 'continuationToken' in
 "ListObjectsV2Output".
            let output = client.listObjectsV2Paginated(input: input)
            var names: [String] = []

            for try await page in output {
                guard let objList = page.contents else {
                    print("ERROR: listObjectsV2Paginated returned nil contents.")
                    continue
                }

                for obj in objList {
                    if let objName = obj.key {
                        names.append(objName)
                    }
                }
            }
```

```
            return names
        }
        catch {
            print("ERROR: ", dump(error, name: "Listing objects."))
            throw error
        }
    }
```

- For API details, see ListObjectsV2 in *AWS SDK for Swift API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutBucketAccelerateConfiguration` with an AWS SDK or CLI

The following code examples show how to use `PutBucketAccelerateConfiguration`.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
using System;
using System.Threading.Tasks;
using Amazon.S3;
using Amazon.S3.Model;

/// <summary>
/// Amazon Simple Storage Service (Amazon S3) Transfer Acceleration is a
/// bucket-level feature that enables you to perform faster data transfers
/// to Amazon S3. This example shows how to configure Transfer
/// Acceleration.
/// </summary>
public class TransferAcceleration
```

```
    {
        /// <summary>
        /// The main method initializes the client object and sets the
        /// Amazon Simple Storage Service (Amazon S3) bucket name before
        /// calling EnableAccelerationAsync.
        /// </summary>
        public static async Task Main()
        {
            var s3Client = new AmazonS3Client();
            const string bucketName = "amzn-s3-demo-bucket";

            await EnableAccelerationAsync(s3Client, bucketName);
        }

        /// <summary>
        /// This method sets the configuration to enable transfer acceleration
        /// for the bucket referred to in the bucketName parameter.
        /// </summary>
        /// <param name="client">An Amazon S3 client used to enable the
        /// acceleration on an Amazon S3 bucket.</param>
        /// <param name="bucketName">The name of the Amazon S3 bucket for which
the
        /// method will be enabling acceleration.</param>
        private static async Task EnableAccelerationAsync(AmazonS3Client client,
string bucketName)
        {
            try
            {
                var putRequest = new PutBucketAccelerateConfigurationRequest
                {
                    BucketName = bucketName,
                    AccelerateConfiguration = new AccelerateConfiguration
                    {
                        Status = BucketAccelerateStatus.Enabled,
                    },
                };
                await client.PutBucketAccelerateConfigurationAsync(putRequest);

                var getRequest = new GetBucketAccelerateConfigurationRequest
                {
                    BucketName = bucketName,
                };
                var response = await
client.GetBucketAccelerateConfigurationAsync(getRequest);
```

```
                Console.WriteLine($"Acceleration state = '{response.Status}' ");
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Error occurred. Message:'{ex.Message}' when
 setting transfer acceleration");
            }
        }
    }
```

- For API details, see PutBucketAccelerateConfiguration in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

To set the accelerate configuration of a bucket

The following `put-bucket-accelerate-configuration` example enables the accelerate configuration for the specified bucket.

```
aws s3api put-bucket-accelerate-configuration \
    --bucket amzn-s3-demo-bucket \
    --accelerate-configuration Status=Enabled
```

This command produces no output.

- For API details, see PutBucketAccelerateConfiguration in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command enables the transfer acceleration for the given S3 bucket.

```
$statusVal = New-Object Amazon.S3.BucketAccelerateStatus('Enabled')
Write-S3BucketAccelerateConfiguration -BucketName 'amzn-s3-demo-bucket' -
AccelerateConfiguration_Status $statusVal
```

- For API details, see PutBucketAccelerateConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command enables the transfer acceleration for the given S3 bucket.

```
$statusVal = New-Object Amazon.S3.BucketAccelerateStatus('Enabled')
Write-S3BucketAccelerateConfiguration -BucketName 'amzn-s3-demo-bucket' -
AccelerateConfiguration_Status $statusVal
```

- For API details, see PutBucketAccelerateConfiguration in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutBucketAcl` with an AWS SDK or CLI

The following code examples show how to use `PutBucketAcl`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Manage access control lists (ACLs)

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
        /// <summary>
```

```
        /// Creates an Amazon S3 bucket with an ACL to control access to the
        /// bucket and the objects stored in it.
        /// </summary>
        /// <param name="client">The initialized client object used to create
        /// an Amazon S3 bucket, with an ACL applied to the bucket.
        /// </param>
        /// <param name="region">The AWS Region where the bucket will be
created.</param>
        /// <param name="newBucketName">The name of the bucket to create.</param>
        /// <returns>A boolean value indicating success or failure.</returns>
        public static async Task<bool> CreateBucketUseCannedACLAsync(IAmazonS3
client, S3Region region, string newBucketName)
        {
            try
            {
                // Create a new Amazon S3 bucket with Canned ACL.
                var putBucketRequest = new PutBucketRequest()
                {
                    BucketName = newBucketName,
                    BucketRegion = region,
                    CannedACL = S3CannedACL.LogDeliveryWrite,
                };

                PutBucketResponse putBucketResponse = await
client.PutBucketAsync(putBucketRequest);

                return putBucketResponse.HttpStatusCode ==
System.Net.HttpStatusCode.OK;
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Amazon S3 error: {ex.Message}");
            }

            return false;
        }
```

- For API details, see PutBucketAcl in *AWS SDK for .NET API Reference*.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::putBucketAcl(const Aws::String &bucketName, const Aws::String
 &ownerID,
                              const Aws::String &granteePermission,
                              const Aws::String &granteeType, const Aws::String
 &granteeID,
                              const Aws::String &granteeEmailAddress,
                              const Aws::String &granteeURI, const
 Aws::S3::S3ClientConfiguration &clientConfig) {
    Aws::S3::S3Client s3Client(clientConfig);

    Aws::S3::Model::Owner owner;
    owner.SetID(ownerID);

    Aws::S3::Model::Grantee grantee;
    grantee.SetType(setGranteeType(granteeType));

    if (!granteeEmailAddress.empty()) {
        grantee.SetEmailAddress(granteeEmailAddress);
    }

    if (!granteeID.empty()) {
        grantee.SetID(granteeID);
    }

    if (!granteeURI.empty()) {
        grantee.SetURI(granteeURI);
    }

    Aws::S3::Model::Grant grant;
    grant.SetGrantee(grantee);
    grant.SetPermission(setGranteePermission(granteePermission));
```

```
    Aws::Vector<Aws::S3::Model::Grant> grants;
    grants.push_back(grant);

    Aws::S3::Model::AccessControlPolicy acp;
    acp.SetOwner(owner);
    acp.SetGrants(grants);

    Aws::S3::Model::PutBucketAclRequest request;
    request.SetAccessControlPolicy(acp);
    request.SetBucket(bucketName);

    Aws::S3::Model::PutBucketAclOutcome outcome =
            s3Client.PutBucketAcl(request);

    if (!outcome.IsSuccess()) {
        const Aws::S3::S3Error &error = outcome.GetError();

        std::cerr << "Error: putBucketAcl: " << error.GetExceptionName()
                  << " - " << error.GetMessage() << std::endl;
    } else {
        std::cout << "Successfully added an ACL to the bucket '" << bucketName
                  << "'." << std::endl;
    }

    return outcome.IsSuccess();
}

//! Routine which converts a human-readable string to a built-in type
 enumeration.
/*!
 \param access: Human readable string.
 \return Permission: A Permission enum.
*/

Aws::S3::Model::Permission setGranteePermission(const Aws::String &access) {
    if (access == "FULL_CONTROL")
        return Aws::S3::Model::Permission::FULL_CONTROL;
    if (access == "WRITE")
        return Aws::S3::Model::Permission::WRITE;
    if (access == "READ")
        return Aws::S3::Model::Permission::READ;
    if (access == "WRITE_ACP")
        return Aws::S3::Model::Permission::WRITE_ACP;
    if (access == "READ_ACP")
```

```
        return Aws::S3::Model::Permission::READ_ACP;
    return Aws::S3::Model::Permission::NOT_SET;
}

//! Routine which converts a human-readable string to a built-in type
 enumeration.
/*!
 \param type: Human readable string.
 \return Type: Type enumeration
*/

Aws::S3::Model::Type setGranteeType(const Aws::String &type) {
    if (type == "Amazon customer by email")
        return Aws::S3::Model::Type::AmazonCustomerByEmail;
    if (type == "Canonical user")
        return Aws::S3::Model::Type::CanonicalUser;
    if (type == "Group")
        return Aws::S3::Model::Type::Group;
    return Aws::S3::Model::Type::NOT_SET;
}
```

- For API details, see PutBucketAcl in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

This example grants `full control` to two AWS users (*user1@example.com* and *user2@example.com*) and `read` permission to everyone:

```
aws s3api put-bucket-acl --bucket amzn-s3-demo-bucket --grant-full-
control emailaddress=user1@example.com,emailaddress=user2@example.com --grant-
read uri=http://acs.amazonaws.com/groups/global/AllUsers
```

See http://docs.aws.amazon.com/AmazonS3/latest/API/RESTBucketPUTacl.html for details on custom ACLs (the s3api ACL commands, such as `put-bucket-acl`, use the same shorthand argument notation).

- For API details, see PutBucketAcl in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.AccessControlPolicy;
import software.amazon.awssdk.services.s3.model.Grant;
import software.amazon.awssdk.services.s3.model.Permission;
import software.amazon.awssdk.services.s3.model.PutBucketAclRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.services.s3.model.Type;

import java.util.ArrayList;
import java.util.List;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */
public class SetAcl {
    public static void main(String[] args) {
        final String usage = """

            Usage:
              <bucketName> <id>\s

            Where:
              bucketName - The Amazon S3 bucket to grant permissions on.\s
```

```
              id - The ID of the owner of this bucket (you can get this value
from the AWS Management Console).
           """;

       if (args.length != 2) {
           System.out.println(usage);
           return;
       }

       String bucketName = args[0];
       String id = args[1];
       System.out.format("Setting access \n");
       System.out.println(" in bucket: " + bucketName);
       Region region = Region.US_EAST_1;
       S3Client s3 = S3Client.builder()
           .region(region)
           .build();

       setBucketAcl(s3, bucketName, id);
       System.out.println("Done!");
       s3.close();
   }

   /**
    * Sets the Access Control List (ACL) for an Amazon S3 bucket.
    *
    * @param s3 the S3Client instance to be used for the operation
    * @param bucketName the name of the S3 bucket to set the ACL for
    * @param id the ID of the AWS user or account that will be granted full
control of the bucket
    * @throws S3Exception if an error occurs while setting the bucket ACL
    */
   public static void setBucketAcl(S3Client s3, String bucketName, String id) {
       try {
           Grant ownerGrant = Grant.builder()
               .grantee(builder -> builder.id(id)
                   .type(Type.CANONICAL_USER))
               .permission(Permission.FULL_CONTROL)
               .build();

           List<Grant> grantList2 = new ArrayList<>();
           grantList2.add(ownerGrant);

           AccessControlPolicy acl = AccessControlPolicy.builder()
```

```
                .owner(builder -> builder.id(id))
                .grants(grantList2)
                .build();

            PutBucketAclRequest putAclReq = PutBucketAclRequest.builder()
                .bucket(bucketName)
                .accessControlPolicy(acl)
                .build();

            s3.putBucketAcl(putAclReq);

        } catch (S3Exception e) {
            e.printStackTrace();
            System.exit(1);
        }
    }
}
```

- For API details, see PutBucketAcl in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Put the bucket ACL.

```
import {
  PutBucketAclCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Grant read access to a user using their canonical AWS account ID.
 *
```

```
 * Most Amazon S3 use cases don't require the use of access control lists (ACLs).
 * We recommend that you disable ACLs, except in unusual circumstances where
 * you need to control access for each object individually. Consider a policy
 instead.
 * For more information see https://docs.aws.amazon.com/AmazonS3/latest/
userguide/bucket-policies.html.
 * @param {{ bucketName: string, granteeCanonicalUserId: string,
 ownerCanonicalUserId }}
 */
export const main = async ({
  bucketName,
  granteeCanonicalUserId,
  ownerCanonicalUserId,
}) => {
  const client = new S3Client({});
  const command = new PutBucketAclCommand({
    Bucket: bucketName,
    AccessControlPolicy: {
      Grants: [
        {
          Grantee: {
            // The canonical ID of the user. This ID is an obfuscated form of
 your AWS account number.
            // It's unique to Amazon S3 and can't be found elsewhere.
            // For more information, see https://docs.aws.amazon.com/AmazonS3/
latest/userguide/finding-canonical-user-id.html.
            ID: granteeCanonicalUserId,
            Type: "CanonicalUser",
          },
          // One of FULL_CONTROL | READ | WRITE | READ_ACP | WRITE_ACP
          // https://docs.aws.amazon.com/AmazonS3/latest/API/
API_Grant.html#AmazonS3-Type-Grant-Permission
          Permission: "READ",
        },
      ],
      Owner: {
        ID: ownerCanonicalUserId,
      },
    },
  });

  try {
    await client.send(command);
    console.log(`Granted READ access to ${bucketName}`);
```

```
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while setting ACL for bucket ${bucketName}. The bucket
 doesn't exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while setting ACL for bucket ${bucketName}.
 ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

- For more information, see AWS SDK for JavaScript Developer Guide.
- For API details, see PutBucketAcl in *AWS SDK for JavaScript API Reference*.

Kotlin

SDK for Kotlin

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
suspend fun setBucketAcl(
    bucketName: String,
    idVal: String,
) {
    val myGrant =
        Grantee {
            id = idVal
```

```
            type = Type.CanonicalUser
        }

    val ownerGrant =
        Grant {
            grantee = myGrant
            permission = Permission.FullControl
        }

    val grantList = mutableListOf<Grant>()
    grantList.add(ownerGrant)

    val ownerOb =
        Owner {
            id = idVal
        }

    val acl =
        AccessControlPolicy {
            owner = ownerOb
            grants = grantList
        }

    val request =
        PutBucketAclRequest {
            bucket = bucketName
            accessControlPolicy = acl
        }

    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->
        s3.putBucketAcl(request)
        println("An ACL was successfully set on $bucketName")
    }
}
```

- For API details, see PutBucketAcl in *AWS SDK for Kotlin API reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class BucketWrapper:
    """Encapsulates S3 bucket actions."""

    def __init__(self, bucket):
        """
        :param bucket: A Boto3 Bucket resource. This is a high-level resource in
 Boto3
                       that wraps bucket actions in a class-like structure.
        """
        self.bucket = bucket
        self.name = bucket.name


    def grant_log_delivery_access(self):
        """
        Grant the AWS Log Delivery group write access to the bucket so that
        Amazon S3 can deliver access logs to the bucket. This is the only
 recommended
        use of an S3 bucket ACL.
        """
        try:
            acl = self.bucket.Acl()
            # Putting an ACL overwrites the existing ACL. If you want to preserve
            # existing grants, append new grants to the list of existing grants.
            grants = acl.grants if acl.grants else []
            grants.append(
                {
                    "Grantee": {
                        "Type": "Group",
                        "URI": "http://acs.amazonaws.com/groups/s3/LogDelivery",
                    },
                    "Permission": "WRITE",
```

```
                }
            )
            acl.put(AccessControlPolicy={"Grants": grants, "Owner": acl.owner})
            logger.info("Granted log delivery access to bucket '%s'",
self.bucket.name)
        except ClientError:
            logger.exception("Couldn't add ACL to bucket '%s'.",
self.bucket.name)
            raise
```

- For API details, see PutBucketAcl in *AWS SDK for Python (Boto3) API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutBucketCors` with an AWS SDK or CLI

The following code examples show how to use `PutBucketCors`.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
        /// <summary>
        /// Add CORS configuration to the Amazon S3 bucket.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used
        /// to apply the CORS configuration to an Amazon S3 bucket.</param>
        /// <param name="configuration">The CORS configuration to apply.</param>
        private static async Task PutCORSConfigurationAsync(AmazonS3Client
client, CORSConfiguration configuration)
```

```
        {
            PutCORSConfigurationRequest request = new
 PutCORSConfigurationRequest()
            {
                BucketName = BucketName,
                Configuration = configuration,
            };

            _ = await client.PutCORSConfigurationAsync(request);
        }
```

- For API details, see PutBucketCors in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

The following example enables PUT, POST, and DELETE requests from *www.example.com*, and enables GET requests from any domain:

```
aws s3api put-bucket-cors --bucket amzn-s3-demo-bucket --cors-
configuration file://cors.json

cors.json:
{
  "CORSRules": [
    {
      "AllowedOrigins": ["http://www.example.com"],
      "AllowedHeaders": ["*"],
      "AllowedMethods": ["PUT", "POST", "DELETE"],
      "MaxAgeSeconds": 3000,
      "ExposeHeaders": ["x-amz-server-side-encryption"]
    },
    {
      "AllowedOrigins": ["*"],
      "AllowedHeaders": ["Authorization"],
      "AllowedMethods": ["GET"],
      "MaxAgeSeconds": 3000
    }
```

```
  ]
}
```

- For API details, see PutBucketCors in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;

import java.util.ArrayList;
import java.util.List;

import software.amazon.awssdk.services.s3.model.GetBucketCorsRequest;
import software.amazon.awssdk.services.s3.model.GetBucketCorsResponse;
import software.amazon.awssdk.services.s3.model.DeleteBucketCorsRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.services.s3.model.CORSRule;
import software.amazon.awssdk.services.s3.model.CORSConfiguration;
import software.amazon.awssdk.services.s3.model.PutBucketCorsRequest;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */
public class S3Cors {
    public static void main(String[] args) {
        final String usage = """
```

```
            Usage:
                <bucketName> <accountId>\s

            Where:
                bucketName - The Amazon S3 bucket to upload an object into.
                accountId - The id of the account that owns the Amazon S3 bucket.
            """;

        if (args.length != 2) {
            System.out.println(usage);
            System.exit(1);
        }

        String bucketName = args[0];
        String accountId = args[1];
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        setCorsInformation(s3, bucketName, accountId);
        getBucketCorsInformation(s3, bucketName, accountId);
        deleteBucketCorsInformation(s3, bucketName, accountId);
        s3.close();
    }

    /**
     * Deletes the CORS (Cross-Origin Resource Sharing) configuration for an
Amazon S3 bucket.
     *
     * @param s3            the {@link S3Client} instance used to interact with
the Amazon S3 service
     * @param bucketName    the name of the Amazon S3 bucket for which the CORS
configuration should be deleted
     * @param accountId     the expected AWS account ID of the bucket owner
     *
     * @throws S3Exception if an error occurs while deleting the CORS
configuration for the bucket
     */
    public static void deleteBucketCorsInformation(S3Client s3, String
bucketName, String accountId) {
        try {
```

```
            DeleteBucketCorsRequest bucketCorsRequest =
DeleteBucketCorsRequest.builder()
                .bucket(bucketName)
                .expectedBucketOwner(accountId)
                .build();

            s3.deleteBucketCors(bucketCorsRequest);

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }

    /**
     * Retrieves the CORS (Cross-Origin Resource Sharing) configuration for the
specified S3 bucket.
     *
     * @param s3 the S3Client instance to use for the operation
     * @param bucketName the name of the S3 bucket to retrieve the CORS
configuration for
     * @param accountId the expected bucket owner's account ID
     *
     * @throws S3Exception if there is an error retrieving the CORS configuration
     */
    public static void getBucketCorsInformation(S3Client s3, String bucketName,
String accountId) {
        try {
            GetBucketCorsRequest bucketCorsRequest =
GetBucketCorsRequest.builder()
                .bucket(bucketName)
                .expectedBucketOwner(accountId)
                .build();

            GetBucketCorsResponse corsResponse =
s3.getBucketCors(bucketCorsRequest);
            List<CORSRule> corsRules = corsResponse.corsRules();
            for (CORSRule rule : corsRules) {
                System.out.println("allowOrigins: " + rule.allowedOrigins());
                System.out.println("AllowedMethod: " + rule.allowedMethods());
            }

        } catch (S3Exception e) {
```

```
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }

    /**
     * Sets the Cross-Origin Resource Sharing (CORS) rules for an Amazon S3
bucket.
     *
     * @param s3 The S3Client object used to interact with the Amazon S3 service.
     * @param bucketName The name of the S3 bucket to set the CORS rules for.
     * @param accountId The AWS account ID of the bucket owner.
     */
    public static void setCorsInformation(S3Client s3, String bucketName, String
accountId) {
        List<String> allowMethods = new ArrayList<>();
        allowMethods.add("PUT");
        allowMethods.add("POST");
        allowMethods.add("DELETE");

        List<String> allowOrigins = new ArrayList<>();
        allowOrigins.add("http://example.com");
        try {
            // Define CORS rules.
            CORSRule corsRule = CORSRule.builder()
                .allowedMethods(allowMethods)
                .allowedOrigins(allowOrigins)
                .build();

            List<CORSRule> corsRules = new ArrayList<>();
            corsRules.add(corsRule);
            CORSConfiguration configuration = CORSConfiguration.builder()
                .corsRules(corsRules)
                .build();

            PutBucketCorsRequest putBucketCorsRequest =
PutBucketCorsRequest.builder()
                .bucket(bucketName)
                .corsConfiguration(configuration)
                .expectedBucketOwner(accountId)
                .build();

            s3.putBucketCors(putBucketCorsRequest);
```

```
        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }
}
```

- For API details, see PutBucketCors in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Add a CORS rule.

```
import {
  PutBucketCorsCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Allows cross-origin requests to an S3 bucket by setting the CORS
 configuration.
 * @param {{ bucketName: string }}
 */
export const main = async ({ bucketName }) => {
  const client = new S3Client({});

  try {
    await client.send(
      new PutBucketCorsCommand({
        Bucket: bucketName,
        CORSConfiguration: {
          CORSRules: [
```

```
            {
              // Allow all headers to be sent to this bucket.
              AllowedHeaders: ["*"],
              // Allow only GET and PUT methods to be sent to this bucket.
              AllowedMethods: ["GET", "PUT"],
              // Allow only requests from the specified origin.
              AllowedOrigins: ["https://www.example.com"],
              // Allow the entity tag (ETag) header to be returned in the
 response. The ETag header
              // The entity tag represents a specific version of the object. The
 ETag reflects
              // changes only to the contents of an object, not its metadata.
              ExposeHeaders: ["ETag"],
              // How long the requesting browser should cache the preflight
 response. After
              // this time, the preflight request will have to be made again.
              MaxAgeSeconds: 3600,
            },
          ],
        },
      }),
    );
    console.log(`Successfully set CORS rules for bucket: ${bucketName}`);
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while setting CORS rules for ${bucketName}. The bucket
 doesn't exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while setting CORS rules for ${bucketName}.
 ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

- For more information, see AWS SDK for JavaScript Developer Guide.
- For API details, see PutBucketCors in *AWS SDK for JavaScript API Reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class BucketWrapper:
    """Encapsulates S3 bucket actions."""

    def __init__(self, bucket):
        """
        :param bucket: A Boto3 Bucket resource. This is a high-level resource in
 Boto3
                       that wraps bucket actions in a class-like structure.
        """
        self.bucket = bucket
        self.name = bucket.name


    def put_cors(self, cors_rules):
        """
        Apply CORS rules to the bucket. CORS rules specify the HTTP actions that
 are
        allowed from other domains.

        :param cors_rules: The CORS rules to apply.
        """
        try:
            self.bucket.Cors().put(CORSConfiguration={"CORSRules": cors_rules})
            logger.info(
                "Put CORS rules %s for bucket '%s'.", cors_rules,
 self.bucket.name
            )
        except ClientError:
```

```
            logger.exception("Couldn't put CORS rules for bucket %s.",
 self.bucket.name)
            raise
```

- For API details, see PutBucketCors in *AWS SDK for Python (Boto3) API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
require 'aws-sdk-s3'

# Wraps Amazon S3 bucket CORS configuration.
class BucketCorsWrapper
  attr_reader :bucket_cors

  # @param bucket_cors [Aws::S3::BucketCors] A bucket CORS object configured with
 an existing bucket.
  def initialize(bucket_cors)
    @bucket_cors = bucket_cors
  end

  # Sets CORS rules on a bucket.
  #
  # @param allowed_methods [Array<String>] The types of HTTP requests to allow.
  # @param allowed_origins [Array<String>] The origins to allow.
  # @returns [Boolean] True if the CORS rules were set; otherwise, false.
  def set_cors(allowed_methods, allowed_origins)
    @bucket_cors.put(
      cors_configuration: {
        cors_rules: [
          {
            allowed_methods: allowed_methods,
            allowed_origins: allowed_origins,
```

```
            allowed_headers: %w[*],
            max_age_seconds: 3600
          }
        ]
      }
    )
    true
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't set CORS rules for #{@bucket_cors.bucket.name}. Here's why:
 #{e.message}"
    false
  end

end
```

- For API details, see PutBucketCors in *AWS SDK for Ruby API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutBucketEncryption` with an AWS SDK or CLI

The following code examples show how to use `PutBucketEncryption`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Get started with S3

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    /// <summary>
    /// Set the bucket server side encryption to use AWSKMS with a customer-
managed key id.
    /// </summary>
    /// <param name="bucketName">Name of the bucket.</param>
    /// <param name="kmsKeyId">The Id of the KMS Key.</param>
    /// <returns>True if successful.</returns>
    public static async Task<bool> SetBucketServerSideEncryption(string
 bucketName, string kmsKeyId)
    {
        var serverSideEncryptionByDefault = new ServerSideEncryptionConfiguration
        {
            ServerSideEncryptionRules = new List<ServerSideEncryptionRule>
            {
                new ServerSideEncryptionRule
                {
                    ServerSideEncryptionByDefault = new
 ServerSideEncryptionByDefault
                    {
                        ServerSideEncryptionAlgorithm =
 ServerSideEncryptionMethod.AWSKMS,
                        ServerSideEncryptionKeyManagementServiceKeyId = kmsKeyId
                    }
                }
            }
        };
        try
        {
            var encryptionResponse = await _s3Client.PutBucketEncryptionAsync(new
 PutBucketEncryptionRequest
            {
                BucketName = bucketName,
                ServerSideEncryptionConfiguration =
 serverSideEncryptionByDefault,
            });

            return encryptionResponse.HttpStatusCode == HttpStatusCode.OK;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine(ex.ErrorCode == "AccessDenied"
                ? $"This account does not have permission to set encryption on
 {bucketName}, please try again."
```

```
                : $"Unable to set bucket encryption for bucket {bucketName},
 {ex.Message}");
        }
        return false;
    }
```

- For API details, see PutBucketEncryption in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

To configure server-side encryption for a bucket

The following `put-bucket-encryption` example sets AES256 encryption as the default for the specified bucket.

```
aws s3api put-bucket-encryption \
    --bucket amzn-s3-demo-bucket \
    --server-side-encryption-configuration '{"Rules":
 [{"ApplyServerSideEncryptionByDefault": {"SSEAlgorithm": "AES256"}}]}'
```

This command produces no output.

- For API details, see PutBucketEncryption in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command enables default AES256 server side encryption with Amazon S3 Managed Keys(SSE-S3) on the given bucket.

```
$Encryptionconfig = @{ServerSideEncryptionByDefault =
 @{ServerSideEncryptionAlgorithm = "AES256"}}
Set-S3BucketEncryption -BucketName 'amzn-s3-demo-bucket' -
ServerSideEncryptionConfiguration_ServerSideEncryptionRule $Encryptionconfig
```

- For API details, see PutBucketEncryption in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command enables default AES256 server side encryption with Amazon S3 Managed Keys(SSE-S3) on the given bucket.

```
$Encryptionconfig = @{ServerSideEncryptionByDefault =
 @{ServerSideEncryptionAlgorithm = "AES256"}}
Set-S3BucketEncryption -BucketName 'amzn-s3-demo-bucket' -
ServerSideEncryptionConfiguration_ServerSideEncryptionRule $Encryptionconfig
```

- For API details, see PutBucketEncryption in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutBucketLifecycleConfiguration` with an AWS SDK or CLI

The following code examples show how to use `PutBucketLifecycleConfiguration`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Delete incomplete multipart uploads
- Manage large messages using S3
- Work with versioned objects

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
        /// <summary>
        /// Adds lifecycle configuration information to the S3 bucket named in
        /// the bucketName parameter.
        /// </summary>
        /// <param name="client">The S3 client used to call the
        /// PutLifecycleConfigurationAsync method.</param>
        /// <param name="bucketName">A string representing the S3 bucket to
        /// which configuration information will be added.</param>
        /// <param name="configuration">A LifecycleConfiguration object that
        /// will be applied to the S3 bucket.</param>
        public static async Task AddExampleLifecycleConfigAsync(IAmazonS3 client,
 string bucketName, LifecycleConfiguration configuration)
        {
            var request = new PutLifecycleConfigurationRequest()
            {
                BucketName = bucketName,
                Configuration = configuration,
            };
            var response = await client.PutLifecycleConfigurationAsync(request);
        }
```

- For API details, see PutBucketLifecycleConfiguration in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

The following command applies a lifecycle configuration to a bucket named `amzn-s3-demo-bucket`:

```
aws s3api put-bucket-lifecycle-configuration --bucket amzn-s3-demo-bucket --
lifecycle-configuration  file://lifecycle.json
```

The file `lifecycle.json` is a JSON document in the current folder that specifies two rules:

```
{
    "Rules": [
        {
            "ID": "Move rotated logs to Glacier",
            "Prefix": "rotated/",
```

```
            "Status": "Enabled",
            "Transitions": [
                {
                    "Date": "2015-11-10T00:00:00.000Z",
                    "StorageClass": "GLACIER"
                }
            ]
        },
        {
            "Status": "Enabled",
            "Prefix": "",
            "NoncurrentVersionTransitions": [
                {
                    "NoncurrentDays": 2,
                    "StorageClass": "GLACIER"
                }
            ],
            "ID": "Move old versions to Glacier"
        }
    ]
}
```

The first rule moves files with the prefix `rotated` to Glacier on the specified date. The second rule moves old object versions to Glacier when they are no longer current. For information on acceptable timestamp formats, see Specifying Parameter Values in the *AWS CLI User Guide*.

- For API details, see PutBucketLifecycleConfiguration in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import software.amazon.awssdk.regions.Region;
```

```
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.LifecycleRuleFilter;
import software.amazon.awssdk.services.s3.model.Transition;
import
 software.amazon.awssdk.services.s3.model.GetBucketLifecycleConfigurationRequest;
import
 software.amazon.awssdk.services.s3.model.GetBucketLifecycleConfigurationResponse;
import software.amazon.awssdk.services.s3.model.DeleteBucketLifecycleRequest;
import software.amazon.awssdk.services.s3.model.TransitionStorageClass;
import software.amazon.awssdk.services.s3.model.LifecycleRule;
import software.amazon.awssdk.services.s3.model.ExpirationStatus;
import software.amazon.awssdk.services.s3.model.BucketLifecycleConfiguration;
import
 software.amazon.awssdk.services.s3.model.PutBucketLifecycleConfigurationRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;
import java.util.ArrayList;
import java.util.List;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */

public class LifecycleConfiguration {
    public static void main(String[] args) {
        final String usage = """

            Usage:
              <bucketName> <accountId>\s

            Where:
              bucketName - The Amazon Simple Storage Service (Amazon S3) bucket
 to upload an object into.
              accountId - The id of the account that owns the Amazon S3 bucket.
            """;

        if (args.length != 2) {
            System.out.println(usage);
            System.exit(1);
```

```
        }

        String bucketName = args[0];
        String accountId = args[1];
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        setLifecycleConfig(s3, bucketName, accountId);
        getLifecycleConfig(s3, bucketName, accountId);
        deleteLifecycleConfig(s3, bucketName, accountId);
        System.out.println("You have successfully created, updated, and deleted a
Lifecycle configuration");
        s3.close();
    }

    /**
     * Sets the lifecycle configuration for an Amazon S3 bucket.
     *
     * @param s3           The Amazon S3 client to use for the operation.
     * @param bucketName   The name of the Amazon S3 bucket.
     * @param accountId    The expected owner of the Amazon S3 bucket.
     *
     * @throws S3Exception if there is an error setting the lifecycle
configuration.
     */
    public static void setLifecycleConfig(S3Client s3, String bucketName, String
accountId) {
        try {
            // Create a rule to archive objects with the "glacierobjects/" prefix
to the
            // S3 Glacier Flexible Retrieval storage class immediately.
            LifecycleRuleFilter ruleFilter = LifecycleRuleFilter.builder()
                .prefix("glacierobjects/")
                .build();

            Transition transition = Transition.builder()
                .storageClass(TransitionStorageClass.GLACIER)
                .days(0)
                .build();

            LifecycleRule rule1 = LifecycleRule.builder()
                .id("Archive immediately rule")
```

```
                .filter(ruleFilter)
                .transitions(transition)
                .status(ExpirationStatus.ENABLED)
                .build();

            // Create a second rule.
            Transition transition2 = Transition.builder()
                .storageClass(TransitionStorageClass.GLACIER)
                .days(0)
                .build();

            List<Transition> transitionList = new ArrayList<>();
            transitionList.add(transition2);

            LifecycleRuleFilter ruleFilter2 = LifecycleRuleFilter.builder()
                .prefix("glacierobjects/")
                .build();

            LifecycleRule rule2 = LifecycleRule.builder()
                .id("Archive and then delete rule")
                .filter(ruleFilter2)
                .transitions(transitionList)
                .status(ExpirationStatus.ENABLED)
                .build();

            // Add the LifecycleRule objects to an ArrayList.
            ArrayList<LifecycleRule> ruleList = new ArrayList<>();
            ruleList.add(rule1);
            ruleList.add(rule2);

            BucketLifecycleConfiguration lifecycleConfiguration =
BucketLifecycleConfiguration.builder()
                .rules(ruleList)
                .build();

            PutBucketLifecycleConfigurationRequest
putBucketLifecycleConfigurationRequest = PutBucketLifecycleConfigurationRequest
                .builder()
                .bucket(bucketName)
                .lifecycleConfiguration(lifecycleConfiguration)
                .expectedBucketOwner(accountId)
                .build();
```

```
s3.putBucketLifecycleConfiguration(putBucketLifecycleConfigurationRequest);

       } catch (S3Exception e) {
           System.err.println(e.awsErrorDetails().errorMessage());
           System.exit(1);
       }
   }

   /**
    * Retrieves the lifecycle configuration for an Amazon S3 bucket and adds a
new lifecycle rule to it.
    *
    * @param s3 the S3Client instance used to interact with Amazon S3
    * @param bucketName the name of the Amazon S3 bucket
    * @param accountId the expected owner of the Amazon S3 bucket
    */
   public static void getLifecycleConfig(S3Client s3, String bucketName, String
accountId) {
       try {
           GetBucketLifecycleConfigurationRequest
getBucketLifecycleConfigurationRequest = GetBucketLifecycleConfigurationRequest
               .builder()
               .bucket(bucketName)
               .expectedBucketOwner(accountId)
               .build();

           GetBucketLifecycleConfigurationResponse response = s3

.getBucketLifecycleConfiguration(getBucketLifecycleConfigurationRequest);
           List<LifecycleRule> newList = new ArrayList<>();
           List<LifecycleRule> rules = response.rules();
           for (LifecycleRule rule : rules) {
               newList.add(rule);
           }

           // Add a new rule with both a prefix predicate and a tag predicate.
           LifecycleRuleFilter ruleFilter = LifecycleRuleFilter.builder()
               .prefix("YearlyDocuments/")
               .build();

           Transition transition = Transition.builder()
               .storageClass(TransitionStorageClass.GLACIER)
               .days(3650)
```

```
                .build();

            LifecycleRule rule1 = LifecycleRule.builder()
                .id("NewRule")
                .filter(ruleFilter)
                .transitions(transition)
                .status(ExpirationStatus.ENABLED)
                .build();

            // Add the new rule to the list.
            newList.add(rule1);
            BucketLifecycleConfiguration lifecycleConfiguration =
BucketLifecycleConfiguration.builder()
                .rules(newList)
                .build();

            PutBucketLifecycleConfigurationRequest
putBucketLifecycleConfigurationRequest = PutBucketLifecycleConfigurationRequest
                .builder()
                .bucket(bucketName)
                .lifecycleConfiguration(lifecycleConfiguration)
                .expectedBucketOwner(accountId)
                .build();


s3.putBucketLifecycleConfiguration(putBucketLifecycleConfigurationRequest);

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }

    /**
     * Deletes the lifecycle configuration for an Amazon S3 bucket.
     *
     * @param s3 the {@link S3Client} to use for the operation
     * @param bucketName the name of the S3 bucket
     * @param accountId the expected account owner of the S3 bucket
     *
     * @throws S3Exception if an error occurs while deleting the lifecycle
configuration
     */
```

```
    public static void deleteLifecycleConfig(S3Client s3, String bucketName,
 String accountId) {
        try {
            DeleteBucketLifecycleRequest deleteBucketLifecycleRequest =
 DeleteBucketLifecycleRequest
                .builder()
                .bucket(bucketName)
                .expectedBucketOwner(accountId)
                .build();

            s3.deleteBucketLifecycle(deleteBucketLifecycleRequest);

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }
}
```

- For API details, see PutBucketLifecycleConfiguration in *AWS SDK for Java 2.x API Reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class BucketWrapper:
    """Encapsulates S3 bucket actions."""

    def __init__(self, bucket):
        """
        :param bucket: A Boto3 Bucket resource. This is a high-level resource in
 Boto3
                       that wraps bucket actions in a class-like structure.
```

```
        """
        self.bucket = bucket
        self.name = bucket.name


    def put_lifecycle_configuration(self, lifecycle_rules):
        """
        Apply a lifecycle configuration to the bucket. The lifecycle
configuration can
        be used to archive or delete the objects in the bucket according to
specified
        parameters, such as a number of days.

        :param lifecycle_rules: The lifecycle rules to apply.
        """
        try:
            self.bucket.LifecycleConfiguration().put(
                LifecycleConfiguration={"Rules": lifecycle_rules}
            )
            logger.info(
                "Put lifecycle rules %s for bucket '%s'.",
                lifecycle_rules,
                self.bucket.name,
            )
        except ClientError:
            logger.exception(
                "Couldn't put lifecycle rules for bucket '%s'.", self.bucket.name
            )
            raise
```

- For API details, see PutBucketLifecycleConfiguration in *AWS SDK for Python (Boto3) API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutBucketLogging` with an AWS SDK or CLI

The following code examples show how to use `PutBucketLogging`.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
using System;
using System.IO;
using System.Threading.Tasks;
using Amazon.S3;
using Amazon.S3.Model;
using Microsoft.Extensions.Configuration;

/// <summary>
/// This example shows how to enable logging on an Amazon Simple Storage
/// Service (Amazon S3) bucket. You need to have two Amazon S3 buckets for
/// this example. The first is the bucket for which you wish to enable
/// logging, and the second is the location where you want to store the
/// logs.
/// </summary>
public class ServerAccessLogging
{
    private static IConfiguration _configuration = null!;

    public static async Task Main()
    {
        LoadConfig();

        string bucketName = _configuration["BucketName"];
        string logBucketName = _configuration["LogBucketName"];
        string logObjectKeyPrefix = _configuration["LogObjectKeyPrefix"];
        string accountId = _configuration["AccountId"];

        // If the AWS Region defined for your default user is different
        // from the Region where your Amazon S3 bucket is located,
        // pass the Region name to the Amazon S3 client object's constructor.
        // For example: RegionEndpoint.USWest2 or RegionEndpoint.USEast2.
        IAmazonS3 client = new AmazonS3Client();
```

```
            try
            {
                // Update bucket policy for target bucket to allow delivery of
logs to it.
                await SetBucketPolicyToAllowLogDelivery(
                    client,
                    bucketName,
                    logBucketName,
                    logObjectKeyPrefix,
                    accountId);

                // Enable logging on the source bucket.
                await EnableLoggingAsync(
                    client,
                    bucketName,
                    logBucketName,
                    logObjectKeyPrefix);
            }
            catch (AmazonS3Exception e)
            {
                Console.WriteLine($"Error: {e.Message}");
            }
        }

        /// <summary>
        /// This method grants appropriate permissions for logging to the
        /// Amazon S3 bucket where the logs will be stored.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client which will be
used
        /// to apply the bucket policy.</param>
        /// <param name="sourceBucketName">The name of the source bucket.</param>
        /// <param name="logBucketName">The name of the bucket where logging
        /// information will be stored.</param>
        /// <param name="logPrefix">The logging prefix where the logs should be
delivered.</param>
        /// <param name="accountId">The account id of the account where the
source bucket exists.</param>
        /// <returns>Async task.</returns>
        public static async Task SetBucketPolicyToAllowLogDelivery(
            IAmazonS3 client,
            string sourceBucketName,
            string logBucketName,
```

```
            string logPrefix,
            string accountId)
        {
            var resourceArn = @"""arn:aws:s3:::" + logBucketName + "/" +
logPrefix + @"*""";

            var newPolicy = @"{
                                ""Statement"":[{
                                ""Sid"": ""S3ServerAccessLogsPolicy"",
                                ""Effect"": ""Allow"",
                                ""Principal"": { ""Service"":
""logging.s3.amazonaws.com"" },
                                ""Action"": [""s3:PutObject""],
                                ""Resource"": [" + resourceArn + @"],
                                ""Condition"": {
                                ""ArnLike"": { ""aws:SourceArn"":
""arn:aws:s3:::" + sourceBucketName + @""" },
                                ""StringEquals"": { ""aws:SourceAccount"": """ +
accountId + @""" }
                                        }
                                    }]
                                }";
            Console.WriteLine($"The policy to apply to bucket {logBucketName} to
enable logging:");
            Console.WriteLine(newPolicy);

            PutBucketPolicyRequest putRequest = new PutBucketPolicyRequest
            {
                BucketName = logBucketName,
                Policy = newPolicy,
            };
            await client.PutBucketPolicyAsync(putRequest);
            Console.WriteLine("Policy applied.");
        }

        /// <summary>
        /// This method enables logging for an Amazon S3 bucket. Logs will be
stored
        /// in the bucket you selected for logging. Selected prefix
        /// will be prepended to each log object.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client which will be
used
```

```
        /// to configure and apply logging to the selected Amazon S3 bucket.</
param>
        /// <param name="bucketName">The name of the Amazon S3 bucket for which
 you
        /// wish to enable logging.</param>
        /// <param name="logBucketName">The name of the Amazon S3 bucket where
 logging
        /// information will be stored.</param>
        /// <param name="logObjectKeyPrefix">The prefix to prepend to each
        /// object key.</param>
        /// <returns>Async task.</returns>
        public static async Task EnableLoggingAsync(
            IAmazonS3 client,
            string bucketName,
            string logBucketName,
            string logObjectKeyPrefix)
        {
            Console.WriteLine($"Enabling logging for bucket {bucketName}.");
            var loggingConfig = new S3BucketLoggingConfig
            {
                TargetBucketName = logBucketName,
                TargetPrefix = logObjectKeyPrefix,
            };

            var putBucketLoggingRequest = new PutBucketLoggingRequest
            {
                BucketName = bucketName,
                LoggingConfig = loggingConfig,
            };
            await client.PutBucketLoggingAsync(putBucketLoggingRequest);
            Console.WriteLine($"Logging enabled.");
        }

        /// <summary>
        /// Loads configuration from settings files.
        /// </summary>
        public static void LoadConfig()
        {
            _configuration = new ConfigurationBuilder()
                .SetBasePath(Directory.GetCurrentDirectory())
                .AddJsonFile("settings.json") // Load settings from .json file.
                .AddJsonFile("settings.local.json", true) // Optionally, load
 local settings.
                .Build();
```

```
        }
    }
```

- For API details, see PutBucketLogging in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

Example 1: To set bucket policy logging

The following `put-bucket-logging` example sets the logging policy for *amzn-s3-demo-bucket*. First, grant the logging service principal permission in your bucket policy using the `put-bucket-policy` command.

```
aws s3api put-bucket-policy \
    --bucket amzn-s3-demo-bucket \
    --policy file://policy.json
```

Contents of `policy.json`:

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "S3ServerAccessLogsPolicy",
            "Effect": "Allow",
            "Principal": {"Service": "logging.s3.amazonaws.com"},
            "Action": "s3:PutObject",
            "Resource": "arn:aws:s3:::amzn-s3-demo-bucket/Logs/*",
            "Condition": {
                "ArnLike": {"aws:SourceARN": "arn:aws:s3:::SOURCE-BUCKET-NAME"},
                "StringEquals": {"aws:SourceAccount": "SOURCE-AWS-ACCOUNT-ID"}
            }
        }
    ]
}
```

To apply the logging policy, use `put-bucket-logging`.

```
aws s3api put-bucket-logging \
    --bucket amzn-s3-demo-bucket \
    --bucket-logging-status file://logging.json
```

Contents of `logging.json`:

```
{
     "LoggingEnabled": {
         "TargetBucket": "amzn-s3-demo-bucket",
         "TargetPrefix": "Logs/"
     }
 }
```

The `put-bucket-policy` command is required to grant `s3:PutObject` permissions to the logging service principal.

For more information, see Amazon S3 Server Access Logging in the *Amazon S3 User Guide*.

Example 2: To set a bucket policy for logging access to only a single user

The following `put-bucket-logging` example sets the logging policy for *amzn-s3-demo-bucket*. The AWS user *bob@example.com* will have full control over the log files, and no one else has any access. First, grant S3 permission with `put-bucket-acl`.

```
aws s3api put-bucket-acl \
    --bucket amzn-s3-demo-bucket \
    --grant-write URI=http://acs.amazonaws.com/groups/s3/LogDelivery \
    --grant-read-acp URI=http://acs.amazonaws.com/groups/s3/LogDelivery
```

Then apply the logging policy using `put-bucket-logging`.

```
aws s3api put-bucket-logging \
    --bucket amzn-s3-demo-bucket \
    --bucket-logging-status file://logging.json
```

Contents of `logging.json`:

```
{
    "LoggingEnabled": {
```

```
        "TargetBucket": "amzn-s3-demo-bucket",
        "TargetPrefix": "amzn-s3-demo-bucket-logs/",
        "TargetGrants": [
            {
                "Grantee": {
                    "Type": "AmazonCustomerByEmail",
                    "EmailAddress": "bob@example.com"
                },
                "Permission": "FULL_CONTROL"
            }
        ]
    }
}
```

the `put-bucket-acl` command is required to grant S3's log delivery system the necessary permissions (write and read-acp permissions).

For more information, see Amazon S3 Server Access Logging in the *Amazon S3 Developer Guide*.

- For API details, see PutBucketLogging in *AWS CLI Command Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutBucketNotification` with a CLI

The following code examples show how to use `PutBucketNotification`.

CLI

AWS CLI

The applies a notification configuration to a bucket named `amzn-s3-demo-bucket`:

```
aws s3api put-bucket-notification --bucket amzn-s3-demo-bucket --notification-
configuration file://notification.json
```

The file `notification.json` is a JSON document in the current folder that specifies an SNS topic and an event type to monitor:

```
{
  "TopicConfiguration": {
    "Event": "s3:ObjectCreated:*",
    "Topic": "arn:aws:sns:us-west-2:123456789012:s3-notification-topic"
  }
}
```

The SNS topic must have an IAM policy attached to it that allows Amazon S3 to publish to it:

```
{
 "Version": "2008-10-17",
 "Id": "example-ID",
 "Statement": [
  {
   "Sid": "example-statement-ID",
   "Effect": "Allow",
   "Principal": {
     "Service": "s3.amazonaws.com"
   },
   "Action": [
    "SNS:Publish"
   ],
   "Resource": "arn:aws:sns:us-west-2:123456789012:amzn-s3-demo-bucket",
   "Condition": {
      "ArnLike": {
      "aws:SourceArn": "arn:aws:s3:*:*:amzn-s3-demo-bucket"
    }
   }
  }
 ]
}
```

- For API details, see PutBucketNotification in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This example configures the SNS topic configuration for the S3 event ObjectRemovedDelete and enables notification for the given s3 bucket

```
$topic =  [Amazon.S3.Model.TopicConfiguration] @{
```

```
  Id = "delete-event"
  Topic = "arn:aws:sns:eu-west-1:123456789012:topic-1"
  Event = [Amazon.S3.EventType]::ObjectRemovedDelete
}

Write-S3BucketNotification -BucketName amzn-s3-demo-bucket -TopicConfiguration
 $topic
```

Example 2: This example enables notifications of ObjectCreatedAll for the given bucket sending it to Lambda function.

```
$lambdaConfig = [Amazon.S3.Model.LambdaFunctionConfiguration] @{
  Events = "s3:ObjectCreated:*"
  FunctionArn = "arn:aws:lambda:eu-west-1:123456789012:function:rdplock"
  Id = "ObjectCreated-Lambda"
  Filter = @{
    S3KeyFilter = @{
      FilterRules = @(
        @{Name="Prefix";Value="dada"}
        @{Name="Suffix";Value=".pem"}
      )
    }
  }
}

Write-S3BucketNotification -BucketName amzn-s3-demo-bucket -
LambdaFunctionConfiguration $lambdaConfig
```

Example 3: This example creates 2 different Lambda configuration on the basis of different key-suffix and configured both in a single command.

```
#Lambda Config 1

$firstLambdaConfig = [Amazon.S3.Model.LambdaFunctionConfiguration] @{
  Events = "s3:ObjectCreated:*"
  FunctionArn = "arn:aws:lambda:eu-west-1:123456789012:function:verifynet"
  Id = "ObjectCreated-dada-ps1"
  Filter = @{
    S3KeyFilter = @{
      FilterRules = @(
        @{Name="Prefix";Value="dada"}
        @{Name="Suffix";Value=".ps1"}
```

```
      )
    }
  }
}

#Lambda Config 2

$secondlambdaConfig = [Amazon.S3.Model.LambdaFunctionConfiguration] @{
  Events = [Amazon.S3.EventType]::ObjectCreatedAll
  FunctionArn = "arn:aws:lambda:eu-west-1:123456789012:function:verifyssm"
  Id = "ObjectCreated-dada-json"
  Filter = @{
    S3KeyFilter = @{
      FilterRules = @(
        @{Name="Prefix";Value="dada"}
        @{Name="Suffix";Value=".json"}
      )
    }
  }
}

Write-S3BucketNotification -BucketName amzn-s3-demo-bucket -
LambdaFunctionConfiguration $firstLambdaConfig,$secondlambdaConfig
```

- For API details, see PutBucketNotification in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This example configures the SNS topic configuration for the S3 event ObjectRemovedDelete and enables notification for the given s3 bucket

```
$topic =  [Amazon.S3.Model.TopicConfiguration] @{
  Id = "delete-event"
  Topic = "arn:aws:sns:eu-west-1:123456789012:topic-1"
  Event = [Amazon.S3.EventType]::ObjectRemovedDelete
}

Write-S3BucketNotification -BucketName amzn-s3-demo-bucket -TopicConfiguration
 $topic
```

Example 2: This example enables notifications of ObjectCreatedAll for the given bucket sending it to Lambda function.

```
$lambdaConfig = [Amazon.S3.Model.LambdaFunctionConfiguration] @{
  Events = "s3:ObjectCreated:*"
  FunctionArn = "arn:aws:lambda:eu-west-1:123456789012:function:rdplock"
  Id = "ObjectCreated-Lambda"
  Filter = @{
    S3KeyFilter = @{
      FilterRules = @(
        @{Name="Prefix";Value="dada"}
        @{Name="Suffix";Value=".pem"}
      )
    }
  }
}

Write-S3BucketNotification -BucketName amzn-s3-demo-bucket -
LambdaFunctionConfiguration $lambdaConfig
```

Example 3: This example creates 2 different Lambda configuration on the basis of different key-suffix and configured both in a single command.

```
#Lambda Config 1

$firstLambdaConfig = [Amazon.S3.Model.LambdaFunctionConfiguration] @{
  Events = "s3:ObjectCreated:*"
  FunctionArn = "arn:aws:lambda:eu-west-1:123456789012:function:verifynet"
  Id = "ObjectCreated-dada-ps1"
  Filter = @{
    S3KeyFilter = @{
      FilterRules = @(
        @{Name="Prefix";Value="dada"}
        @{Name="Suffix";Value=".ps1"}
      )
    }
  }
}

#Lambda Config 2

$secondlambdaConfig = [Amazon.S3.Model.LambdaFunctionConfiguration] @{
  Events = [Amazon.S3.EventType]::ObjectCreatedAll
  FunctionArn = "arn:aws:lambda:eu-west-1:123456789012:function:verifyssm"
  Id = "ObjectCreated-dada-json"
  Filter = @{
```

```
    S3KeyFilter = @{
      FilterRules = @(
        @{Name="Prefix";Value="dada"}
        @{Name="Suffix";Value=".json"}
      )
    }
  }
}

Write-S3BucketNotification -BucketName amzn-s3-demo-bucket -
LambdaFunctionConfiguration $firstLambdaConfig,$secondlambdaConfig
```

- For API details, see PutBucketNotification in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutBucketNotificationConfiguration` with an AWS SDK or CLI

The following code examples show how to use `PutBucketNotificationConfiguration`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Process S3 event notifications
- Send event notifications to EventBridge

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    using System;
```

```
    using System.Collections.Generic;
    using System.Threading.Tasks;
    using Amazon.S3;
    using Amazon.S3.Model;

    /// <summary>
    /// This example shows how to enable notifications for an Amazon Simple
    /// Storage Service (Amazon S3) bucket.
    /// </summary>
    public class EnableNotifications
    {
        public static async Task Main()
        {
            const string bucketName = "amzn-s3-demo-bucket1";
            const string snsTopic = "arn:aws:sns:us-east-2:0123456789ab:bucket-
notify";
            const string sqsQueue = "arn:aws:sqs:us-
east-2:0123456789ab:Example_Queue";

            IAmazonS3 client = new AmazonS3Client(Amazon.RegionEndpoint.USEast2);
            await EnableNotificationAsync(client, bucketName, snsTopic,
 sqsQueue);
        }

        /// <summary>
        /// This method makes the call to the PutBucketNotificationAsync method.
        /// </summary>
        /// <param name="client">An initialized Amazon S3 client used to call
        /// the PutBucketNotificationAsync method.</param>
        /// <param name="bucketName">The name of the bucket for which
        /// notifications will be turned on.</param>
        /// <param name="snsTopic">The ARN for the Amazon Simple Notification
        /// Service (Amazon SNS) topic associated with the S3 bucket.</param>
        /// <param name="sqsQueue">The ARN of the Amazon Simple Queue Service
        /// (Amazon SQS) queue to which notifications will be pushed.</param>
        public static async Task EnableNotificationAsync(
            IAmazonS3 client,
            string bucketName,
            string snsTopic,
            string sqsQueue)
        {
            try
            {
                // The bucket for which we are setting up notifications.
```

```
                var request = new PutBucketNotificationRequest()
                {
                    BucketName = bucketName,
                };

                // Defines the topic to use when sending a notification.
                var topicConfig = new TopicConfiguration()
                {
                    Events = new List<EventType> { EventType.ObjectCreatedCopy },
                    Topic = snsTopic,
                };
                request.TopicConfigurations = new List<TopicConfiguration>
                {
                    topicConfig,
                };
                request.QueueConfigurations = new List<QueueConfiguration>
                {
                    new QueueConfiguration()
                    {
                        Events = new List<EventType>
{ EventType.ObjectCreatedPut },
                        Queue = sqsQueue,
                    },
                };

                // Now apply the notification settings to the bucket.
                PutBucketNotificationResponse response = await
client.PutBucketNotificationAsync(request);
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Error: {ex.Message}");
            }
        }
    }
```

- For API details, see PutBucketNotificationConfiguration in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

To enable the specified notifications to a bucket

The following `put-bucket-notification-configuration` example applies a notification configuration to a bucket named `amzn-s3-demo-bucket`. The file `notification.json` is a JSON document in the current folder that specifies an SNS topic and an event type to monitor.

```
aws s3api put-bucket-notification-configuration \
    --bucket amzn-s3-demo-bucket \
    --notification-configuration file://notification.json
```

Contents of `notification.json`:

```
{
    "TopicConfigurations": [
        {
            "TopicArn": "arn:aws:sns:us-west-2:123456789012:s3-notification-
topic",
            "Events": [
                "s3:ObjectCreated:*"
            ]
        }
    ]
}
```

The SNS topic must have an IAM policy attached to it that allows Amazon S3 to publish to it.

```
{
    "Version": "2008-10-17",
    "Id": "example-ID",
    "Statement": [
        {
            "Sid": "example-statement-ID",
            "Effect": "Allow",
            "Principal": {
                "Service": "s3.amazonaws.com"
            },
            "Action": [
```

```
                "SNS:Publish"
            ],
            "Resource": "arn:aws:sns:us-west-2:123456789012::s3-notification-
topic",
            "Condition": {
                "ArnLike": {
                    "aws:SourceArn": "arn:aws:s3:*:*:amzn-s3-demo-bucket"
                }
            }
        }
    ]
}
```

- For API details, see PutBucketNotificationConfiguration in *AWS CLI Command Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutBucketPolicy` with an AWS SDK or CLI

The following code examples show how to use `PutBucketPolicy`.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::putBucketPolicy(const Aws::String &bucketName,
                                 const Aws::String &policyBody,
                                 const Aws::S3::S3ClientConfiguration
 &clientConfig) {
    Aws::S3::S3Client s3Client(clientConfig);

    std::shared_ptr<Aws::StringStream> request_body =
            Aws::MakeShared<Aws::StringStream>("");
```

```
    *request_body << policyBody;

    Aws::S3::Model::PutBucketPolicyRequest request;
    request.SetBucket(bucketName);
    request.SetBody(request_body);

    Aws::S3::Model::PutBucketPolicyOutcome outcome =
            s3Client.PutBucketPolicy(request);

    if (!outcome.IsSuccess()) {
        std::cerr << "Error: putBucketPolicy: "
                  << outcome.GetError().GetMessage() << std::endl;
    } else {
        std::cout << "Set the following policy body for the bucket '" <<
                  bucketName << "':" << std::endl << std::endl;
        std::cout << policyBody << std::endl;
    }

    return outcome.IsSuccess();
}


//! Build a policy JSON string.
/*!
  \param userArn: Aws user Amazon Resource Name (ARN).
      For more information, see https://docs.aws.amazon.com/IAM/latest/UserGuide/
reference_identifiers.html#identifiers-arns.
  \param bucketName: Name of a bucket.
  \return String: Policy as JSON string.
*/

Aws::String getPolicyString(const Aws::String &userArn,
                            const Aws::String &bucketName) {
    return
            "{\n"
            "   \"Version\":\"2012-10-17\",\n"
            "   \"Statement\":[\n"
            "       {\n"
            "           \"Sid\": \"1\",\n"
            "           \"Effect\": \"Allow\",\n"
            "           \"Principal\": {\n"
            "               \"AWS\": \""
            + userArn +
            "\"\n""           },\n"
```

```
            "           \"Action\": [ \"s3:getObject\" ],\n"
            "           \"Resource\": [ \"arn:aws:s3:::"
            + bucketName +
            "/*\" ]\n"
            "       }\n"
            "   ]\n"
            "}";
}
```

- For API details, see PutBucketPolicy in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

This example allows all users to retrieve any object in *amzn-s3-demo-bucket* except those in the *MySecretFolder*. It also grants `put` and `delete` permission to the root user of the AWS account `1234-5678-9012`:

```
aws s3api put-bucket-policy --bucket amzn-s3-demo-bucket --policy file:// policy.json

policy.json:
{
   "Statement": [
      {
         "Effect": "Allow",
         "Principal": "*",
         "Action": "s3:GetObject",
         "Resource": "arn:aws:s3:::amzn-s3-demo-bucket/*"
      },
      {
         "Effect": "Deny",
         "Principal": "*",
         "Action": "s3:GetObject",
         "Resource": "arn:aws:s3:::amzn-s3-demo-bucket/MySecretFolder/*"
      },
      {
         "Effect": "Allow",
         "Principal": {
            "AWS": "arn:aws:iam::123456789012:root"
```

```
        },
        "Action": [
           "s3:DeleteObject",
           "s3:PutObject"
        ],
        "Resource": "arn:aws:s3:::amzn-s3-demo-bucket/*"
      }

  ]
}
```

- For API details, see PutBucketPolicy in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.PutBucketPolicyRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.regions.Region;

import java.io.IOException;
import java.nio.charset.StandardCharsets;
import java.nio.file.Files;
import java.nio.file.Paths;
import java.util.List;

import com.fasterxml.jackson.core.JsonParser;
import com.fasterxml.jackson.databind.ObjectMapper;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
```

```
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */
public class SetBucketPolicy {
    public static void main(String[] args) {
        final String usage = """

            Usage:
                <bucketName> <polFile>

            Where:
                bucketName - The Amazon S3 bucket to set the policy on.
                polFile - A JSON file containing the policy (see the Amazon S3
 Readme for an example).\s
            """;

        if (args.length != 2) {
            System.out.println(usage);
            System.exit(1);
        }

        String bucketName = args[0];
        String polFile = args[1];
        String policyText = getBucketPolicyFromFile(polFile);
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        setPolicy(s3, bucketName, policyText);
        s3.close();
    }

    /**
     * Sets the policy for an Amazon S3 bucket.
     *
     * @param s3         the {@link S3Client} object used to interact with the
 Amazon S3 service
     * @param bucketName the name of the Amazon S3 bucket
     * @param policyText the text of the policy to be set on the bucket
     * @throws S3Exception if there is an error setting the bucket policy
     */
```

```
    public static void setPolicy(S3Client s3, String bucketName, String
policyText) {
        System.out.println("Setting policy:");
        System.out.println("----");
        System.out.println(policyText);
        System.out.println("----");
        System.out.format("On Amazon S3 bucket: \"%s\"\n", bucketName);

        try {
            PutBucketPolicyRequest policyReq = PutBucketPolicyRequest.builder()
                .bucket(bucketName)
                .policy(policyText)
                .build();

            s3.putBucketPolicy(policyReq);

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }

        System.out.println("Done!");
    }

    /**
     * Retrieves the bucket policy from a specified file.
     *
     * @param policyFile the path to the file containing the bucket policy
     * @return the content of the bucket policy file as a string
     */
    public static String getBucketPolicyFromFile(String policyFile) {
        StringBuilder fileText = new StringBuilder();
        try {
            List<String> lines = Files.readAllLines(Paths.get(policyFile),
StandardCharsets.UTF_8);
            for (String line : lines) {
                fileText.append(line);
            }

        } catch (IOException e) {
            System.out.format("Problem reading file: \"%s\"", policyFile);
            System.out.println(e.getMessage());
        }
```

```
        try {
            final JsonParser parser = new
 ObjectMapper().getFactory().createParser(fileText.toString());
            while (parser.nextToken() != null) {
            }

        } catch (IOException jpe) {
            jpe.printStackTrace();
        }
        return fileText.toString();
    }
}
```

- For API details, see PutBucketPolicy in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Add the policy.

```
import {
  PutBucketPolicyCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Grant an IAM role GetObject access to all of the objects
 * in the provided bucket.
 * @param {{ bucketName: string, iamRoleArn: string }}
 */
export const main = async ({ bucketName, iamRoleArn }) => {
  const client = new S3Client({});
  const command = new PutBucketPolicyCommand({
```

```
    // This is a resource-based policy. For more information on resource-based
 policies,
    // see https://docs.aws.amazon.com/IAM/latest/UserGuide/
access_policies.html#policies_resource-based.
    Policy: JSON.stringify({
      Version: "2012-10-17",
      Statement: [
        {
          Effect: "Allow",
          Principal: {
            AWS: iamRoleArn,
          },
          Action: "s3:GetObject",
          Resource: `arn:aws:s3:::${bucketName}/*`,
        },
      ],
    }),
    // Apply the preceding policy to this bucket.
    Bucket: bucketName,
  });

  try {
    await client.send(command);
    console.log(
      `GetObject access to the bucket "${bucketName}" was granted to the provided
 IAM role.`,
    );
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "MalformedPolicy"
    ) {
      console.error(
        `Error from S3 while setting the bucket policy for the bucket
 "${bucketName}". The policy was malformed.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while setting the bucket policy for the bucket
 "${bucketName}". ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
```

```
  }
};
```

- For more information, see AWS SDK for JavaScript Developer Guide.
- For API details, see PutBucketPolicy in *AWS SDK for JavaScript API Reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class BucketWrapper:
    """Encapsulates S3 bucket actions."""

    def __init__(self, bucket):
        """
        :param bucket: A Boto3 Bucket resource. This is a high-level resource in
 Boto3
                       that wraps bucket actions in a class-like structure.
        """
        self.bucket = bucket
        self.name = bucket.name


    def put_policy(self, policy):
        """
        Apply a security policy to the bucket. Policies control users' ability
        to perform specific actions, such as listing the objects in the bucket.

        :param policy: The policy to apply to the bucket.
        """
        try:
            self.bucket.Policy().put(Policy=json.dumps(policy))
            logger.info("Put policy %s for bucket '%s'.", policy,
 self.bucket.name)
```

```
        except ClientError:
            logger.exception("Couldn't apply policy to bucket '%s'.",
 self.bucket.name)
            raise
```

- For API details, see PutBucketPolicy in *AWS SDK for Python (Boto3) API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
# Wraps an Amazon S3 bucket policy.
class BucketPolicyWrapper
  attr_reader :bucket_policy

  # @param bucket_policy [Aws::S3::BucketPolicy] A bucket policy object
 configured with an existing bucket.
  def initialize(bucket_policy)
    @bucket_policy = bucket_policy
  end

  # Sets a policy on a bucket.
  #
  def policy(policy)
    @bucket_policy.put(policy: policy)
    true
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't set the policy for #{@bucket_policy.bucket.name}. Here's why:
 #{e.message}"
    false
  end

end
```

- For API details, see PutBucketPolicy in *AWS SDK for Ruby API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutBucketReplication` with an AWS SDK or CLI

The following code examples show how to use `PutBucketReplication`.

CLI

AWS CLI

To configure replication for an S3 bucket

The following `put-bucket-replication` example applies a replication configuration to the specified S3 bucket.

```
aws s3api put-bucket-replication \
    --bucket amzn-s3-demo-bucket1 \
    --replication-configuration file://replication.json
```

Contents of `replication.json`:

```
{
    "Role": "arn:aws:iam::123456789012:role/s3-replication-role",
    "Rules": [
        {
            "Status": "Enabled",
            "Priority": 1,
            "DeleteMarkerReplication": { "Status": "Disabled" },
            "Filter" : { "Prefix": ""},
            "Destination": {
                "Bucket": "arn:aws:s3:::amzn-s3-demo-bucket2"
            }
        }
    ]
}
```

The destination bucket must have versioning enabled. The specified role must have permission to write to the destination bucket and have a trust relationship that allows Amazon S3 to assume the role.

Example role permission policy:

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Action": [
                "s3:GetReplicationConfiguration",
                "s3:ListBucket"
            ],
            "Resource": [
                "arn:aws:s3:::amzn-s3-demo-bucket1"
            ]
        },
        {
            "Effect": "Allow",
            "Action": [
                "s3:GetObjectVersion",
                "s3:GetObjectVersionAcl",
                "s3:GetObjectVersionTagging"
            ],
            "Resource": [
                "arn:aws:s3:::amzn-s3-demo-bucket1/*"
            ]
        },
        {
            "Effect": "Allow",
            "Action": [
                "s3:ReplicateObject",
                "s3:ReplicateDelete",
                "s3:ReplicateTags"
            ],
            "Resource": "arn:aws:s3:::amzn-s3-demo-bucket2/*"
        }
    ]
}
```

Example trust relationship policy:

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Principal": {
                "Service": "s3.amazonaws.com"
            },
            "Action": "sts:AssumeRole"
        }
    ]
}
```

This command produces no output.

For more information, see This is the topic title in the *Amazon Simple Storage Service Console User Guide*.

- For API details, see PutBucketReplication in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    /**
     * Sets the replication configuration for an Amazon S3 bucket.
     *
     * @param s3Client             the S3Client instance to use for the operation
     * @param sourceBucketName     the name of the source bucket
     * @param destBucketName       the name of the destination bucket
     * @param destinationBucketARN the Amazon Resource Name (ARN) of the
destination bucket
     * @param roleARN              the ARN of the IAM role to use for the
replication configuration
     */
```

```
   public static void setReplication(S3Client s3Client, String sourceBucketName,
String destBucketName, String destinationBucketARN, String roleARN) {
       try {
           Destination destination = Destination.builder()
               .bucket(destinationBucketARN)
               .storageClass(StorageClass.STANDARD)
               .build();

           // Define a prefix filter for replication.
           ReplicationRuleFilter ruleFilter = ReplicationRuleFilter.builder()
               .prefix("documents/")
               .build();

           // Define delete marker replication setting.
           DeleteMarkerReplication deleteMarkerReplication =
DeleteMarkerReplication.builder()
               .status(DeleteMarkerReplicationStatus.DISABLED)
               .build();

           // Create the replication rule.
           ReplicationRule replicationRule = ReplicationRule.builder()
               .priority(1)
               .filter(ruleFilter)
               .status(ReplicationRuleStatus.ENABLED)
               .deleteMarkerReplication(deleteMarkerReplication)
               .destination(destination)
               .build();

           List<ReplicationRule> replicationRuleList = new ArrayList<>();
           replicationRuleList.add(replicationRule);

           // Define the replication configuration with IAM role.
           ReplicationConfiguration configuration =
ReplicationConfiguration.builder()
               .role(roleARN)
               .rules(replicationRuleList)
               .build();

           // Apply the replication configuration to the source bucket.
           PutBucketReplicationRequest replicationRequest =
PutBucketReplicationRequest.builder()
               .bucket(sourceBucketName)
               .replicationConfiguration(configuration)
               .build();
```

```
            s3Client.putBucketReplication(replicationRequest);
            System.out.println("Replication configuration set successfully.");

        } catch (IllegalArgumentException e) {
            System.err.println("Configuration error: " + e.getMessage());
        } catch (S3Exception e) {
            System.err.println("S3 Exception: " +
 e.awsErrorDetails().errorMessage());
            System.err.println("Status Code: " + e.statusCode());
            System.err.println("Error Code: " + e.awsErrorDetails().errorCode());


        } catch (SdkException e) {
            System.err.println("SDK Exception: " + e.getMessage());
        }
    }
```

- For API details, see PutBucketReplication in *AWS SDK for Java 2.x API Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This example sets a replication configuration with a single rule enabling replication to the 'amzn-s3-demo-bucket' bucket any new objects created with the key name prefix "TaxDocs" in the bucket 'amzn-s3-demo-bucket'.

```
$rule1 = New-Object Amazon.S3.Model.ReplicationRule
$rule1.ID = "Rule-1"
$rule1.Status = "Enabled"
$rule1.Prefix = "TaxDocs"
$rule1.Destination = @{ BucketArn = "arn:aws:s3:::amzn-s3-demo-destination-
bucket" }

$params = @{
    BucketName = "amzn-s3-demo-bucket"
    Configuration_Role = "arn:aws:iam::35667example:role/
CrossRegionReplicationRoleForS3"
    Configuration_Rule = $rule1
}
```

```
Write-S3BucketReplication @params
```

Example 2: This example sets a replication configuration with multiple rules enabling replication to the 'amzn-s3-demo-bucket' bucket any new objects created with either the key name prefix "TaxDocs" or "OtherDocs". The key prefixes must not overlap.

```
$rule1 = New-Object Amazon.S3.Model.ReplicationRule
$rule1.ID = "Rule-1"
$rule1.Status = "Enabled"
$rule1.Prefix = "TaxDocs"
$rule1.Destination = @{ BucketArn = "arn:aws:s3:::amzn-s3-demo-destination-
bucket" }

$rule2 = New-Object Amazon.S3.Model.ReplicationRule
$rule2.ID = "Rule-2"
$rule2.Status = "Enabled"
$rule2.Prefix = "OtherDocs"
$rule2.Destination = @{ BucketArn = "arn:aws:s3:::amzn-s3-demo-destination-
bucket" }

$params = @{
    BucketName = "amzn-s3-demo-bucket"
    Configuration_Role = "arn:aws:iam::35667example:role/
CrossRegionReplicationRoleForS3"
    Configuration_Rule = $rule1,$rule2
}

Write-S3BucketReplication @params
```

Example 3: This example updates the replication configuration on the specified bucket to disable the rule controlling replication of objects with the key name prefix "TaxDocs" to the bucket 'amzn-s3-demo-bucket'.

```
$rule1 = New-Object Amazon.S3.Model.ReplicationRule
$rule1.ID = "Rule-1"
$rule1.Status = "Disabled"
$rule1.Prefix = "TaxDocs"
$rule1.Destination = @{ BucketArn = "arn:aws:s3:::amzn-s3-demo-destination-
bucket" }

$params = @{
```

```
    BucketName = "amzn-s3-demo-bucket"
    Configuration_Role = "arn:aws:iam::35667example:role/
CrossRegionReplicationRoleForS3"
    Configuration_Rule = $rule1
}

Write-S3BucketReplication @params
```

- For API details, see PutBucketReplication in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This example sets a replication configuration with a single rule enabling replication to the 'amzn-s3-demo-bucket' bucket any new objects created with the key name prefix "TaxDocs" in the bucket 'amzn-s3-demo-bucket'.

```
$rule1 = New-Object Amazon.S3.Model.ReplicationRule
$rule1.ID = "Rule-1"
$rule1.Status = "Enabled"
$rule1.Prefix = "TaxDocs"
$rule1.Destination = @{ BucketArn = "arn:aws:s3:::amzn-s3-demo-destination-
bucket" }

$params = @{
    BucketName = "amzn-s3-demo-bucket"
    Configuration_Role = "arn:aws:iam::35667example:role/
CrossRegionReplicationRoleForS3"
    Configuration_Rule = $rule1
}

Write-S3BucketReplication @params
```

Example 2: This example sets a replication configuration with multiple rules enabling replication to the 'amzn-s3-demo-bucket' bucket any new objects created with either the key name prefix "TaxDocs" or "OtherDocs". The key prefixes must not overlap.

```
$rule1 = New-Object Amazon.S3.Model.ReplicationRule
$rule1.ID = "Rule-1"
$rule1.Status = "Enabled"
$rule1.Prefix = "TaxDocs"
$rule1.Destination = @{ BucketArn = "arn:aws:s3:::amzn-s3-demo-destination-
bucket" }
```

```
$rule2 = New-Object Amazon.S3.Model.ReplicationRule
$rule2.ID = "Rule-2"
$rule2.Status = "Enabled"
$rule2.Prefix = "OtherDocs"
$rule2.Destination = @{ BucketArn = "arn:aws:s3:::amzn-s3-demo-destination-
bucket" }

$params = @{
    BucketName = "amzn-s3-demo-bucket"
    Configuration_Role = "arn:aws:iam::35667example:role/
CrossRegionReplicationRoleForS3"
    Configuration_Rule = $rule1,$rule2
}

Write-S3BucketReplication @params
```

Example 3: This example updates the replication configuration on the specified bucket to disable the rule controlling replication of objects with the key name prefix "TaxDocs" to the bucket 'amzn-s3-demo-bucket'.

```
$rule1 = New-Object Amazon.S3.Model.ReplicationRule
$rule1.ID = "Rule-1"
$rule1.Status = "Disabled"
$rule1.Prefix = "TaxDocs"
$rule1.Destination = @{ BucketArn = "arn:aws:s3:::amzn-s3-demo-destination-
bucket" }

$params = @{
    BucketName = "amzn-s3-demo-bucket"
    Configuration_Role = "arn:aws:iam::35667example:role/
CrossRegionReplicationRoleForS3"
    Configuration_Rule = $rule1
}

Write-S3BucketReplication @params
```

- For API details, see PutBucketReplication in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutBucketRequestPayment` with a CLI

The following code examples show how to use `PutBucketRequestPayment`.

CLI

AWS CLI

Example 1: To enable ``requester pays`` configuration for a bucket

The following `put-bucket-request-payment` example enables `requester pays` for the specified bucket.

```
aws s3api put-bucket-request-payment \
    --bucket amzn-s3-demo-bucket \
    --request-payment-configuration '{"Payer":"Requester"}'
```

This command produces no output.

Example 2: To disable ``requester pays`` configuration for a bucket

The following `put-bucket-request-payment` example disables `requester pays` for the specified bucket.

```
aws s3api put-bucket-request-payment \
    --bucket amzn-s3-demo-bucket \
    --request-payment-configuration '{"Payer":"BucketOwner"}'
```

This command produces no output.

- For API details, see PutBucketRequestPayment in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: Updates the request payment configuration for the bucket named 'amzn-s3-demo-bucket' so that the person requesting downloads from the

bucket will be charged for the download. By default the bucket owner pays for downloads. To set the request payment back to the default use 'BucketOwner' for the RequestPaymentConfiguration_Payer parameter.

```
Write-S3BucketRequestPayment -BucketName amzn-s3-demo-bucket -
RequestPaymentConfiguration_Payer Requester
```

- For API details, see PutBucketRequestPayment in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: Updates the request payment configuration for the bucket named 'amzn-s3-demo-bucket' so that the person requesting downloads from the bucket will be charged for the download. By default the bucket owner pays for downloads. To set the request payment back to the default use 'BucketOwner' for the RequestPaymentConfiguration_Payer parameter.

```
Write-S3BucketRequestPayment -BucketName amzn-s3-demo-bucket -
RequestPaymentConfiguration_Payer Requester
```

- For API details, see PutBucketRequestPayment in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutBucketTagging` with a CLI

The following code examples show how to use `PutBucketTagging`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Get started with S3

CLI

AWS CLI

The following command applies a tagging configuration to a bucket named `amzn-s3-demo-bucket`:

```
aws s3api put-bucket-tagging --bucket amzn-s3-demo-bucket --tagging file://
tagging.json
```

The file `tagging.json` is a JSON document in the current folder that specifies tags:

```
{
   "TagSet": [
     {
       "Key": "organization",
       "Value": "marketing"
     }
   ]
}
```

Or apply a tagging configuration to `amzn-s3-demo-bucket` directly from the command line:

```
aws s3api put-bucket-tagging --bucket amzn-s3-demo-bucket --tagging
 'TagSet=[{Key=organization,Value=marketing}]'
```

- For API details, see PutBucketTagging in *AWS CLI Command Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command applies two tags to a bucket named `cloudtrail-test-2018`: a tag with a key of Stage and a value of Test, and a tag with a key of Environment and a value of Alpha. To verify that the tags were added to the bucket, run `Get-S3BucketTagging -BucketName bucket_name`. The results should show the tags that you applied to the bucket in the first command. Note that `Write-S3BucketTagging` overwrites the entire existing tag set on a bucket. To add or delete individual tags, run

the Resource Groups and Tagging API cmdlets, `Add-RGTResourceTag` and `Remove-RGTResourceTag`. Alternatively, use Tag Editor in the AWS Management Console to manage S3 bucket tags.

```
Write-S3BucketTagging -BucketName amzn-s3-demo-bucket -TagSet @( @{ Key="Stage";
 Value="Test" }, @{ Key="Environment"; Value="Alpha" } )
```

Example 2: This command pipes a bucket named `cloudtrail-test-2018` into the `Write-S3BucketTagging` cmdlet. It applies tags Stage:Production and Department:Finance to the bucket. Note that `Write-S3BucketTagging` overwrites the entire existing tag set on a bucket.

```
Get-S3Bucket -BucketName amzn-s3-demo-bucket | Write-S3BucketTagging
 -TagSet @( @{ Key="Stage"; Value="Production" }, @{ Key="Department";
 Value="Finance" } )
```

- For API details, see PutBucketTagging in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command applies two tags to a bucket named `cloudtrail-test-2018`: a tag with a key of Stage and a value of Test, and a tag with a key of Environment and a value of Alpha. To verify that the tags were added to the bucket, run `Get-S3BucketTagging -BucketName bucket_name`. The results should show the tags that you applied to the bucket in the first command. Note that `Write-S3BucketTagging` overwrites the entire existing tag set on a bucket. To add or delete individual tags, run the Resource Groups and Tagging API cmdlets, `Add-RGTResourceTag` and `Remove-RGTResourceTag`. Alternatively, use Tag Editor in the AWS Management Console to manage S3 bucket tags.

```
Write-S3BucketTagging -BucketName amzn-s3-demo-bucket -TagSet @( @{ Key="Stage";
 Value="Test" }, @{ Key="Environment"; Value="Alpha" } )
```

Example 2: This command pipes a bucket named `cloudtrail-test-2018` into the `Write-S3BucketTagging` cmdlet. It applies tags Stage:Production and Department:Finance to the bucket. Note that `Write-S3BucketTagging` overwrites the entire existing tag set on a bucket.

```
Get-S3Bucket -BucketName amzn-s3-demo-bucket | Write-S3BucketTagging
 -TagSet @( @{ Key="Stage"; Value="Production" }, @{ Key="Department";
 Value="Finance" } )
```

- For API details, see PutBucketTagging in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutBucketVersioning` with an AWS SDK or CLI

The following code examples show how to use `PutBucketVersioning`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Get started with S3

CLI

AWS CLI

The following command enables versioning on a bucket named `amzn-s3-demo-bucket`:

```
aws s3api put-bucket-versioning --bucket amzn-s3-demo-bucket --versioning-
configuration Status=Enabled
```

The following command enables versioning, and uses an mfa code

```
aws s3api put-bucket-versioning --bucket amzn-s3-demo-bucket --versioning-
configuration Status=Enabled --mfa "SERIAL 123456"
```

- For API details, see PutBucketVersioning in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
   /**
    * Enables bucket versioning for the specified S3 bucket.
    *
    * @param s3Client the S3 client to use for the operation
    * @param bucketName the name of the S3 bucket to enable versioning for
    */
   public static void enableBucketVersioning(S3Client s3Client, String
bucketName){
       VersioningConfiguration versioningConfiguration =
VersioningConfiguration.builder()
           .status(BucketVersioningStatus.ENABLED)
           .build();

       PutBucketVersioningRequest versioningRequest =
PutBucketVersioningRequest.builder()
           .bucket(bucketName)
           .versioningConfiguration(versioningConfiguration)
           .build();

       s3Client.putBucketVersioning(versioningRequest);
       System.out.println("Bucket versioning has been enabled for "+bucketName);
   }
```

- For API details, see PutBucketVersioning in *AWS SDK for Java 2.x API Reference*.

PowerShell

Tools for PowerShell V4

Example 1: The command enables versioning for the given S3 bucket.

```
Write-S3BucketVersioning -BucketName 'amzn-s3-demo-bucket' -
VersioningConfig_Status Enabled
```

- For API details, see PutBucketVersioning in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: The command enables versioning for the given S3 bucket.

```
Write-S3BucketVersioning -BucketName 'amzn-s3-demo-bucket' -
VersioningConfig_Status Enabled
```

- For API details, see PutBucketVersioning in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutBucketWebsite` with an AWS SDK or CLI

The following code examples show how to use `PutBucketWebsite`.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
                // Put the website configuration.
                PutBucketWebsiteRequest putRequest = new
PutBucketWebsiteRequest()
                {
                    BucketName = bucketName,
```

```
                    WebsiteConfiguration = new WebsiteConfiguration()
                    {
                        IndexDocumentSuffix = indexDocumentSuffix,
                        ErrorDocument = errorDocument,
                    },
                };
                PutBucketWebsiteResponse response = await
 client.PutBucketWebsiteAsync(putRequest);
```

- For API details, see PutBucketWebsite in *AWS SDK for .NET API Reference*.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::putWebsiteConfig(const Aws::String &bucketName,
                                  const Aws::String &indexPage, const Aws::String
 &errorPage,
                                  const Aws::S3::S3ClientConfiguration
 &clientConfig) {
    Aws::S3::S3Client client(clientConfig);

    Aws::S3::Model::IndexDocument indexDocument;
    indexDocument.SetSuffix(indexPage);

    Aws::S3::Model::ErrorDocument errorDocument;
    errorDocument.SetKey(errorPage);

    Aws::S3::Model::WebsiteConfiguration websiteConfiguration;
    websiteConfiguration.SetIndexDocument(indexDocument);
    websiteConfiguration.SetErrorDocument(errorDocument);

    Aws::S3::Model::PutBucketWebsiteRequest request;
    request.SetBucket(bucketName);
```

```
    request.SetWebsiteConfiguration(websiteConfiguration);

    Aws::S3::Model::PutBucketWebsiteOutcome outcome =
            client.PutBucketWebsite(request);

    if (!outcome.IsSuccess()) {
        std::cerr << "Error: PutBucketWebsite: "
                  << outcome.GetError().GetMessage() << std::endl;
    } else {
        std::cout << "Success: Set website configuration for bucket '"
                  << bucketName << "'." << std::endl;
    }

    return outcome.IsSuccess();
}
```

- For API details, see PutBucketWebsite in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The applies a static website configuration to a bucket named `amzn-s3-demo-bucket`:

```
aws s3api put-bucket-website --bucket amzn-s3-demo-bucket --website-
configuration file://website.json
```

The file `website.json` is a JSON document in the current folder that specifies index and error pages for the website:

```
{
    "IndexDocument": {
        "Suffix": "index.html"
    },
    "ErrorDocument": {
        "Key": "error.html"
    }
}
```

- For API details, see PutBucketWebsite in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.IndexDocument;
import software.amazon.awssdk.services.s3.model.PutBucketWebsiteRequest;
import software.amazon.awssdk.services.s3.model.WebsiteConfiguration;
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.regions.Region;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */

public class SetWebsiteConfiguration {
    public static void main(String[] args) {
        final String usage = """

            Usage:    <bucketName> [indexdoc]\s

            Where:
               bucketName   - The Amazon S3 bucket to set the website
 configuration on.\s
               indexdoc - The index document, ex. 'index.html'
                          If not specified, 'index.html' will be set.
            """;

        if (args.length != 1) {
```

```
            System.out.println(usage);
            System.exit(1);
        }

        String bucketName = args[0];
        String indexDoc = "index.html";
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        setWebsiteConfig(s3, bucketName, indexDoc);
        s3.close();
    }

    /**
     * Sets the website configuration for an Amazon S3 bucket.
     *
     * @param s3 The {@link S3Client} instance to use for the AWS SDK operations.
     * @param bucketName The name of the S3 bucket to configure.
     * @param indexDoc The name of the index document to use for the website
configuration.
     */
    public static void setWebsiteConfig(S3Client s3, String bucketName, String
indexDoc) {
        try {
            WebsiteConfiguration websiteConfig = WebsiteConfiguration.builder()
                .indexDocument(IndexDocument.builder().suffix(indexDoc).build())
                .build();

            PutBucketWebsiteRequest pubWebsiteReq =
PutBucketWebsiteRequest.builder()
                .bucket(bucketName)
                .websiteConfiguration(websiteConfig)
                .build();

            s3.putBucketWebsite(pubWebsiteReq);
            System.out.println("The call was successful");

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }
```

```
}
```

- For API details, see PutBucketWebsite in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Set the website configuration.

```
import {
  PutBucketWebsiteCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Configure an Amazon S3 bucket to serve a static website.
 * Website access must also be granted separately. For more information
 * on setting the permissions for website access, see
 * https://docs.aws.amazon.com/AmazonS3/latest/userguide/
WebsiteAccessPermissionsReqd.html.
 *
 * @param {{ bucketName: string }}
 */
export const main = async ({ bucketName }) => {
  const client = new S3Client({});
  const command = new PutBucketWebsiteCommand({
    Bucket: bucketName,
    WebsiteConfiguration: {
      ErrorDocument: {
        // The object key name to use when a 4XX class error occurs.
        Key: "error.html",
      },
      IndexDocument: {
```

```
        // A suffix that is appended to a request when the request is
        // for a directory.
        Suffix: "index.html",
      },
    },
  });

  try {
    await client.send(command);
    console.log(
      `The bucket "${bucketName}" has been configured as a static website.`,
    );
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while configuring the bucket "${bucketName}" as a static
 website. The bucket doesn't exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while configuring the bucket "${bucketName}" as a static
 website. ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

- For more information, see AWS SDK for JavaScript Developer Guide.
- For API details, see PutBucketWebsite in *AWS SDK for JavaScript API Reference*.

PowerShell

Tools for PowerShell V4

Example 1: The command enables website hosting for the given bucket with the index document as 'index.html' and error document as 'error.html'.

```
Write-S3BucketWebsite -BucketName 'amzn-s3-demo-bucket'
 -WebsiteConfiguration_IndexDocumentSuffix 'index.html' -
WebsiteConfiguration_ErrorDocument 'error.html'
```

- For API details, see PutBucketWebsite in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: The command enables website hosting for the given bucket with the index document as 'index.html' and error document as 'error.html'.

```
Write-S3BucketWebsite -BucketName 'amzn-s3-demo-bucket'
 -WebsiteConfiguration_IndexDocumentSuffix 'index.html' -
WebsiteConfiguration_ErrorDocument 'error.html'
```

- For API details, see PutBucketWebsite in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
require 'aws-sdk-s3'

# Wraps Amazon S3 bucket website actions.
class BucketWebsiteWrapper
  attr_reader :bucket_website

  # @param bucket_website [Aws::S3::BucketWebsite] A bucket website object
 configured with an existing bucket.
  def initialize(bucket_website)
    @bucket_website = bucket_website
  end

  # Sets a bucket as a static website.
```

```
  #
  # @param index_document [String] The name of the index document for the
 website.
  # @param error_document [String] The name of the error document to show for 4XX
 errors.
  # @return [Boolean] True when the bucket is configured as a website; otherwise,
 false.
  def set_website(index_document, error_document)
    @bucket_website.put(
      website_configuration: {
        index_document: { suffix: index_document },
        error_document: { key: error_document }
      }
    )
    true
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't configure #{@bucket_website.bucket.name} as a website. Here's
 why: #{e.message}"
    false
  end
end

# Example usage:
def run_demo
  bucket_name = "amzn-s3-demo-bucket"
  index_document = "index.html"
  error_document = "404.html"

  wrapper = BucketWebsiteWrapper.new(Aws::S3::BucketWebsite.new(bucket_name))
  return unless wrapper.set_website(index_document, error_document)

  puts "Successfully configured bucket #{bucket_name} as a static website."
end

run_demo if $PROGRAM_NAME == __FILE__
```

- For API details, see PutBucketWebsite in *AWS SDK for Ruby API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutObject` with an AWS SDK or CLI

The following code examples show how to use `PutObject`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Learn the basics
- Get started with S3
- Make conditional requests
- Track uploads and downloads
- Work with Amazon S3 object integrity

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
        /// <summary>
        /// Shows how to upload a file from the local computer to an Amazon S3
        /// bucket.
        /// </summary>
        /// <param name="client">An initialized Amazon S3 client object.</param>
        /// <param name="bucketName">The Amazon S3 bucket to which the object
        /// will be uploaded.</param>
        /// <param name="objectName">The object to upload.</param>
        /// <param name="filePath">The path, including file name, of the object
        /// on the local computer to upload.</param>
        /// <returns>A boolean value indicating the success or failure of the
        /// upload procedure.</returns>
        public static async Task<bool> UploadFileAsync(
            IAmazonS3 client,
            string bucketName,
            string objectName,
```

```
            string filePath)
        {
            try
            {
                var request = new PutObjectRequest
                {
                    BucketName = bucketName,
                    Key = objectName,
                    FilePath = filePath,
                };

                await client.PutObjectAsync(request);
                Console.WriteLine($"Successfully uploaded {objectName} to
{bucketName}.");
                return true;
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Could not upload {objectName} to
{bucketName}: '{ex.Message}'");
                return false;
            }
        }
```

Upload an object with server-side encryption.

```
    using System;
    using System.Threading.Tasks;
    using Amazon.S3;
    using Amazon.S3.Model;

    /// <summary>
    /// This example shows how to upload an object to an Amazon Simple Storage
    /// Service (Amazon S3) bucket with server-side encryption enabled.
    /// </summary>
    public class ServerSideEncryption
    {
        public static async Task Main()
        {
            string bucketName = "amzn-s3-demo-bucket";
            string keyName = "samplefile.txt";
```

```
            // If the AWS Region defined for your default user is different
            // from the Region where your Amazon S3 bucket is located,
            // pass the Region name to the Amazon S3 client object's constructor.
            // For example: RegionEndpoint.USWest2.
            IAmazonS3 client = new AmazonS3Client();

            await WritingAnObjectAsync(client, bucketName, keyName);
        }

        /// <summary>
        /// Upload a sample object include a setting for encryption.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used to
        /// to upload a file and apply server-side encryption.</param>
        /// <param name="bucketName">The name of the Amazon S3 bucket where the
        /// encrypted object will reside.</param>
        /// <param name="keyName">The name for the object that you want to
        /// create in the supplied bucket.</param>
        public static async Task WritingAnObjectAsync(IAmazonS3 client, string
bucketName, string keyName)
        {
            try
            {
                var putRequest = new PutObjectRequest
                {
                    BucketName = bucketName,
                    Key = keyName,
                    ContentBody = "sample text",
                    ServerSideEncryptionMethod =
ServerSideEncryptionMethod.AES256,
                };

                var putResponse = await client.PutObjectAsync(putRequest);

                // Determine the encryption state of an object.
                GetObjectMetadataRequest metadataRequest = new
GetObjectMetadataRequest
                {
                    BucketName = bucketName,
                    Key = keyName,
                };
                GetObjectMetadataResponse response = await
client.GetObjectMetadataAsync(metadataRequest);
```

```
                ServerSideEncryptionMethod objectEncryption =
response.ServerSideEncryptionMethod;

                Console.WriteLine($"Encryption method used: {0}",
objectEncryption.ToString());
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Error: '{ex.Message}' when writing an
object");
            }
        }
    }
```

Put an object using a conditional request.

```
    /// <summary>
    /// Uploads an object to Amazon S3 with a conditional request. Prevents
overwrite using an IfNoneMatch condition for the object key.
    /// </summary>
    /// <param name="objectKey">The key of the object to upload.</param>
    /// <param name="bucket">The source bucket of the object.</param>
    /// <param name="content">The content to upload as a string.</param>
    /// <returns>The ETag if the conditional write is successful, empty
otherwise.</returns>
    public async Task<string> PutObjectConditional(string objectKey, string
bucket, string content)
    {
        try
        {
            var putObjectRequest = new PutObjectRequest
            {
                BucketName = bucket,
                Key = objectKey,
                ContentBody = content,
                IfNoneMatch = "*"
            };

            var putResult = await _amazonS3.PutObjectAsync(putObjectRequest);
            _logger.LogInformation($"Conditional write successful for key
{objectKey} in bucket {bucket}.");
```

```
            return putResult.ETag;
        }
        catch (AmazonS3Exception e)
        {
            if (e.ErrorCode == "PreconditionFailed")
            {
                _logger.LogError("Conditional write failed: Precondition
 failed");
            }
            else
            {
                _logger.LogError($"Unexpected error: {e.ErrorCode}");
                throw;
            }
            return string.Empty;
        }
    }
```

- For API details, see PutObject in *AWS SDK for .NET API Reference*.

Bash

AWS CLI with Bash script

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
###############################################################################
# function errecho
#
# This function outputs everything sent to it to STDERR (standard error output).
###############################################################################
function errecho() {
  printf "%s\n" "$*" 1>&2
}

###############################################################################
# function copy_file_to_bucket
```

```
#
# This function creates a file in the specified bucket.
#
# Parameters:
#       $1 - The name of the bucket to copy the file to.
#       $2 - The path and file name of the local file to copy to the bucket.
#       $3 - The key (name) to call the copy of the file in the bucket.
#
# Returns:
#       0 - If successful.
#       1 - If it fails.
##############################################################################
function copy_file_to_bucket() {
  local response bucket_name source_file destination_file_name
  bucket_name=$1
  source_file=$2
  destination_file_name=$3

  response=$(aws s3api put-object \
    --bucket "$bucket_name" \
    --body "$source_file" \
    --key "$destination_file_name")

  # shellcheck disable=SC2181
  if [[ ${?} -ne 0 ]]; then
    errecho "ERROR: AWS reports put-object operation failed.\n$response"
    return 1
  fi
}
```

- For API details, see PutObject in *AWS CLI Command Reference*.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::putObject(const Aws::String &bucketName,
                           const Aws::String &fileName,
                           const Aws::S3::S3ClientConfiguration &clientConfig) {
    Aws::S3::S3Client s3Client(clientConfig);

    Aws::S3::Model::PutObjectRequest request;
    request.SetBucket(bucketName);
    //We are using the name of the file as the key for the object in the bucket.
    //However, this is just a string and can be set according to your retrieval
 needs.
    request.SetKey(fileName);

    std::shared_ptr<Aws::IOStream> inputData =
            Aws::MakeShared<Aws::FStream>("SampleAllocationTag",
                                          fileName.c_str(),
                                          std::ios_base::in |
 std::ios_base::binary);

    if (!*inputData) {
        std::cerr << "Error unable to read file " << fileName << std::endl;
        return false;
    }

    request.SetBody(inputData);

    Aws::S3::Model::PutObjectOutcome outcome =
            s3Client.PutObject(request);

    if (!outcome.IsSuccess()) {
        std::cerr << "Error: putObject: " <<
                  outcome.GetError().GetMessage() << std::endl;
    } else {
        std::cout << "Added object '" << fileName << "' to bucket '"
                  << bucketName << "'.";
    }

    return outcome.IsSuccess();
}
```

- For API details, see PutObject in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

Example 1: Upload an object to Amazon S3

The following `put-object` command example uploads an object to Amazon S3.

```
aws s3api put-object \
    --bucket amzn-s3-demo-bucket \
    --key my-dir/MySampleImage.png \
    --body MySampleImage.png
```

For more information about uploading objects, see Uploading Objects < http://docs.aws.amazon.com/AmazonS3/latest/dev/UploadingObjects.html> in the *Amazon S3 Developer Guide*.

Example 2: Upload a video file to Amazon S3

The following `put-object` command example uploads a video file.

```
aws s3api put-object \
    --bucket amzn-s3-demo-bucket \
    --key my-dir/big-video-file.mp4 \
    --body /media/videos/f-sharp-3-data-services.mp4
```

For more information about uploading objects, see Uploading Objects < http://docs.aws.amazon.com/AmazonS3/latest/dev/UploadingObjects.html> in the *Amazon S3 Developer Guide*.

- For API details, see PutObject in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Put an object in a bucket by using the low-level API.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "io"
 "log"
 "os"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// BucketBasics encapsulates the Amazon Simple Storage Service (Amazon S3)
 actions
// used in the examples.
// It contains S3Client, an Amazon S3 service client that is used to perform
 bucket
// and object actions.
type BucketBasics struct {
 S3Client *s3.Client
}



// UploadFile reads from a file and puts the data into an object in a bucket.
func (basics BucketBasics) UploadFile(ctx context.Context, bucketName string,
 objectKey string, fileName string) error {
 file, err := os.Open(fileName)
 if err != nil {
  log.Printf("Couldn't open file %v to upload. Here's why: %v\n", fileName, err)
 } else {
  defer file.Close()
  _, err = basics.S3Client.PutObject(ctx, &s3.PutObjectInput{
   Bucket: aws.String(bucketName),
   Key:    aws.String(objectKey),
   Body:   file,
```

```
  })
  if err != nil {
   var apiErr smithy.APIError
   if errors.As(err, &apiErr) && apiErr.ErrorCode() == "EntityTooLarge" {
    log.Printf("Error while uploading object to %s. The object is too large.\n"+
     "To upload objects larger than 5GB, use the S3 console (160GB max)\n"+
     "or the multipart upload API (5TB max).", bucketName)
   } else {
    log.Printf("Couldn't upload file %v to %v:%v. Here's why: %v\n",
     fileName, bucketName, objectKey, err)
   }
  } else {
   err = s3.NewObjectExistsWaiter(basics.S3Client).Wait(
    ctx, &s3.HeadObjectInput{Bucket: aws.String(bucketName), Key:
 aws.String(objectKey)}, time.Minute)
   if err != nil {
    log.Printf("Failed attempt to wait for object %s to exist.\n", objectKey)
   }
  }
 }
 return err
}
```

Upload an object to a bucket by using a transfer manager.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "log"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)
```

```
// S3Actions wraps S3 service actions.
type S3Actions struct {
 S3Client  *s3.Client
 S3Manager *manager.Uploader
}



// UploadObject uses the S3 upload manager to upload an object to a bucket.
func (actor S3Actions) UploadObject(ctx context.Context, bucket string, key
 string, contents string) (string, error) {
 var outKey string
 input := &s3.PutObjectInput{
  Bucket:            aws.String(bucket),
  Key:               aws.String(key),
  Body:              bytes.NewReader([]byte(contents)),
  ChecksumAlgorithm: types.ChecksumAlgorithmSha256,
 }
 output, err := actor.S3Manager.Upload(ctx, input)
 if err != nil {
  var noBucket *types.NoSuchBucket
  if errors.As(err, &noBucket) {
   log.Printf("Bucket %s does not exist.\n", bucket)
   err = noBucket
  }
 } else {
  err := s3.NewObjectExistsWaiter(actor.S3Client).Wait(ctx, &s3.HeadObjectInput{
   Bucket: aws.String(bucket),
   Key:    aws.String(key),
  }, time.Minute)
  if err != nil {
   log.Printf("Failed attempt to wait for object %s to exist in %s.\n", key,
 bucket)
  } else {
   outKey = *output.Key
  }
 }
 return outKey, err
}
```

- For API details, see PutObject in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Upload a file to a bucket using an S3Client.

```
   /**
    * Uploads a local file to an AWS S3 bucket asynchronously.
    *
    * @param bucketName the name of the S3 bucket to upload the file to
    * @param key        the key (object name) to use for the uploaded file
    * @param objectPath the local file path of the file to be uploaded
    * @return a {@link CompletableFuture} that completes with the {@link
PutObjectResponse} when the upload is successful, or throws a {@link
RuntimeException} if the upload fails
    */
   public CompletableFuture<PutObjectResponse> uploadLocalFileAsync(String
bucketName, String key, String objectPath) {
       PutObjectRequest objectRequest = PutObjectRequest.builder()
           .bucket(bucketName)
           .key(key)
           .build();

       CompletableFuture<PutObjectResponse> response =
getAsyncClient().putObject(objectRequest,
AsyncRequestBody.fromFile(Paths.get(objectPath)));
       return response.whenComplete((resp, ex) -> {
           if (ex != null) {
               throw new RuntimeException("Failed to upload file", ex);
           }
       });
   }
```

Use an S3TransferManager to upload a file to a bucket. View the complete file and test.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.transfer.s3.S3TransferManager;
import software.amazon.awssdk.transfer.s3.model.CompletedFileUpload;
import software.amazon.awssdk.transfer.s3.model.FileUpload;
import software.amazon.awssdk.transfer.s3.model.UploadFileRequest;
import software.amazon.awssdk.transfer.s3.progress.LoggingTransferListener;
import java.net.URI;
import java.net.URISyntaxException;
import java.net.URL;
import java.nio.file.Paths;
import java.util.UUID;

    public String uploadFile(S3TransferManager transferManager, String
 bucketName,
                             String key, URI filePathURI) {
        UploadFileRequest uploadFileRequest = UploadFileRequest.builder()
            .putObjectRequest(b -> b.bucket(bucketName).key(key))
            .source(Paths.get(filePathURI))
            .build();

        FileUpload fileUpload = transferManager.uploadFile(uploadFileRequest);

        CompletedFileUpload uploadResult = fileUpload.completionFuture().join();
        return uploadResult.response().eTag();
    }
```

Upload an object to a bucket and set tags using an S3Client.

```
    /**
     * Puts tags on an Amazon S3 object.
     *
     * @param s3 An {@link S3Client} object that represents the Amazon S3 client.
     * @param bucketName The name of the Amazon S3 bucket.
     * @param objectKey The key of the Amazon S3 object.
     * @param objectPath The file path of the object to be uploaded.
     */
    public static void putS3ObjectTags(S3Client s3, String bucketName, String
 objectKey, String objectPath) {
        try {
            Tag tag1 = Tag.builder()
                .key("Tag 1")
```

```
                .value("This is tag 1")
                .build();

            Tag tag2 = Tag.builder()
                .key("Tag 2")
                .value("This is tag 2")
                .build();

            List<Tag> tags = new ArrayList<>();
            tags.add(tag1);
            tags.add(tag2);

            Tagging allTags = Tagging.builder()
                .tagSet(tags)
                .build();

            PutObjectRequest putOb = PutObjectRequest.builder()
                .bucket(bucketName)
                .key(objectKey)
                .tagging(allTags)
                .build();

            s3.putObject(putOb,
RequestBody.fromBytes(getObjectFile(objectPath)));

        } catch (S3Exception e) {
            System.err.println(e.getMessage());
            System.exit(1);
        }
    }

    /**
     * Updates the tags associated with an object in an Amazon S3 bucket.
     *
     * @param s3 an instance of the S3Client class, which is used to interact
with the Amazon S3 service
     * @param bucketName the name of the S3 bucket containing the object
     * @param objectKey the key (or name) of the object in the S3 bucket
     * @throws S3Exception if there is an error updating the object's tags
     */
    public static void updateObjectTags(S3Client s3, String bucketName, String
objectKey) {
        try {
```

```
            GetObjectTaggingRequest taggingRequest =
GetObjectTaggingRequest.builder()
                .bucket(bucketName)
                .key(objectKey)
                .build();

            GetObjectTaggingResponse getTaggingRes =
s3.getObjectTagging(taggingRequest);
            List<Tag> obTags = getTaggingRes.tagSet();
            for (Tag sinTag : obTags) {
                System.out.println("The tag key is: " + sinTag.key());
                System.out.println("The tag value is: " + sinTag.value());
            }

            // Replace the object's tags with two new tags.
            Tag tag3 = Tag.builder()
                .key("Tag 3")
                .value("This is tag 3")
                .build();

            Tag tag4 = Tag.builder()
                .key("Tag 4")
                .value("This is tag 4")
                .build();

            List<Tag> tags = new ArrayList<>();
            tags.add(tag3);
            tags.add(tag4);

            Tagging updatedTags = Tagging.builder()
                .tagSet(tags)
                .build();

            PutObjectTaggingRequest taggingRequest1 =
PutObjectTaggingRequest.builder()
                .bucket(bucketName)
                .key(objectKey)
                .tagging(updatedTags)
                .build();

            s3.putObjectTagging(taggingRequest1);
            GetObjectTaggingResponse getTaggingRes2 =
s3.getObjectTagging(taggingRequest);
            List<Tag> modTags = getTaggingRes2.tagSet();
```

```
            for (Tag sinTag : modTags) {
                System.out.println("The tag key is: " + sinTag.key());
                System.out.println("The tag value is: " + sinTag.value());
            }

        } catch (S3Exception e) {
            System.err.println(e.getMessage());
            System.exit(1);
        }
    }

    /**
     * Retrieves the contents of a file as a byte array.
     *
     * @param filePath the path of the file to be read
     * @return a byte array containing the contents of the file, or null if an
 error occurs
     */
    private static byte[] getObjectFile(String filePath) {
        FileInputStream fileInputStream = null;
        byte[] bytesArray = null;

        try {
            File file = new File(filePath);
            bytesArray = new byte[(int) file.length()];
            fileInputStream = new FileInputStream(file);
            fileInputStream.read(bytesArray);

        } catch (IOException e) {
            e.printStackTrace();
        } finally {
            if (fileInputStream != null) {
                try {
                    fileInputStream.close();
                } catch (IOException e) {
                    e.printStackTrace();
                }
            }
        }

        return bytesArray;
    }
}
```

Upload an object to a bucket and set metadata using an S3Client.

```
import software.amazon.awssdk.core.sync.RequestBody;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.PutObjectRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.io.File;
import java.util.HashMap;
import java.util.Map;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */
public class PutObjectMetadata {
    public static void main(String[] args) {
        final String USAGE = """

            Usage:
              <bucketName> <objectKey> <objectPath>\s

            Where:
              bucketName - The Amazon S3 bucket to upload an object into.
              objectKey - The object to upload (for example, book.pdf).
              objectPath - The path where the file is located (for example, C:/
AWS/book2.pdf).\s
            """;

        if (args.length != 3) {
            System.out.println(USAGE);
            System.exit(1);
        }
```

```
        String bucketName = args[0];
        String objectKey = args[1];
        String objectPath = args[2];
        System.out.println("Putting object " + objectKey + " into bucket " +
 bucketName);
        System.out.println("  in bucket: " + bucketName);
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        putS3Object(s3, bucketName, objectKey, objectPath);
        s3.close();
    }

    /**
     * Uploads an object to an Amazon S3 bucket with metadata.
     *
     * @param s3 the S3Client object used to interact with the Amazon S3 service
     * @param bucketName the name of the S3 bucket to upload the object to
     * @param objectKey the name of the object to be uploaded
     * @param objectPath the local file path of the object to be uploaded
     */
    public static void putS3Object(S3Client s3, String bucketName, String
 objectKey, String objectPath) {
        try {
            Map<String, String> metadata = new HashMap<>();
            metadata.put("author", "Mary Doe");
            metadata.put("version", "1.0.0.0");

            PutObjectRequest putOb = PutObjectRequest.builder()
                .bucket(bucketName)
                .key(objectKey)
                .metadata(metadata)
                .build();

            s3.putObject(putOb, RequestBody.fromFile(new File(objectPath)));
            System.out.println("Successfully placed " + objectKey + " into bucket
 " + bucketName);

        } catch (S3Exception e) {
            System.err.println(e.getMessage());
            System.exit(1);
        }
```

```
    }
}
```

Upload an object to a bucket and set an object retention value using an S3Client.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.PutObjectRetentionRequest;
import software.amazon.awssdk.services.s3.model.ObjectLockRetention;
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.time.Instant;
import java.time.LocalDate;
import java.time.LocalDateTime;
import java.time.ZoneOffset;

/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 * <p>
 * For more information, see the following documentation topic:
 * <p>
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */

public class PutObjectRetention {
    public static void main(String[] args) {
        final String usage = """

            Usage:
                <key> <bucketName>\s

            Where:
                key - The name of the object (for example, book.pdf).\s
                bucketName - The Amazon S3 bucket name that contains the object
 (for example, bucket1).\s
            """;

        if (args.length != 2) {
            System.out.println(usage);
```

```
            System.exit(1);
        }

        String key = args[0];
        String bucketName = args[1];
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        setRentionPeriod(s3, key, bucketName);
        s3.close();
    }

    /**
     * Sets the retention period for an object in an Amazon S3 bucket.
     *
     * @param s3     the S3Client object used to interact with the Amazon S3
service
     * @param key    the key (name) of the object in the S3 bucket
     * @param bucket the name of the S3 bucket where the object is stored
     *
     * @throws S3Exception if an error occurs while setting the object retention
period
     */
    public static void setRentionPeriod(S3Client s3, String key, String bucket) {
        try {
            LocalDate localDate = LocalDate.parse("2020-07-17");
            LocalDateTime localDateTime = localDate.atStartOfDay();
            Instant instant = localDateTime.toInstant(ZoneOffset.UTC);

            ObjectLockRetention lockRetention = ObjectLockRetention.builder()
                .mode("COMPLIANCE")
                .retainUntilDate(instant)
                .build();

            PutObjectRetentionRequest retentionRequest =
PutObjectRetentionRequest.builder()
                .bucket(bucket)
                .key(key)
                .bypassGovernanceRetention(true)
                .retention(lockRetention)
                .build();
```

```
            // To set Retention on an object, the Amazon S3 bucket must support
 object
            // locking, otherwise an exception is thrown.
            s3.putObjectRetention(retentionRequest);
            System.out.print("An object retention configuration was successfully
 placed on the object");

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }
}
```

- For API details, see PutObject in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Upload the object.

```
import { readFile } from "node:fs/promises";

import {
  PutObjectCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Upload a file to an S3 bucket.
 * @param {{ bucketName: string, key: string, filePath: string }}
 */
export const main = async ({ bucketName, key, filePath }) => {
```

```
  const client = new S3Client({});
  const command = new PutObjectCommand({
    Bucket: bucketName,
    Key: key,
    Body: await readFile(filePath),
  });

  try {
    const response = await client.send(command);
    console.log(response);
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "EntityTooLarge"
    ) {
      console.error(
        `Error from S3 while uploading object to ${bucketName}. \
The object was too large. To upload objects larger than 5GB, use the S3 console
 (160GB max) \
or the multipart upload API (5TB max).`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while uploading object to ${bucketName}.  ${caught.name}:
 ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

Upload the object on condition its ETag matches the one provided.

```
import {
  GetObjectCommand,
  NoSuchKey,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";
```

```
/**
 * Get a single object from a specified S3 bucket.
 * @param {{ bucketName: string, key: string, eTag: string }}
 */
export const main = async ({ bucketName, key, eTag }) => {
  const client = new S3Client({});

  try {
    const response = await client.send(
      new GetObjectCommand({
        Bucket: bucketName,
        Key: key,
        IfMatch: eTag,
      }),
    );
    // The Body object also has 'transformToByteArray' and 'transformToWebStream'
 methods.
    const str = await response.Body.transformToString();
    console.log("Success. Here is text of the file:", str);
  } catch (caught) {
    if (caught instanceof NoSuchKey) {
      console.error(
        `Error from S3 while getting object "${key}" from "${bucketName}". No
 such key exists.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while getting object from ${bucketName}.  ${caught.name}:
 ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};

// Call function if run directly
import { parseArgs } from "node:util";
import {
  isMain,
  validateArgs,
} from "@aws-doc-sdk-examples/lib/utils/util-node.js";

const loadArgs = () => {
```

```
  const options = {
    bucketName: {
      type: "string",
      required: true,
    },
    key: {
      type: "string",
      required: true,
    },
    eTag: {
      type: "string",
      required: true,
    },
  };
  const results = parseArgs({ options });
  const { errors } = validateArgs({ options }, results);
  return { errors, results };
};

if (isMain(import.meta.url)) {
  const { errors, results } = loadArgs();
  if (!errors) {
    main(results.values);
  } else {
    console.error(errors.join("\n"));
  }
}
```

- For more information, see AWS SDK for JavaScript Developer Guide.
- For API details, see PutObject in *AWS SDK for JavaScript API Reference*.

Kotlin

SDK for Kotlin

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
suspend fun putS3Object(
    bucketName: String,
    objectKey: String,
    objectPath: String,
) {
    val metadataVal = mutableMapOf<String, String>()
    metadataVal["myVal"] = "test"

    val request =
        PutObjectRequest {
            bucket = bucketName
            key = objectKey
            metadata = metadataVal
            body = File(objectPath).asByteStream()
        }

    S3Client.fromEnvironment { region = "us-east-1" }.use { s3 ->
        val response = s3.putObject(request)
        println("Tag information is ${response.eTag}")
    }
}
```

- For API details, see PutObject in *AWS SDK for Kotlin API reference*.

PHP

SDK for PHP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Upload an object to a bucket.

```
        $s3client = new Aws\S3\S3Client(['region' => 'us-west-2']);

        $fileName = __DIR__ . "/local-file-" . uniqid();
        try {
```

```
            $this->s3client->putObject([
                'Bucket' => $this->bucketName,
                'Key' => $fileName,
                'SourceFile' => __DIR__ . '/testfile.txt'
            ]);
            echo "Uploaded $fileName to $this->bucketName.\n";
        } catch (Exception $exception) {
            echo "Failed to upload $fileName with error: " . $exception-
>getMessage();
            exit("Please fix error with file upload before continuing.");
        }
```

- For API details, see PutObject in *AWS SDK for PHP API Reference*.

PowerShell

Tools for PowerShell V4

Example 1: This command uploads the single file "local-sample.txt" to Amazon S3, creating an object with key "sample.txt" in bucket "test-files".

```
Write-S3Object -BucketName amzn-s3-demo-bucket -Key "sample.txt" -File .\local-
sample.txt
```

Example 2: This command uploads the single file "sample.txt" to Amazon S3, creating an object with key "sample.txt" in bucket "test-files". If the -Key parameter is not supplied, the filename is used as the S3 object key.

```
Write-S3Object -BucketName amzn-s3-demo-bucket -File .\sample.txt
```

Example 3: This command uploads the single file "local-sample.txt" to Amazon S3, creating an object with key "prefix/to/sample.txt" in bucket "test-files".

```
Write-S3Object -BucketName amzn-s3-demo-bucket -Key "prefix/to/sample.txt" -
File .\local-sample.txt
```

Example 4: This command uploads all files in the subdirectory "Scripts" to the bucket "test-files" and applies the common key prefix "SampleScripts" to each object. Each uploaded file will have a key of "SampleScripts/filename" where 'filename' varies.

```
Write-S3Object -BucketName amzn-s3-demo-bucket -Folder .\Scripts -KeyPrefix
 SampleScripts\
```

Example 5: This command uploads all *.ps1 files in the local director "Scripts" to bucket "test-files" and applies the common key prefix "SampleScripts" to each object. Each uploaded file will have a key of "SampleScripts/filename.ps1" where 'filename' varies.

```
Write-S3Object -BucketName amzn-s3-demo-bucket -Folder .\Scripts -KeyPrefix
 SampleScripts\ -SearchPattern *.ps1
```

Example 6: This command creates a new S3 object containing the specified content string with key 'sample.txt'.

```
Write-S3Object -BucketName amzn-s3-demo-bucket -Key "sample.txt" -Content "object
 contents"
```

Example 7: This command uploads the specified file (the filename is used as the key) and applies the specified tags to the new object.

```
Write-S3Object -BucketName amzn-s3-demo-bucket -File "sample.txt" -TagSet
 @{Key="key1";Value="value1"},@{Key="key2";Value="value2"}
```

Example 8: This command recursively uploads the specified folder and applies the specified tags to all the new objects.

```
Write-S3Object -BucketName amzn-s3-demo-bucket -Folder . -KeyPrefix "TaggedFiles"
 -Recurse -TagSet @{Key="key1";Value="value1"},@{Key="key2";Value="value2"}
```

- For API details, see PutObject in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: This command uploads the single file "local-sample.txt" to Amazon S3, creating an object with key "sample.txt" in bucket "test-files".

```
Write-S3Object -BucketName amzn-s3-demo-bucket -Key "sample.txt" -File .\local-
sample.txt
```

Example 2: This command uploads the single file "sample.txt" to Amazon S3, creating an object with key "sample.txt" in bucket "test-files". If the -Key parameter is not supplied, the filename is used as the S3 object key.

```
Write-S3Object -BucketName amzn-s3-demo-bucket -File .\sample.txt
```

Example 3: This command uploads the single file "local-sample.txt" to Amazon S3, creating an object with key "prefix/to/sample.txt" in bucket "test-files".

```
Write-S3Object -BucketName amzn-s3-demo-bucket -Key "prefix/to/sample.txt" -
File .\local-sample.txt
```

Example 4: This command uploads all files in the subdirectory "Scripts" to the bucket "test-files" and applies the common key prefix "SampleScripts" to each object. Each uploaded file will have a key of "SampleScripts/filename" where 'filename' varies.

```
Write-S3Object -BucketName amzn-s3-demo-bucket -Folder .\Scripts -KeyPrefix
 SampleScripts\
```

Example 5: This command uploads all *.ps1 files in the local director "Scripts" to bucket "test-files" and applies the common key prefix "SampleScripts" to each object. Each uploaded file will have a key of "SampleScripts/filename.ps1" where 'filename' varies.

```
Write-S3Object -BucketName amzn-s3-demo-bucket -Folder .\Scripts -KeyPrefix
 SampleScripts\ -SearchPattern *.ps1
```

Example 6: This command creates a new S3 object containing the specified content string with key 'sample.txt'.

```
Write-S3Object -BucketName amzn-s3-demo-bucket -Key "sample.txt" -Content "object
 contents"
```

Example 7: This command uploads the specified file (the filename is used as the key) and applies the specified tags to the new object.

```
Write-S3Object -BucketName amzn-s3-demo-bucket -File "sample.txt" -TagSet
 @{Key="key1";Value="value1"},@{Key="key2";Value="value2"}
```

Example 8: This command recursively uploads the specified folder and applies the specified tags to all the new objects.

```
Write-S3Object -BucketName amzn-s3-demo-bucket -Folder . -KeyPrefix "TaggedFiles"
 -Recurse -TagSet @{Key="key1";Value="value1"},@{Key="key2";Value="value2"}
```

- For API details, see PutObject in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class ObjectWrapper:
    """Encapsulates S3 object actions."""

    def __init__(self, s3_object):
        """
        :param s3_object: A Boto3 Object resource. This is a high-level resource
 in Boto3
                          that wraps object actions in a class-like structure.
        """
        self.object = s3_object
        self.key = self.object.key


    def put(self, data):
        """
        Upload data to the object.

        :param data: The data to upload. This can either be bytes or a string.
 When this
                     argument is a string, it is interpreted as a file name,
 which is
                     opened in read bytes mode.
        """
```

```
        put_data = data
        if isinstance(data, str):
            try:
                put_data = open(data, "rb")
            except IOError:
                logger.exception("Expected file name or binary data, got '%s'.",
 data)
                raise

        try:
            self.object.put(Body=put_data)
            self.object.wait_until_exists()
            logger.info(
                "Put object '%s' to bucket '%s'.",
                self.object.key,
                self.object.bucket_name,
            )
        except ClientError:
            logger.exception(
                "Couldn't put object '%s' to bucket '%s'.",
                self.object.key,
                self.object.bucket_name,
            )
            raise
        finally:
            if getattr(put_data, "close", None):
                put_data.close()
```

Upload an object using a conditional request.

```
class S3ConditionalRequests:
    """Encapsulates S3 conditional request operations."""

    def __init__(self, s3_client):
        self.s3 = s3_client

    @classmethod
    def from_client(cls):
        """
        Instantiates this class from a Boto3 client.
        """
```

```
        s3_client = boto3.client("s3")
        return cls(s3_client)



    def put_object_conditional(self, object_key: str, source_bucket: str, data:
bytes):
        """
        Uploads an object to Amazon S3 with a conditional request. Prevents
overwrite
        using an IfNoneMatch condition for the object key.

        :param object_key: The key of the object to upload.
        :param source_bucket: The source bucket of the object.
        :param data: The data to upload.
        """
        try:
            self.s3.put_object(
                Bucket=source_bucket, Key=object_key, Body=data, IfNoneMatch="*"
            )
            print(
                f"\tConditional write successful for key {object_key} in bucket
{source_bucket}."
            )
        except ClientError as e:
            error_code = e.response["Error"]["Code"]
            if error_code == "PreconditionFailed":
                print("\tConditional write failed: Precondition failed")
            else:
                logger.error(f"Unexpected error: {error_code}")
                raise
```

- For API details, see PutObject in *AWS SDK for Python (Boto3) API Reference*.

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Upload a file using a managed uploader (Object.upload_file).

```
require 'aws-sdk-s3'

# Wraps Amazon S3 object actions.
class ObjectUploadFileWrapper
  attr_reader :object

  # @param object [Aws::S3::Object] An existing Amazon S3 object.
  def initialize(object)
    @object = object
  end

  # Uploads a file to an Amazon S3 object by using a managed uploader.
  #
  # @param file_path [String] The path to the file to upload.
  # @return [Boolean] True when the file is uploaded; otherwise false.
  def upload_file(file_path)
    @object.upload_file(file_path)
    true
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't upload file #{file_path} to #{@object.key}. Here's why:
 #{e.message}"
    false
  end
end

# Example usage:
def run_demo
  bucket_name = "amzn-s3-demo-bucket"
  object_key = "my-uploaded-file"
  file_path = "object_upload_file.rb"
```

```
  wrapper = ObjectUploadFileWrapper.new(Aws::S3::Object.new(bucket_name,
 object_key))
  return unless wrapper.upload_file(file_path)

  puts "File #{file_path} successfully uploaded to #{bucket_name}:#{object_key}."
end

run_demo if $PROGRAM_NAME == __FILE__
```

Upload a file using Object.put.

```
require 'aws-sdk-s3'

# Wraps Amazon S3 object actions.
class ObjectPutWrapper
  attr_reader :object

  # @param object [Aws::S3::Object] An existing Amazon S3 object.
  def initialize(object)
    @object = object
  end

  def put_object(source_file_path)
    File.open(source_file_path, 'rb') do |file|
      @object.put(body: file)
    end
    true
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't put #{source_file_path} to #{object.key}. Here's why:
 #{e.message}"
    false
  end
end

# Example usage:
def run_demo
  bucket_name = "amzn-s3-demo-bucket"
  object_key = "my-object-key"
  file_path = "my-local-file.txt"

  wrapper = ObjectPutWrapper.new(Aws::S3::Object.new(bucket_name, object_key))
  success = wrapper.put_object(file_path)
```

```
  return unless success

  puts "Put file #{file_path} into #{object_key} in #{bucket_name}."
end

run_demo if $PROGRAM_NAME == __FILE__
```

Upload a file using Object.put and add server-side encryption.

```
require 'aws-sdk-s3'

# Wraps Amazon S3 object actions.
class ObjectPutSseWrapper
  attr_reader :object

  # @param object [Aws::S3::Object] An existing Amazon S3 object.
  def initialize(object)
    @object = object
  end

  def put_object_encrypted(object_content, encryption)
    @object.put(body: object_content, server_side_encryption: encryption)
    true
  rescue Aws::Errors::ServiceError => e
    puts "Couldn't put your content to #{object.key}. Here's why: #{e.message}"
    false
  end
end

# Example usage:
def run_demo
  bucket_name = "amzn-s3-demo-bucket"
  object_key = "my-encrypted-content"
  object_content = "This is my super-secret content."
  encryption = "AES256"

  wrapper = ObjectPutSseWrapper.new(Aws::S3::Object.new(bucket_name,
 object_content))
  return unless wrapper.put_object_encrypted(object_content, encryption)

  puts "Put your content into #{bucket_name}:#{object_key} and encrypted it with
 #{encryption}."
```

```
end

run_demo if $PROGRAM_NAME == __FILE__
```

- For API details, see PutObject in *AWS SDK for Ruby API Reference*.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
pub async fn upload_object(
    client: &aws_sdk_s3::Client,
    bucket_name: &str,
    file_name: &str,
    key: &str,
) -> Result<aws_sdk_s3::operation::put_object::PutObjectOutput, S3ExampleError> {
    let body =
 aws_sdk_s3::primitives::ByteStream::from_path(std::path::Path::new(file_name)).await;
    client
        .put_object()
        .bucket(bucket_name)
        .key(key)
        .body(body.unwrap())
        .send()
        .await
        .map_err(S3ExampleError::from)
}
```

- For API details, see PutObject in *AWS SDK for Rust API reference*.

SAP ABAP

SDK for SAP ABAP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
"Get contents of file from application server."
DATA lv_body TYPE xstring.
OPEN DATASET iv_file_name FOR INPUT IN BINARY MODE.
READ DATASET iv_file_name INTO lv_body.
CLOSE DATASET iv_file_name.

"Upload/put an object to an S3 bucket."
TRY.
    lo_s3->putobject(
        iv_bucket = iv_bucket_name
        iv_key = iv_file_name
        iv_body = lv_body ).
    MESSAGE 'Object uploaded to S3 bucket.' TYPE 'I'.
  CATCH /aws1/cx_s3_nosuchbucket.
    MESSAGE 'Bucket does not exist.' TYPE 'E'.
ENDTRY.
```

- For API details, see PutObject in *AWS SDK for SAP ABAP API reference*.

Swift

SDK for Swift

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import AWSS3
import Smithy

    public func uploadFile(bucket: String, key: String, file: String) async
 throws {
        let fileUrl = URL(fileURLWithPath: file)
        do {
            let fileData = try Data(contentsOf: fileUrl)
            let dataStream = ByteStream.data(fileData)

            let input = PutObjectInput(
                body: dataStream,
                bucket: bucket,
                key: key
            )

            _ = try await client.putObject(input: input)
        }
        catch {
            print("ERROR: ", dump(error, name: "Putting an object."))
            throw error
        }
    }
```

```
import AWSS3
import Smithy

    public func createFile(bucket: String, key: String, withData data: Data)
 async throws {
        let dataStream = ByteStream.data(data)

        let input = PutObjectInput(
            body: dataStream,
            bucket: bucket,
            key: key
        )

        do {
            _ = try await client.putObject(input: input)
        }
        catch {
            print("ERROR: ", dump(error, name: "Putting an object."))
```

```
            throw error
        }
    }
```

- For API details, see PutObject in *AWS SDK for Swift API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutObjectAcl` with an AWS SDK or CLI

The following code examples show how to use `PutObjectAcl`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Manage access control lists (ACLs)

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
bool AwsDoc::S3::putObjectAcl(const Aws::String &bucketName, const Aws::String
 &objectKey, const Aws::String &ownerID,
                              const Aws::String &granteePermission, const
 Aws::String &granteeType,
                              const Aws::String &granteeID, const Aws::String
 &granteeEmailAddress,
                              const Aws::String &granteeURI, const
 Aws::S3::S3ClientConfiguration &clientConfig) {
    Aws::S3::S3Client s3Client(clientConfig);

    Aws::S3::Model::Owner owner;
```

```
    owner.SetID(ownerID);

    Aws::S3::Model::Grantee grantee;
    grantee.SetType(setGranteeType(granteeType));

    if (!granteeEmailAddress.empty()) {
        grantee.SetEmailAddress(granteeEmailAddress);
    }

    if (!granteeID.empty()) {
        grantee.SetID(granteeID);
    }

    if (!granteeURI.empty()) {
        grantee.SetURI(granteeURI);
    }

    Aws::S3::Model::Grant grant;
    grant.SetGrantee(grantee);
    grant.SetPermission(setGranteePermission(granteePermission));

    Aws::Vector<Aws::S3::Model::Grant> grants;
    grants.push_back(grant);

    Aws::S3::Model::AccessControlPolicy acp;
    acp.SetOwner(owner);
    acp.SetGrants(grants);

    Aws::S3::Model::PutObjectAclRequest request;
    request.SetAccessControlPolicy(acp);
    request.SetBucket(bucketName);
    request.SetKey(objectKey);

    Aws::S3::Model::PutObjectAclOutcome outcome =
            s3Client.PutObjectAcl(request);

    if (!outcome.IsSuccess()) {
        auto error = outcome.GetError();
        std::cerr << "Error: putObjectAcl: " << error.GetExceptionName()
                  << " - " << error.GetMessage() << std::endl;
    } else {
        std::cout << "Successfully added an ACL to the object '" << objectKey
                  << "' in the bucket '" << bucketName << "'." << std::endl;
    }
```

```
    return outcome.IsSuccess();
}

//! Routine which converts a human-readable string to a built-in type
 enumeration.
/*!
 \param access: Human readable string.
 \return Permission: Permission enumeration.
*/
Aws::S3::Model::Permission setGranteePermission(const Aws::String &access) {
    if (access == "FULL_CONTROL")
        return Aws::S3::Model::Permission::FULL_CONTROL;
    if (access == "WRITE")
        return Aws::S3::Model::Permission::WRITE;
    if (access == "READ")
        return Aws::S3::Model::Permission::READ;
    if (access == "WRITE_ACP")
        return Aws::S3::Model::Permission::WRITE_ACP;
    if (access == "READ_ACP")
        return Aws::S3::Model::Permission::READ_ACP;
    return Aws::S3::Model::Permission::NOT_SET;
}

//! Routine which converts a human-readable string to a built-in type
 enumeration.
/*!
 \param type: Human readable string.
 \return Type: Type enumeration.
*/
Aws::S3::Model::Type setGranteeType(const Aws::String &type) {
    if (type == "Amazon customer by email")
        return Aws::S3::Model::Type::AmazonCustomerByEmail;
    if (type == "Canonical user")
        return Aws::S3::Model::Type::CanonicalUser;
    if (type == "Group")
        return Aws::S3::Model::Type::Group;
    return Aws::S3::Model::Type::NOT_SET;
}
```

- For API details, see PutObjectAcl in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The following command grants `full control` to two AWS users (*user1@example.com* and *user2@example.com*) and `read` permission to everyone:

```
aws s3api put-object-acl --bucket amzn-s3-demo-bucket --key file.txt --grant-
full-control emailaddress=user1@example.com,emailaddress=user2@example.com --
grant-read uri=http://acs.amazonaws.com/groups/global/AllUsers
```

See http://docs.aws.amazon.com/AmazonS3/latest/API/RESTBucketPUTacl.html for details on custom ACLs (the s3api ACL commands, such as `put-object-acl`, use the same shorthand argument notation).

- For API details, see PutObjectAcl in *AWS CLI Command Reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class ObjectWrapper:
    """Encapsulates S3 object actions."""

    def __init__(self, s3_object):
        """
        :param s3_object: A Boto3 Object resource. This is a high-level resource
 in Boto3
                          that wraps object actions in a class-like structure.
        """
        self.object = s3_object
        self.key = self.object.key


    def put_acl(self, email):
```

```
        """
        Applies an ACL to the object that grants read access to an AWS user
identified
        by email address.

        :param email: The email address of the user to grant access.
        """
        try:
            acl = self.object.Acl()
            # Putting an ACL overwrites the existing ACL, so append new grants
            # if you want to preserve existing grants.
            grants = acl.grants if acl.grants else []
            grants.append(
                {
                    "Grantee": {"Type": "AmazonCustomerByEmail", "EmailAddress":
email},
                    "Permission": "READ",
                }
            )
            acl.put(AccessControlPolicy={"Grants": grants, "Owner": acl.owner})
            logger.info("Granted read access to %s.", email)
        except ClientError:
            logger.exception("Couldn't add ACL to object '%s'.", self.object.key)
            raise
```

- For API details, see PutObjectAcl in *AWS SDK for Python (Boto3) API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutObjectLegalHold` with an AWS SDK or CLI

The following code examples show how to use `PutObjectLegalHold`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Lock Amazon S3 objects

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    /// <summary>
    /// Set or modify a legal hold on an object in an S3 bucket.
    /// </summary>
    /// <param name="bucketName">The bucket of the object.</param>
    /// <param name="objectKey">The key of the object.</param>
    /// <param name="holdStatus">The On or Off status for the legal hold.</param>
    /// <returns>True if successful.</returns>
    public async Task<bool> ModifyObjectLegalHold(string bucketName,
        string objectKey, ObjectLockLegalHoldStatus holdStatus)
    {
        try
        {
            var request = new PutObjectLegalHoldRequest()
            {
                BucketName = bucketName,
                Key = objectKey,
                LegalHold = new ObjectLockLegalHold()
                {
                    Status = holdStatus
                }
            };

            var response = await _amazonS3.PutObjectLegalHoldAsync(request);
            Console.WriteLine($"\tModified legal hold for {objectKey} in
{bucketName}.");
            return response.HttpStatusCode == System.Net.HttpStatusCode.OK;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"\tError modifying legal hold: '{ex.Message}'");
            return false;
        }
```

```
    }
```

- For API details, see PutObjectLegalHold in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

To apply a Legal Hold to an object

The following `put-object-legal-hold` example sets a Legal Hold on the object `doc1.rtf`.

```
aws s3api put-object-legal-hold \
    --bucket amzn-s3-demo-bucket-with-object-lock \
    --key doc1.rtf \
    --legal-hold Status=ON
```

This command produces no output.

- For API details, see PutObjectLegalHold in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "log"
 "time"
```

```
 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// S3Actions wraps S3 service actions.
type S3Actions struct {
 S3Client  *s3.Client
 S3Manager *manager.Uploader
}



// PutObjectLegalHold sets the legal hold configuration for an S3 object.
func (actor S3Actions) PutObjectLegalHold(ctx context.Context, bucket string, key
 string, versionId string, legalHoldStatus types.ObjectLockLegalHoldStatus) error
 {
 input := &s3.PutObjectLegalHoldInput{
  Bucket: aws.String(bucket),
  Key:    aws.String(key),
  LegalHold: &types.ObjectLockLegalHold{
   Status: legalHoldStatus,
  },
 }
 if versionId != "" {
  input.VersionId = aws.String(versionId)
 }

 _, err := actor.S3Client.PutObjectLegalHold(ctx, input)
 if err != nil {
  var noKey *types.NoSuchKey
  if errors.As(err, &noKey) {
   log.Printf("Object %s does not exist in bucket %s.\n", key, bucket)
   err = noKey
  }
 }

 return err
}
```

- For API details, see PutObjectLegalHold in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
   // Set or modify a legal hold on an object in an S3 bucket.
   public void modifyObjectLegalHold(String bucketName, String objectKey,
boolean legalHoldOn) {
       ObjectLockLegalHold legalHold ;
       if (legalHoldOn) {
           legalHold = ObjectLockLegalHold.builder()
               .status(ObjectLockLegalHoldStatus.ON)
               .build();
       } else {
           legalHold = ObjectLockLegalHold.builder()
               .status(ObjectLockLegalHoldStatus.OFF)
               .build();
       }

       PutObjectLegalHoldRequest legalHoldRequest =
PutObjectLegalHoldRequest.builder()
           .bucket(bucketName)
           .key(objectKey)
           .legalHold(legalHold)
           .build();

       getClient().putObjectLegalHold(legalHoldRequest) ;
       System.out.println("Modified legal hold for "+ objectKey +" in
"+bucketName +".");
   }
```

- For API details, see PutObjectLegalHold in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import {
  PutObjectLegalHoldCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Apply a legal hold configuration to the specified object.
 * @param {{ bucketName: string, objectKey: string, legalHoldStatus: "ON" |
 "OFF" }}
 */
export const main = async ({ bucketName, objectKey, legalHoldStatus }) => {
  if (!["OFF", "ON"].includes(legalHoldStatus.toUpperCase())) {
    throw new Error(
      "Invalid parameter. legalHoldStatus must be 'ON' or 'OFF'.",
    );
  }

  const client = new S3Client({});
  const command = new PutObjectLegalHoldCommand({
    Bucket: bucketName,
    Key: objectKey,
    LegalHold: {
      // Set the status to 'ON' to place a legal hold on the object.
      // Set the status to 'OFF' to remove the legal hold.
      Status: legalHoldStatus,
    },
  });

  try {
```

```
    await client.send(command);
    console.log(
      `Legal hold status set to "${legalHoldStatus}" for "${objectKey}" in
 "${bucketName}"`,
    );
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while modifying legal hold status for "${objectKey}" in
 "${bucketName}". The bucket doesn't exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while modifying legal hold status for "${objectKey}" in
 "${bucketName}". ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};

// Call function if run directly
import { parseArgs } from "node:util";
import {
  isMain,
  validateArgs,
} from "@aws-doc-sdk-examples/lib/utils/util-node.js";

const loadArgs = () => {
  const options = {
    bucketName: {
      type: "string",
      required: true,
    },
    objectKey: {
      type: "string",
      required: true,
    },
    legalHoldStatus: {
      type: "string",
```

```
      default: "ON",
    },
  };
  const results = parseArgs({ options });
  const { errors } = validateArgs({ options }, results);
  return { errors, results };
};

if (isMain(import.meta.url)) {
  const { errors, results } = loadArgs();
  if (!errors) {
    main(results.values);
  } else {
    console.error(errors.join("\n"));
  }
}
```

- For API details, see PutObjectLegalHold in *AWS SDK for JavaScript API Reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Put an object legal hold.

```
def set_legal_hold(s3_client, bucket: str, key: str) -> None:
    """
    Set a legal hold on a specific file in a bucket.

    Args:
        s3_client: Boto3 S3 client.
        bucket: The name of the bucket containing the file.
        key: The key of the file to set the legal hold on.
    """
    print()
```

```
    logger.info("Setting legal hold on file [%s] in bucket [%s]", key, bucket)
    try:
        before_status = "OFF"
        after_status = "ON"
        s3_client.put_object_legal_hold(
            Bucket=bucket, Key=key, LegalHold={"Status": after_status}
        )
        logger.debug(
            "Legal hold set successfully on file [%s] in bucket [%s]", key,
bucket
        )
        _print_legal_hold_update(bucket, key, before_status, after_status)
    except Exception as e:
        logger.error(
            "Failed to set legal hold on file [%s] in bucket [%s]: %s", key,
bucket, e
        )
```

- For API details, see PutObjectLegalHold in *AWS SDK for Python (Boto3) API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutObjectLockConfiguration` with an AWS SDK or CLI

The following code examples show how to use `PutObjectLockConfiguration`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Lock Amazon S3 objects

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Set the object lock configuration of a bucket.

```
    /// <summary>
    /// Enable object lock on an existing bucket.
    /// </summary>
    /// <param name="bucketName">The name of the bucket to modify.</param>
    /// <returns>True if successful.</returns>
    public async Task<bool> EnableObjectLockOnBucket(string bucketName)
    {
        try
        {
            // First, enable Versioning on the bucket.
            await _amazonS3.PutBucketVersioningAsync(new
PutBucketVersioningRequest()
            {
                BucketName = bucketName,
                VersioningConfig = new S3BucketVersioningConfig()
                {
                    EnableMfaDelete = false,
                    Status = VersionStatus.Enabled
                }
            });

            var request = new PutObjectLockConfigurationRequest()
            {
                BucketName = bucketName,
                ObjectLockConfiguration = new ObjectLockConfiguration()
                {
                    ObjectLockEnabled = new ObjectLockEnabled("Enabled"),
                },
            };
```

```
            var response = await
_amazonS3.PutObjectLockConfigurationAsync(request);
            Console.WriteLine($"\tAdded an object lock policy to bucket
{bucketName}.");
            return response.HttpStatusCode == System.Net.HttpStatusCode.OK;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"Error modifying object lock: '{ex.Message}'");
            return false;
        }
    }
```

Set the default retention period of a bucket.

```
    /// <summary>
    /// Set or modify a retention period on an S3 bucket.
    /// </summary>
    /// <param name="bucketName">The bucket to modify.</param>
    /// <param name="retention">The retention mode.</param>
    /// <param name="retainUntilDate">The date for retention until.</param>
    /// <returns>True if successful.</returns>
    public async Task<bool> ModifyBucketDefaultRetention(string bucketName, bool
enableObjectLock, ObjectLockRetentionMode retention, DateTime retainUntilDate)
    {
        var enabledString = enableObjectLock ? "Enabled" : "Disabled";
        var timeDifference = retainUntilDate.Subtract(DateTime.Now);
        try
        {
            // First, enable Versioning on the bucket.
            await _amazonS3.PutBucketVersioningAsync(new
PutBucketVersioningRequest()
            {
                BucketName = bucketName,
                VersioningConfig = new S3BucketVersioningConfig()
                {
                    EnableMfaDelete = false,
                    Status = VersionStatus.Enabled
                }
            });

            var request = new PutObjectLockConfigurationRequest()
```

```
            {
                BucketName = bucketName,
                ObjectLockConfiguration = new ObjectLockConfiguration()
                {
                    ObjectLockEnabled = new ObjectLockEnabled(enabledString),
                    Rule = new ObjectLockRule()
                    {
                        DefaultRetention = new DefaultRetention()
                        {
                            Mode = retention,
                            Days = timeDifference.Days // Can be specified in
days or years but not both.
                        }
                    }
                }
            };

            var response = await
_amazonS3.PutObjectLockConfigurationAsync(request);
            Console.WriteLine($"\tAdded a default retention to bucket
{bucketName}.");
            return response.HttpStatusCode == System.Net.HttpStatusCode.OK;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"\tError modifying object lock: '{ex.Message}'");
            return false;
        }
    }
```

- For API details, see PutObjectLockConfiguration in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

To set an object lock configuration on a bucket

The following `put-object-lock-configuration` example sets a 50-day object lock on the specified bucket.

```
aws s3api put-object-lock-configuration \
```

```
    --bucket amzn-s3-demo-bucket-with-object-lock \
    --object-lock-configuration '{ "ObjectLockEnabled": "Enabled", "Rule":
 { "DefaultRetention": { "Mode": "COMPLIANCE", "Days": 50 }}}'
```

This command produces no output.

- For API details, see PutObjectLockConfiguration in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Set the object lock configuration of a bucket.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "log"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// S3Actions wraps S3 service actions.
type S3Actions struct {
 S3Client  *s3.Client
 S3Manager *manager.Uploader
}
```

```
// EnableObjectLockOnBucket enables object locking on an existing bucket.
func (actor S3Actions) EnableObjectLockOnBucket(ctx context.Context, bucket
 string) error {
 // Versioning must be enabled on the bucket before object locking is enabled.
 verInput := &s3.PutBucketVersioningInput{
  Bucket: aws.String(bucket),
  VersioningConfiguration: &types.VersioningConfiguration{
   MFADelete: types.MFADeleteDisabled,
   Status:    types.BucketVersioningStatusEnabled,
  },
 }
 _, err := actor.S3Client.PutBucketVersioning(ctx, verInput)
 if err != nil {
  var noBucket *types.NoSuchBucket
  if errors.As(err, &noBucket) {
   log.Printf("Bucket %s does not exist.\n", bucket)
   err = noBucket
  }
  return err
 }

 input := &s3.PutObjectLockConfigurationInput{
  Bucket: aws.String(bucket),
  ObjectLockConfiguration: &types.ObjectLockConfiguration{
   ObjectLockEnabled: types.ObjectLockEnabledEnabled,
  },
 }
 _, err = actor.S3Client.PutObjectLockConfiguration(ctx, input)
 if err != nil {
  var noBucket *types.NoSuchBucket
  if errors.As(err, &noBucket) {
   log.Printf("Bucket %s does not exist.\n", bucket)
   err = noBucket
  }
 }

 return err
}
```

Set the default retention period of a bucket.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "log"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// S3Actions wraps S3 service actions.
type S3Actions struct {
 S3Client  *s3.Client
 S3Manager *manager.Uploader
}



// ModifyDefaultBucketRetention modifies the default retention period of an
 existing bucket.
func (actor S3Actions) ModifyDefaultBucketRetention(
 ctx context.Context, bucket string, lockMode types.ObjectLockEnabled,
 retentionPeriod int32, retentionMode types.ObjectLockRetentionMode) error {

 input := &s3.PutObjectLockConfigurationInput{
  Bucket: aws.String(bucket),
  ObjectLockConfiguration: &types.ObjectLockConfiguration{
   ObjectLockEnabled: lockMode,
   Rule: &types.ObjectLockRule{
    DefaultRetention: &types.DefaultRetention{
     Days: aws.Int32(retentionPeriod),
     Mode: retentionMode,
    },
   },
  },
 }
```

```
 _, err := actor.S3Client.PutObjectLockConfiguration(ctx, input)
 if err != nil {
  var noBucket *types.NoSuchBucket
  if errors.As(err, &noBucket) {
   log.Printf("Bucket %s does not exist.\n", bucket)
   err = noBucket
  }
 }

 return err
}
```

- For API details, see PutObjectLockConfiguration in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Set the object lock configuration of a bucket.

```
    // Enable object lock on an existing bucket.
    public void enableObjectLockOnBucket(String bucketName) {
        try {
            VersioningConfiguration versioningConfiguration =
 VersioningConfiguration.builder()
                .status(BucketVersioningStatus.ENABLED)
                .build();

            PutBucketVersioningRequest putBucketVersioningRequest =
 PutBucketVersioningRequest.builder()
                .bucket(bucketName)
                .versioningConfiguration(versioningConfiguration)
                .build();
```

```
            // Enable versioning on the bucket.
            getClient().putBucketVersioning(putBucketVersioningRequest);
            PutObjectLockConfigurationRequest request =
PutObjectLockConfigurationRequest.builder()
                .bucket(bucketName)
                .objectLockConfiguration(ObjectLockConfiguration.builder()
                    .objectLockEnabled(ObjectLockEnabled.ENABLED)
                    .build())
                .build();

            getClient().putObjectLockConfiguration(request);
            System.out.println("Successfully enabled object lock on
"+bucketName);

        } catch (S3Exception ex) {
            System.out.println("Error modifying object lock: '" + ex.getMessage()
+ "'");
        }
    }
```

Set the default retention period of a bucket.

```
    // Set or modify a retention period on an S3 bucket.
    public void modifyBucketDefaultRetention(String bucketName) {
        VersioningConfiguration versioningConfiguration =
VersioningConfiguration.builder()
            .mfaDelete(MFADelete.DISABLED)
            .status(BucketVersioningStatus.ENABLED)
            .build();

        PutBucketVersioningRequest versioningRequest =
PutBucketVersioningRequest.builder()
            .bucket(bucketName)
            .versioningConfiguration(versioningConfiguration)
            .build();

        getClient().putBucketVersioning(versioningRequest);
        DefaultRetention rention = DefaultRetention.builder()
            .days(1)
            .mode(ObjectLockRetentionMode.GOVERNANCE)
            .build();
```

```
        ObjectLockRule lockRule = ObjectLockRule.builder()
            .defaultRetention(rention)
            .build();

        ObjectLockConfiguration objectLockConfiguration =
 ObjectLockConfiguration.builder()
            .objectLockEnabled(ObjectLockEnabled.ENABLED)
            .rule(lockRule)
            .build();

        PutObjectLockConfigurationRequest putObjectLockConfigurationRequest =
 PutObjectLockConfigurationRequest.builder()
            .bucket(bucketName)
            .objectLockConfiguration(objectLockConfiguration)
            .build();


 getClient().putObjectLockConfiguration(putObjectLockConfigurationRequest) ;
        System.out.println("Added a default retention to bucket "+bucketName
 +".");
    }
```

- For API details, see PutObjectLockConfiguration in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Set the object lock configuration of a bucket.

```
import {
  PutObjectLockConfigurationCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";
```

```
/**
 * Enable S3 Object Lock for an Amazon S3 bucket.
 * After you enable Object Lock on a bucket, you can't
 * disable Object Lock or suspend versioning for that bucket.
 * @param {{ bucketName: string, enabled: boolean }}
 */
export const main = async ({ bucketName }) => {
  const client = new S3Client({});
  const command = new PutObjectLockConfigurationCommand({
    Bucket: bucketName,
    // The Object Lock configuration that you want to apply to the specified
 bucket.
    ObjectLockConfiguration: {
      ObjectLockEnabled: "Enabled",
    },
  });

  try {
    await client.send(command);
    console.log(`Object Lock for "${bucketName}" enabled.`);
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while modifying the object lock configuration for the
 bucket "${bucketName}". The bucket doesn't exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while modifying the object lock configuration for the
 bucket "${bucketName}". ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};

// Call function if run directly
import { parseArgs } from "node:util";
import {
```

```
  isMain,
  validateArgs,
} from "@aws-doc-sdk-examples/lib/utils/util-node.js";

const loadArgs = () => {
  const options = {
    bucketName: {
      type: "string",
      required: true,
    },
  };
  const results = parseArgs({ options });
  const { errors } = validateArgs({ options }, results);
  return { errors, results };
};

if (isMain(import.meta.url)) {
  const { errors, results } = loadArgs();
  if (!errors) {
    main(results.values);
  } else {
    console.error(errors.join("\n"));
  }
}
```

Set the default retention period of a bucket.

```
import {
  PutObjectLockConfigurationCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Change the default retention settings for an object in an Amazon S3 bucket.
 * @param {{ bucketName: string, retentionDays: string }}
 */
export const main = async ({ bucketName, retentionDays }) => {
  const client = new S3Client({});

  try {
```

```
    await client.send(
      new PutObjectLockConfigurationCommand({
        Bucket: bucketName,
        // The Object Lock configuration that you want to apply to the specified
bucket.
        ObjectLockConfiguration: {
          ObjectLockEnabled: "Enabled",
          Rule: {
            // The default Object Lock retention mode and period that you want to
apply
            // to new objects placed in the specified bucket. Bucket settings
require
            // both a mode and a period. The period can be either Days or Years
but
            // you must select one.
            DefaultRetention: {
              // In governance mode, users can't overwrite or delete an object
version
              // or alter its lock settings unless they have special permissions.
With
              // governance mode, you protect objects against being deleted by
most users,
              // but you can still grant some users permission to alter the
retention settings
              // or delete the objects if necessary.
              Mode: "GOVERNANCE",
              Days: Number.parseInt(retentionDays),
            },
          },
        },
      }),
    );
    console.log(
      `Set default retention mode to "GOVERNANCE" with a retention period of
${retentionDays} day(s).`,
    );
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while setting the default object retention for a bucket.
The bucket doesn't exist.`,
```

```
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while setting the default object retention for a bucket.
 ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};

// Call function if run directly
import { parseArgs } from "node:util";
import {
  isMain,
  validateArgs,
} from "@aws-doc-sdk-examples/lib/utils/util-node.js";

const loadArgs = () => {
  const options = {
    bucketName: {
      type: "string",
      required: true,
    },
    retentionDays: {
      type: "string",
      required: true,
    },
  };
  const results = parseArgs({ options });
  const { errors } = validateArgs({ options }, results);
  return { errors, results };
};

if (isMain(import.meta.url)) {
  const { errors, results } = loadArgs();
  if (!errors) {
    main(results.values);
  } else {
    console.error(errors.join("\n"));
  }
}
```

- For API details, see PutObjectLockConfiguration in *AWS SDK for JavaScript API Reference*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Put object lock configuration.

```
        s3_client.put_object_lock_configuration(
            Bucket=bucket,
            ObjectLockConfiguration={"ObjectLockEnabled": "Disabled", "Rule":
{}},
        )
```

- For API details, see PutObjectLockConfiguration in *AWS SDK for Python (Boto3) API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutObjectRetention` with an AWS SDK or CLI

The following code examples show how to use `PutObjectRetention`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Lock Amazon S3 objects

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    /// <summary>
    /// Set or modify a retention period on an object in an S3 bucket.
    /// </summary>
    /// <param name="bucketName">The bucket of the object.</param>
    /// <param name="objectKey">The key of the object.</param>
    /// <param name="retention">The retention mode.</param>
    /// <param name="retainUntilDate">The date retention expires.</param>
    /// <returns>True if successful.</returns>
    public async Task<bool> ModifyObjectRetentionPeriod(string bucketName,
        string objectKey, ObjectLockRetentionMode retention, DateTime
retainUntilDate)
    {
        try
        {
            var request = new PutObjectRetentionRequest()
            {
                BucketName = bucketName,
                Key = objectKey,
                Retention = new ObjectLockRetention()
                {
                    Mode = retention,
                    RetainUntilDate = retainUntilDate
                }
            };

            var response = await _amazonS3.PutObjectRetentionAsync(request);
            Console.WriteLine($"\tSet retention for {objectKey} in {bucketName}
until {retainUntilDate:d}.");
            return response.HttpStatusCode == System.Net.HttpStatusCode.OK;
        }
        catch (AmazonS3Exception ex)
        {
```

```
            Console.WriteLine($"\tError modifying retention period:
 '{ex.Message}'");
            return false;
        }
    }
```

- For API details, see PutObjectRetention in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

To set an object retention configuration for an object

The following `put-object-retention` example sets an object retention configuration for the specified object until 2025-01-01.

```
aws s3api put-object-retention \
    --bucket amzn-s3-demo-bucket-with-object-lock \
    --key doc1.rtf \
    --retention '{ "Mode": "GOVERNANCE", "RetainUntilDate":
 "2025-01-01T00:00:00" }'
```

This command produces no output.

- For API details, see PutObjectRetention in *AWS CLI Command Reference*.

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import (
 "bytes"
```

```
 "context"
 "errors"
 "fmt"
 "log"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// S3Actions wraps S3 service actions.
type S3Actions struct {
 S3Client  *s3.Client
 S3Manager *manager.Uploader
}



// PutObjectRetention sets the object retention configuration for an S3 object.
func (actor S3Actions) PutObjectRetention(ctx context.Context, bucket string, key
 string, retentionMode types.ObjectLockRetentionMode, retentionPeriodDays int32)
 error {
 input := &s3.PutObjectRetentionInput{
  Bucket: aws.String(bucket),
  Key:    aws.String(key),
  Retention: &types.ObjectLockRetention{
   Mode:            retentionMode,
   RetainUntilDate: aws.Time(time.Now().AddDate(0, 0, int(retentionPeriodDays))),
  },
  BypassGovernanceRetention: aws.Bool(true),
 }

 _, err := actor.S3Client.PutObjectRetention(ctx, input)
 if err != nil {
  var noKey *types.NoSuchKey
  if errors.As(err, &noKey) {
   log.Printf("Object %s does not exist in bucket %s.\n", key, bucket)
   err = noKey
  }
 }
```

```
 return err
}
```

- For API details, see PutObjectRetention in *AWS SDK for Go API Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
   // Set or modify a retention period on an object in an S3 bucket.
   public void modifyObjectRetentionPeriod(String bucketName, String objectKey)
{
       // Calculate the instant one day from now.
       Instant futureInstant = Instant.now().plus(1, ChronoUnit.DAYS);

       // Convert the Instant to a ZonedDateTime object with a specific time
zone.
       ZonedDateTime zonedDateTime =
futureInstant.atZone(ZoneId.systemDefault());

       // Define a formatter for human-readable output.
       DateTimeFormatter formatter = DateTimeFormatter.ofPattern("yyyy-MM-dd
HH:mm:ss");

       // Format the ZonedDateTime object to a human-readable date string.
       String humanReadableDate = formatter.format(zonedDateTime);

       // Print the formatted date string.
       System.out.println("Formatted Date: " + humanReadableDate);
       ObjectLockRetention retention = ObjectLockRetention.builder()
           .mode(ObjectLockRetentionMode.GOVERNANCE)
           .retainUntilDate(futureInstant)
           .build();
```

```
        PutObjectRetentionRequest retentionRequest =
 PutObjectRetentionRequest.builder()
            .bucket(bucketName)
            .key(objectKey)
            .retention(retention)
            .build();

        getClient().putObjectRetention(retentionRequest);
        System.out.println("Set retention for "+objectKey +" in " +bucketName +"
 until "+ humanReadableDate +".");
    }
```

- For API details, see PutObjectRetention in *AWS SDK for Java 2.x API Reference*.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import {
  PutObjectRetentionCommand,
  S3Client,
  S3ServiceException,
} from "@aws-sdk/client-s3";

/**
 * Place a 24-hour retention period on an object in an Amazon S3 bucket.
 * @param {{ bucketName: string, key: string }}
 */
export const main = async ({ bucketName, key }) => {
  const client = new S3Client({});
  const command = new PutObjectRetentionCommand({
    Bucket: bucketName,
    Key: key,
    BypassGovernanceRetention: false,
    Retention: {
```

```
      // In governance mode, users can't overwrite or delete an object version
      // or alter its lock settings unless they have special permissions. With
      // governance mode, you protect objects against being deleted by most
 users,
      // but you can still grant some users permission to alter the retention
 settings
      // or delete the objects if necessary.
      Mode: "GOVERNANCE",
      RetainUntilDate: new Date(new Date().getTime() + 24 * 60 * 60 * 1000),
    },
  });

  try {
    await client.send(command);
    console.log("Object Retention settings updated.");
  } catch (caught) {
    if (
      caught instanceof S3ServiceException &&
      caught.name === "NoSuchBucket"
    ) {
      console.error(
        `Error from S3 while modifying the governance mode and retention period
 on an object. The bucket doesn't exist.`,
      );
    } else if (caught instanceof S3ServiceException) {
      console.error(
        `Error from S3 while modifying the governance mode and retention period
 on an object. ${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};

// Call function if run directly
import { parseArgs } from "node:util";
import {
  isMain,
  validateArgs,
} from "@aws-doc-sdk-examples/lib/utils/util-node.js";

const loadArgs = () => {
  const options = {
```

```
    bucketName: {
      type: "string",
      required: true,
    },
    key: {
      type: "string",
      required: true,
    },
  };
  const results = parseArgs({ options });
  const { errors } = validateArgs({ options }, results);
  return { errors, results };
};

if (isMain(import.meta.url)) {
  const { errors, results } = loadArgs();
  if (!errors) {
    main(results.values);
  } else {
    console.error(errors.join("\n"));
  }
}
```

- For API details, see PutObjectRetention in *AWS SDK for JavaScript API Reference*.

PowerShell

Tools for PowerShell V4

Example 1: The command enables governance retention mode untill the date '31st Dec 2019 00:00:00' for 'testfile.txt' object in the given S3 bucket.

```
Write-S3ObjectRetention -BucketName 'amzn-s3-demo-bucket' -Key 'testfile.txt' -
Retention_Mode GOVERNANCE -Retention_RetainUntilDate "2019-12-31T00:00:00"
```

- For API details, see PutObjectRetention in *AWS Tools for PowerShell Cmdlet Reference (V4)*.

Tools for PowerShell V5

Example 1: The command enables governance retention mode untill the date '31st Dec 2019 00:00:00' for 'testfile.txt' object in the given S3 bucket.

```
Write-S3ObjectRetention -BucketName 'amzn-s3-demo-bucket' -Key 'testfile.txt' -
Retention_Mode GOVERNANCE -Retention_RetainUntilDate "2019-12-31T00:00:00"
```

- For API details, see PutObjectRetention in *AWS Tools for PowerShell Cmdlet Reference (V5)*.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Put an object retention.

```
            s3_client.put_object_retention(
                Bucket=bucket,
                Key=key,
                VersionId=version_id,
                Retention={"Mode": "GOVERNANCE", "RetainUntilDate":
far_future_date},
                BypassGovernanceRetention=True,
            )
```

- For API details, see PutObjectRetention in *AWS SDK for Python (Boto3) API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `RestoreObject` with an AWS SDK or CLI

The following code examples show how to use `RestoreObject`.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
using System;
using System.Threading.Tasks;
using Amazon;
using Amazon.S3;
using Amazon.S3.Model;

/// <summary>
/// This example shows how to restore an archived object in an Amazon
/// Simple Storage Service (Amazon S3) bucket.
/// </summary>
public class RestoreArchivedObject
{
    public static void Main()
    {
        string bucketName = "amzn-s3-demo-bucket";
        string objectKey = "archived-object.txt";

        // Specify your bucket region (an example region is shown).
        RegionEndpoint bucketRegion = RegionEndpoint.USWest2;

        IAmazonS3 client = new AmazonS3Client(bucketRegion);
        RestoreObjectAsync(client, bucketName, objectKey).Wait();
    }

    /// <summary>
    /// This method restores an archived object from an Amazon S3 bucket.
    /// </summary>
    /// <param name="client">The initialized Amazon S3 client object used to
call
    /// RestoreObjectAsync.</param>
    /// <param name="bucketName">A string representing the name of the
    /// bucket where the object was located before it was archived.</param>
```

```
        /// <param name="objectKey">A string representing the name of the
        /// archived object to restore.</param>
        public static async Task RestoreObjectAsync(IAmazonS3 client, string
bucketName, string objectKey)
        {
            try
            {
                var restoreRequest = new RestoreObjectRequest
                {
                    BucketName = bucketName,
                    Key = objectKey,
                    Days = 2,
                };
                RestoreObjectResponse response = await
client.RestoreObjectAsync(restoreRequest);

                // Check the status of the restoration.
                await CheckRestorationStatusAsync(client, bucketName, objectKey);
            }
            catch (AmazonS3Exception amazonS3Exception)
            {
                Console.WriteLine($"Error: {amazonS3Exception.Message}");
            }
        }

        /// <summary>
        /// This method retrieves the status of the object's restoration.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used to
call
        /// GetObjectMetadataAsync.</param>
        /// <param name="bucketName">A string representing the name of the Amazon
        /// S3 bucket which contains the archived object.</param>
        /// <param name="objectKey">A string representing the name of the
        /// archived object you want to restore.</param>
        public static async Task CheckRestorationStatusAsync(IAmazonS3 client,
string bucketName, string objectKey)
        {
            GetObjectMetadataRequest metadataRequest = new
GetObjectMetadataRequest()
            {
                BucketName = bucketName,
                Key = objectKey,
            };
```

```
            GetObjectMetadataResponse response = await
 client.GetObjectMetadataAsync(metadataRequest);

            var restStatus = response.RestoreInProgress ? "in-progress" :
 "finished or failed";
            Console.WriteLine($"Restoration status: {restStatus}");
        }
    }
```

- For API details, see RestoreObject in *AWS SDK for .NET API Reference*.

CLI

AWS CLI

To create a restore request for an object

The following `restore-object` example restores the specified Amazon S3 Glacier object for the bucket `my-glacier-bucket` for 10 days.

```
aws s3api restore-object \
    --bucket my-glacier-bucket \
    --key doc1.rtf \
    --restore-request Days=10
```

This command produces no output.

- For API details, see RestoreObject in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.RestoreRequest;
import software.amazon.awssdk.services.s3.model.GlacierJobParameters;
import software.amazon.awssdk.services.s3.model.RestoreObjectRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.services.s3.model.Tier;

/*
 *  For more information about restoring an object, see "Restoring an archived
 object" at
 *  https://docs.aws.amazon.com/AmazonS3/latest/userguide/restoring-objects.html
 *
 *  Before running this Java V2 code example, set up your development
 environment, including your credentials.
 *
 *  For more information, see the following documentation topic:
 *
 *  https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */
public class RestoreObject {
    public static void main(String[] args) {
        final String usage = """

            Usage:
                <bucketName> <keyName> <expectedBucketOwner>

            Where:
                bucketName - The Amazon S3 bucket name.\s
                keyName - The key name of an object with a Storage class value of
 Glacier.\s
                expectedBucketOwner - The account that owns the bucket (you can
 obtain this value from the AWS Management Console).\s
            """;

        if (args.length != 3) {
            System.out.println(usage);
            System.exit(1);
        }

        String bucketName = args[0];
```

```
        String keyName = args[1];
        String expectedBucketOwner = args[2];
        Region region = Region.US_EAST_1;
        S3Client s3 = S3Client.builder()
            .region(region)
            .build();

        restoreS3Object(s3, bucketName, keyName, expectedBucketOwner);
        s3.close();
    }

    /**
     * Restores an S3 object from the Glacier storage class.
     *
     * @param s3                   an instance of the {@link S3Client} to be used
for interacting with Amazon S3
     * @param bucketName           the name of the S3 bucket where the object is
stored
     * @param keyName              the key (object name) of the S3 object to be
restored
     * @param expectedBucketOwner  the AWS account ID of the expected bucket
owner
     */
    public static void restoreS3Object(S3Client s3, String bucketName, String
keyName, String expectedBucketOwner) {
        try {
            RestoreRequest restoreRequest = RestoreRequest.builder()
                .days(10)

.glacierJobParameters(GlacierJobParameters.builder().tier(Tier.STANDARD).build())
                .build();

            RestoreObjectRequest objectRequest = RestoreObjectRequest.builder()
                .expectedBucketOwner(expectedBucketOwner)
                .bucket(bucketName)
                .key(keyName)
                .restoreRequest(restoreRequest)
                .build();

            s3.restoreObject(objectRequest);

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
```

```
        }
    }
}
```

- For API details, see RestoreObject in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `SelectObjectContent` with an AWS SDK or CLI

The following code examples show how to use `SelectObjectContent`.

CLI

AWS CLI

To filter the contents of an Amazon S3 object based on an SQL statement

The following `select-object-content` example filters the object `my-data-file.csv` with the specified SQL statement and sends output to a file.

```
aws s3api select-object-content \
    --bucket amzn-s3-demo-bucket \
    --key my-data-file.csv \
    --expression "select * from s3object limit 100" \
    --expression-type 'SQL' \
    --input-serialization '{"CSV": {}, "CompressionType": "NONE"}' \
    --output-serialization '{"CSV": {}}' "output.csv"
```

This command produces no output.

- For API details, see SelectObjectContent in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

The following example shows a query using a JSON object. The complete example also shows the use of a CSV object.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.core.async.AsyncRequestBody;
import software.amazon.awssdk.core.async.BlockingInputStreamAsyncRequestBody;
import software.amazon.awssdk.core.exception.SdkException;
import software.amazon.awssdk.services.s3.S3AsyncClient;
import software.amazon.awssdk.services.s3.model.CSVInput;
import software.amazon.awssdk.services.s3.model.CSVOutput;
import software.amazon.awssdk.services.s3.model.CompressionType;
import software.amazon.awssdk.services.s3.model.ExpressionType;
import software.amazon.awssdk.services.s3.model.FileHeaderInfo;
import software.amazon.awssdk.services.s3.model.InputSerialization;
import software.amazon.awssdk.services.s3.model.JSONInput;
import software.amazon.awssdk.services.s3.model.JSONOutput;
import software.amazon.awssdk.services.s3.model.JSONType;
import software.amazon.awssdk.services.s3.model.ObjectIdentifier;
import software.amazon.awssdk.services.s3.model.OutputSerialization;
import software.amazon.awssdk.services.s3.model.Progress;
import software.amazon.awssdk.services.s3.model.PutObjectResponse;
import software.amazon.awssdk.services.s3.model.SelectObjectContentRequest;
import
 software.amazon.awssdk.services.s3.model.SelectObjectContentResponseHandler;
import software.amazon.awssdk.services.s3.model.Stats;

import java.io.IOException;
import java.net.URL;
import java.util.ArrayList;
import java.util.List;
```

```
import java.util.UUID;
import java.util.concurrent.CompletableFuture;

public class SelectObjectContentExample {
    static final Logger logger =
 LoggerFactory.getLogger(SelectObjectContentExample.class);
    static final String BUCKET_NAME = "amzn-s3-demo-bucket-" + UUID.randomUUID();
    static final S3AsyncClient s3AsyncClient = S3AsyncClient.create();
    static String FILE_CSV = "csv";
    static String FILE_JSON = "json";
    static String URL_CSV = "https://raw.githubusercontent.com/mledoze/countries/
master/dist/countries.csv";
    static String URL_JSON = "https://raw.githubusercontent.com/mledoze/
countries/master/dist/countries.json";

    public static void main(String[] args) {
        SelectObjectContentExample selectObjectContentExample = new
 SelectObjectContentExample();
        try {
            SelectObjectContentExample.setUp();
            selectObjectContentExample.runSelectObjectContentMethodForJSON();
            selectObjectContentExample.runSelectObjectContentMethodForCSV();
        } catch (SdkException e) {
            logger.error(e.getMessage(), e);
            System.exit(1);
        } finally {
            SelectObjectContentExample.tearDown();
        }
    }

    EventStreamInfo runSelectObjectContentMethodForJSON() {
        // Set up request parameters.
        final String queryExpression = "select * from s3object[*][*] c where
 c.area < 350000";
        final String fileType = FILE_JSON;

        InputSerialization inputSerialization = InputSerialization.builder()
                .json(JSONInput.builder().type(JSONType.DOCUMENT).build())
                .compressionType(CompressionType.NONE)
                .build();

        OutputSerialization outputSerialization = OutputSerialization.builder()
                .json(JSONOutput.builder().recordDelimiter(null).build())
                .build();
```

```
        // Build the SelectObjectContentRequest.
        SelectObjectContentRequest select = SelectObjectContentRequest.builder()
                .bucket(BUCKET_NAME)
                .key(FILE_JSON)
                .expression(queryExpression)
                .expressionType(ExpressionType.SQL)
                .inputSerialization(inputSerialization)
                .outputSerialization(outputSerialization)
                .build();

        EventStreamInfo eventStreamInfo = new EventStreamInfo();
        // Call the selectObjectContent method with the request and a response
handler.
        // Supply an EventStreamInfo object to the response handler to gather
records and information from the response.
        s3AsyncClient.selectObjectContent(select,
buildResponseHandler(eventStreamInfo)).join();

        // Log out information gathered while processing the response stream.
        long recordCount = eventStreamInfo.getRecords().stream().mapToInt(record
->
                record.split("\n").length
        ).sum();
        logger.info("Total records {}: {}", fileType, recordCount);
        logger.info("Visitor onRecords for fileType {} called {} times",
fileType, eventStreamInfo.getCountOnRecordsCalled());
        logger.info("Visitor onStats for fileType {}, {}", fileType,
eventStreamInfo.getStats());
        logger.info("Visitor onContinuations for fileType {}, {}", fileType,
eventStreamInfo.getCountContinuationEvents());
        return eventStreamInfo;
    }

    static SelectObjectContentResponseHandler
buildResponseHandler(EventStreamInfo eventStreamInfo) {
        // Use a Visitor to process the response stream. This visitor logs
information and gathers details while processing.
        final SelectObjectContentResponseHandler.Visitor visitor =
SelectObjectContentResponseHandler.Visitor.builder()
                .onRecords(r -> {
                    logger.info("Record event received.");
                    eventStreamInfo.addRecord(r.payload().asUtf8String());
                    eventStreamInfo.incrementOnRecordsCalled();
```

```
                })
                .onCont(ce -> {
                    logger.info("Continuation event received.");
                    eventStreamInfo.incrementContinuationEvents();
                })
                .onProgress(pe -> {
                    Progress progress = pe.details();
                    logger.info("Progress event received:\n bytesScanned:
{}\nbytesProcessed: {}\nbytesReturned:{}",
                            progress.bytesScanned(),
                            progress.bytesProcessed(),
                            progress.bytesReturned());
                })
                .onEnd(ee -> logger.info("End event received."))
                .onStats(se -> {
                    logger.info("Stats event received.");
                    eventStreamInfo.addStats(se.details());
                })
                .build();

        // Build the SelectObjectContentResponseHandler with the visitor that
 processes the stream.
        return SelectObjectContentResponseHandler.builder()
                .subscriber(visitor).build();
    }

    // The EventStreamInfo class is used to store information gathered while
 processing the response stream.
    static class EventStreamInfo {
        private final List<String> records = new ArrayList<>();
        private Integer countOnRecordsCalled = 0;
        private Integer countContinuationEvents = 0;
        private Stats stats;

        void incrementOnRecordsCalled() {
            countOnRecordsCalled++;
        }

        void incrementContinuationEvents() {
            countContinuationEvents++;
        }

        void addRecord(String record) {
            records.add(record);
```

```
        }

        void addStats(Stats stats) {
            this.stats = stats;
        }

        public List<String> getRecords() {
            return records;
        }

        public Integer getCountOnRecordsCalled() {
            return countOnRecordsCalled;
        }

        public Integer getCountContinuationEvents() {
            return countContinuationEvents;
        }

        public Stats getStats() {
            return stats;
        }
    }
```

- For API details, see SelectObjectContent in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `UploadPart` with an AWS SDK or CLI

The following code examples show how to use `UploadPart`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Use checksums
- Work with Amazon S3 object integrity

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
//! Upload a part to an S3 bucket.
/*!
    \param bucket: The name of the S3 bucket where the object will be uploaded.
    \param key: The unique identifier (key) for the object within the S3 bucket.
    \param uploadID: An upload ID string.
    \param partNumber:
    \param checksumAlgorithm: Checksum algorithm, ignored when NOT_SET.
    \param calculatedHash: A data integrity hash to set, depending on the
 checksum algorithm,
                            ignored when it is an empty string.
    \param body: An shared_ptr IOStream of the data to be uploaded.
    \param client: The S3 client instance used to perform the upload operation.
    \return UploadPartOutcome: The outcome.
*/

Aws::S3::Model::UploadPartOutcome AwsDoc::S3::uploadPart(const Aws::String
 &bucket,
                                                          const Aws::String &key,
                                                          const Aws::String
 &uploadID,
                                                          int partNumber,

 Aws::S3::Model::ChecksumAlgorithm checksumAlgorithm,
                                                          const Aws::String
 &calculatedHash,
                                                          const
 std::shared_ptr<Aws::IOStream> &body,
                                                          const Aws::S3::S3Client
 &client) {
    Aws::S3::Model::UploadPartRequest request;
    request.SetBucket(bucket);
    request.SetKey(key);
```

```
    request.SetUploadId(uploadID);
    request.SetPartNumber(partNumber);
    if (checksumAlgorithm != Aws::S3::Model::ChecksumAlgorithm::NOT_SET) {
        request.SetChecksumAlgorithm(checksumAlgorithm);
    }
    request.SetBody(body);

    if (!calculatedHash.empty()) {
        switch (checksumAlgorithm) {
            case Aws::S3::Model::ChecksumAlgorithm::NOT_SET:
                request.SetContentMD5(calculatedHash);
                break;
            case Aws::S3::Model::ChecksumAlgorithm::CRC32:
                request.SetChecksumCRC32(calculatedHash);
                break;
            case Aws::S3::Model::ChecksumAlgorithm::CRC32C:
                request.SetChecksumCRC32C(calculatedHash);
                break;
            case Aws::S3::Model::ChecksumAlgorithm::SHA1:
                request.SetChecksumSHA1(calculatedHash);
                break;
            case Aws::S3::Model::ChecksumAlgorithm::SHA256:
                request.SetChecksumSHA256(calculatedHash);
                break;
        }
    }

    return client.UploadPart(request);
}
```

- For API details, see UploadPart in *AWS SDK for C++ API Reference*.

CLI

AWS CLI

The following command uploads the first part in a multipart upload initiated with the `create-multipart-upload` command:

```
aws s3api upload-part --bucket amzn-s3-demo-bucket --key
 'multipart/01' --part-number 1 --body part01 --upload-id
  "dfRtDYU0WWCCcH43C3WFbkRONycyCpTJJvxu2i5GYkZljF.Yxwh6XG7WfS2vC4to6HiV6Yjlx.cph0gtNBtJ8P
```

The body option takes the name or path of a local file for upload (do not use the file:// prefix). The minimum part size is 5 MB. Upload ID is returned by `create-multipart-upload` and can also be retrieved with `list-multipart-uploads`. Bucket and key are specified when you create the multipart upload.

Output:

```
{
    "ETag": "\"e868e0f4719e394144ef36531ee6824c\""
}
```

Save the ETag value of each part for later. They are required to complete the multipart upload.

- For API details, see UploadPart in *AWS CLI Command Reference*.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    let mut upload_parts: Vec<aws_sdk_s3::types::CompletedPart> = Vec::new();

    for chunk_index in 0..chunk_count {
        let this_chunk = if chunk_count - 1 == chunk_index {
            size_of_last_chunk
        } else {
            CHUNK_SIZE
        };
        let stream = ByteStream::read_from()
```

```
            .path(path)
            .offset(chunk_index * CHUNK_SIZE)
            .length(Length::Exact(this_chunk))
            .build()
            .await
            .unwrap();

        // Chunk index needs to start at 0, but part numbers start at 1.
        let part_number = (chunk_index as i32) + 1;
        let upload_part_res = client
            .upload_part()
            .key(&key)
            .bucket(&bucket_name)
            .upload_id(upload_id)
            .body(stream)
            .part_number(part_number)
            .send()
            .await?;

        upload_parts.push(
            CompletedPart::builder()
                .e_tag(upload_part_res.e_tag.unwrap_or_default())
                .part_number(part_number)
                .build(),
        );
    }
```

```
    // Create a multipart upload. Use UploadPart and CompleteMultipartUpload to
    // upload the file.
    let multipart_upload_res: CreateMultipartUploadOutput = client
        .create_multipart_upload()
        .bucket(&bucket_name)
        .key(&key)
        .send()
        .await?;

    let upload_id = multipart_upload_res.upload_id().ok_or(S3ExampleError::new(
        "Missing upload_id after CreateMultipartUpload",
    ))?;
```

```
    // upload_parts: Vec<aws_sdk_s3::types::CompletedPart>
```

```
    let completed_multipart_upload: CompletedMultipartUpload =
 CompletedMultipartUpload::builder()
        .set_parts(Some(upload_parts))
        .build();

    let _complete_multipart_upload_res = client
        .complete_multipart_upload()
        .bucket(&bucket_name)
        .key(&key)
        .multipart_upload(completed_multipart_upload)
        .upload_id(upload_id)
        .send()
        .await?;
```

- For API details, see UploadPart in *AWS SDK for Rust API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `UploadPartCopy` with an AWS SDK or CLI

The following code examples show how to use `UploadPartCopy`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Perform a multipart copy

CLI

AWS CLI

To upload part of an object by copying data from an existing object as the data source

The following `upload-part-copy` example uploads a part by copying data from an existing object as a data source.

```
aws s3api upload-part-copy \
    --bucket amzn-s3-demo-bucket \
    --key "Map_Data_June.mp4" \
```

```
    --copy-source "amzn-s3-demo-bucket/copy_of_Map_Data_June.mp4" \
    --part-number 1 \
    --upload-
id "bq0tdE1CDpWQYRPLHuNG50xAT6pA5D.m_RiBy0ggOH6b13pVRY7QjvLlf75iFdJqp_2wztk5hvpUM2SesXgrz
```

Output:

```
{
    "CopyPartResult": {
        "LastModified": "2019-12-13T23:16:03.000Z",
        "ETag": "\"711470fc377698c393d94aed6305e245\""
    }
}
```

- For API details, see UploadPartCopy in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
   public CompletableFuture<String> performMultiCopy(String toBucket, String
bucketName, String key) {
       CreateMultipartUploadRequest createMultipartUploadRequest =
CreateMultipartUploadRequest.builder()
           .bucket(toBucket)
           .key(key)
           .build();

       getAsyncClient().createMultipartUpload(createMultipartUploadRequest)
           .thenApply(createMultipartUploadResponse -> {
               String uploadId = createMultipartUploadResponse.uploadId();
               System.out.println("Upload ID: " + uploadId);

               UploadPartCopyRequest uploadPartCopyRequest =
UploadPartCopyRequest.builder()
```

```
                    .sourceBucket(bucketName)
                    .destinationBucket(toBucket)
                    .sourceKey(key)
                    .destinationKey(key)
                    .uploadId(uploadId)  // Use the valid uploadId.
                    .partNumber(1)  // Ensure the part number is correct.
                    .copySourceRange("bytes=0-1023")  // Adjust range as needed
                    .build();

                return getAsyncClient().uploadPartCopy(uploadPartCopyRequest);
            })
            .thenCompose(uploadPartCopyFuture -> uploadPartCopyFuture)
            .whenComplete((uploadPartCopyResponse, exception) -> {
                if (exception != null) {
                    // Handle any exceptions.
                    logger.error("Error during upload part copy: " +
exception.getMessage());
                } else {
                    // Successfully completed the upload part copy.
                    System.out.println("Upload Part Copy completed successfully.
ETag: " + uploadPartCopyResponse.copyPartResult().eTag());
                }
            });
        return null;
    }
```

- For API details, see UploadPartCopy in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Scenarios for Amazon S3 using AWS SDKs

The following code examples show you how to implement common scenarios in Amazon S3 with AWS SDKs. These scenarios show you how to accomplish specific tasks by calling multiple functions within Amazon S3 or combined with other AWS services. Each scenario includes a link to the complete source code, where you can find instructions on how to set up and run the code.

Scenarios target an intermediate level of experience to help you understand service actions in context.

Examples

- Check if a bucket exists
- Convert text to speech and back to text using an AWS SDK
- Create a presigned URL for Amazon S3 using an AWS SDK
- Create a photo asset management application that lets users manage photos using labels
- A web page that lists Amazon S3 objects using an AWS SDK
- Create an Amazon Textract explorer application
- Delete all objects in a given Amazon S3 bucket using an AWS SDK
- Delete incomplete multipart uploads to Amazon S3 using an AWS SDK
- Detect PPE in images with Amazon Rekognition using an AWS SDK
- Detect entities in text extracted from an image using an AWS SDK
- Detect faces in an image using an AWS SDK
- Detect objects in images with Amazon Rekognition using an AWS SDK
- Detect people and objects in a video with Amazon Rekognition using an AWS SDK
- Download S3 'directories' from an Amazon Simple Storage Service (Amazon S3) bucket
- Download all objects in an Amazon Simple Storage Service (Amazon S3) bucket to a local directory
- Download a stream of unknown size from an Amazon S3 object using an AWS SDK
- Get an Amazon S3 object from a Multi-Region Access Point by using an AWS SDK
- Get an object from an Amazon S3 bucket using an AWS SDK, specifying an If-Modified-Since header
- Get started with Amazon S3 using the CLI
- Get started with encryption for Amazon S3 objects using an AWS SDK
- Get started with tags for Amazon S3 objects using an AWS SDK
- Work with Amazon S3 object lock features using an AWS SDK
- Make Amazon S3 conditional requests using an AWS SDK
- Manage access control lists (ACLs) for Amazon S3 buckets using an AWS SDK
- Manage large Amazon SQS messages using Amazon S3 with an AWS SDK
- Manage versioned Amazon S3 objects in batches with a Lambda function using an AWS SDK
- Parse Amazon S3 URIs using an AWS SDK
- Perform a multipart copy of an Amazon S3 object using an AWS SDK

- Receive and process Amazon S3 event notifications by using an AWS SDK
- Save EXIF and other image information using an AWS SDK
- Send S3 event notifications to Amazon EventBridge using an AWS SDK
- Track an Amazon S3 object upload or download using an AWS SDK
- Transform data for your application with S3 Object Lambda
- Example approaches for unit and integration testing with an AWS SDK
- Recursively upload a local directory to an Amazon Simple Storage Service (Amazon S3) bucket
- Upload or download large files to and from Amazon S3 using an AWS SDK
- Upload a stream of unknown size to an Amazon S3 object using an AWS SDK
- Use checksums to work with an Amazon S3 object using an AWS SDK
- Work with Amazon S3 object integrity features using an AWS SDK
- Work with Amazon S3 versioned objects using an AWS SDK

Check if a bucket exists

The following code example shows how to check if a bucket exists.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

You can use the following `doesBucketExists` method as a replacement for the the SDK for Java V1 AmazonS3Client#doesBucketExistV2(String) method.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.awscore.exception.AwsServiceException;
import software.amazon.awssdk.http.HttpStatusCode;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.utils.Validate;
```

```
public class DoesBucketExist {
    private static final Logger logger =
 LoggerFactory.getLogger(DoesBucketExist.class);

    public static void main(String[] args) {
        DoesBucketExist doesBucketExist = new DoesBucketExist();

        final S3Client s3SyncClient = S3Client.builder().build();
        final String bucketName = "amzn-s3-demo-bucket"; // Change to the bucket
 name that you want to check.

        boolean exists = doesBucketExist.doesBucketExist(bucketName,
 s3SyncClient);
        logger.info("Bucket exists: {}", exists);
    }

    /**
     * Checks if the specified bucket exists. Amazon S3 buckets are named in a
 global namespace; use this method to
     * determine if a specified bucket name already exists, and therefore can't
 be used to create a new bucket.
     * <p>
     * Internally this method uses the <a
     * href="https://sdk.amazonaws.com/java/api/latest/software/amazon/awssdk/
services/s3/
S3Client.html#getBucketAcl(java.util.function.Consumer)">S3Client.getBucketAcl(String)</
a>
     * operation to determine whether the bucket exists.
     * <p>
     * This method is equivalent to the AWS SDK for Java V1's <a
     * href="https://docs.aws.amazon.com/AWSJavaSDK/latest/javadoc/
com/amazonaws/services/s3/AmazonS3Client.html#doesBucketExistV2-
java.lang.String-">AmazonS3Client#doesBucketExistV2(String)</a>.
     *
     * @param bucketName   The name of the bucket to check.
     * @param s3SyncClient An <code>S3Client</code> instance. The method checks
 for the bucket in the AWS Region
     *                     configured on the instance.
     * @return The value true if the specified bucket exists in Amazon S3; the
 value false if there is no bucket in
     *         Amazon S3 with that name.
     */
    public boolean doesBucketExist(String bucketName, S3Client s3SyncClient) {
```

```
        try {
            Validate.notEmpty(bucketName, "The bucket name must not be null or an
 empty string.", "");
            s3SyncClient.getBucketAcl(r -> r.bucket(bucketName));
            return true;
        } catch (AwsServiceException ase) {
            // A redirect error or an AccessDenied exception means the bucket
 exists but it's not in this region
            // or we don't have permissions to it.
            if ((ase.statusCode() == HttpStatusCode.MOVED_PERMANENTLY) ||
 "AccessDenied".equals(ase.awsErrorDetails().errorCode())) {
                return true;
            }
            if (ase.statusCode() == HttpStatusCode.NOT_FOUND) {
                return false;
            }
            throw ase;
        }
    }
}
```

- For API details, see GetBucketAcl in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Convert text to speech and back to text using an AWS SDK

The following code example shows how to:

- Use Amazon Polly to synthesize a plain text (UTF-8) input file to an audio file.
- Upload the audio file to an Amazon S3 bucket.
- Use Amazon Transcribe to convert the audio file to text.
- Display the text.

Rust

SDK for Rust

Use Amazon Polly to synthesize a plain text (UTF-8) input file to an audio file, upload the audio file to an Amazon S3 bucket, use Amazon Transcribe to convert that audio file to text, and display the text.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

Services used in this example

- Amazon Polly
- Amazon S3
- Amazon Transcribe

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Create a presigned URL for Amazon S3 using an AWS SDK

The following code examples show how to create a presigned URL for Amazon S3 and upload an object.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Generate a presigned URL that can perform an Amazon S3 action for a limited time.

```
using System;
using Amazon;
using Amazon.S3;
```

```
    using Amazon.S3.Model;

    public class GenPresignedUrl
    {
        public static void Main()
        {
            const string bucketName = "amzn-s3-demo-bucket";
            const string objectKey = "sample.txt";

            // Specify how long the presigned URL lasts, in hours
            const double timeoutDuration = 12;

            // Specify the AWS Region of your Amazon S3 bucket. If it is
            // different from the Region defined for the default user,
            // pass the Region to the constructor for the client. For
            // example: new AmazonS3Client(RegionEndpoint.USEast1);

            // If using the Region us-east-1, and server-side encryption with AWS
 KMS, you must specify Signature Version 4.
            // Region us-east-1 defaults to Signature Version 2 unless explicitly
 set to Version 4 as shown below.
            // For more details, see https://docs.aws.amazon.com/AmazonS3/latest/
userguide/UsingAWSSDK.html#specify-signature-version
            // and https://docs.aws.amazon.com/sdkfornet/v3/apidocs/items/Amazon/
TAWSConfigsS3.html
            AWSConfigsS3.UseSignatureVersion4 = true;
            IAmazonS3 s3Client = new AmazonS3Client(RegionEndpoint.USEast1);

            string urlString = GeneratePresignedURL(s3Client, bucketName,
 objectKey, timeoutDuration);
            Console.WriteLine($"The generated URL is: {urlString}.");
        }

        /// <summary>
        /// Generate a presigned URL that can be used to access the file named
        /// in the objectKey parameter for the amount of time specified in the
        /// duration parameter.
        /// </summary>
        /// <param name="client">An initialized S3 client object used to call
        /// the GetPresignedUrl method.</param>
        /// <param name="bucketName">The name of the S3 bucket containing the
        /// object for which to create the presigned URL.</param>
        /// <param name="objectKey">The name of the object to access with the
        /// presigned URL.</param>
```

```
        /// <param name="duration">The length of time for which the presigned
        /// URL will be valid.</param>
        /// <returns>A string representing the generated presigned URL.</returns>
        public static string GeneratePresignedURL(IAmazonS3 client, string
 bucketName, string objectKey, double duration)
        {
            string urlString = string.Empty;
            try
            {
                var request = new GetPreSignedUrlRequest()
                {
                    BucketName = bucketName,
                    Key = objectKey,
                    Expires = DateTime.UtcNow.AddHours(duration),
                };
                urlString = client.GetPreSignedURL(request);
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Error:'{ex.Message}'");
            }

            return urlString;
        }
    }
```

Generate a presigned URL and perform an upload using that URL.

```
    using System;
    using System.IO;
    using System.Net.Http;
    using System.Threading.Tasks;
    using Amazon;
    using Amazon.S3;
    using Amazon.S3.Model;

    /// <summary>
    /// This example shows how to upload an object to an Amazon Simple Storage
    /// Service (Amazon S3) bucket using a presigned URL. The code first
    /// creates a presigned URL and then uses it to upload an object to an
    /// Amazon S3 bucket using that URL.
```

```
    /// </summary>
    public class UploadUsingPresignedURL
    {
        private static HttpClient httpClient = new HttpClient();

        public static async Task Main()
        {
            string bucketName = "amzn-s3-demo-bucket";
            string keyName = "samplefile.txt";
            string filePath = $"source\\{keyName}";

            // Specify how long the signed URL will be valid in hours.
            double timeoutDuration = 12;

            // Specify the AWS Region of your Amazon S3 bucket. If it is
            // different from the Region defined for the default user,
            // pass the Region to the constructor for the client. For
            // example: new AmazonS3Client(RegionEndpoint.USEast1);

            // If using the Region us-east-1, and server-side encryption with AWS
 KMS, you must specify Signature Version 4.
            // Region us-east-1 defaults to Signature Version 2 unless explicitly
 set to Version 4 as shown below.
            // For more details, see https://docs.aws.amazon.com/AmazonS3/latest/
userguide/UsingAWSSDK.html#specify-signature-version
            // and https://docs.aws.amazon.com/sdkfornet/v3/apidocs/items/Amazon/
TAWSConfigsS3.html
            AWSConfigsS3.UseSignatureVersion4 = true;
            IAmazonS3 client = new AmazonS3Client(RegionEndpoint.USEast1);

            var url = GeneratePreSignedURL(client, bucketName, keyName,
 timeoutDuration);
            var success = await UploadObject(filePath, url);

            if (success)
            {
                Console.WriteLine("Upload succeeded.");
            }
            else
            {
                Console.WriteLine("Upload failed.");
            }
        }
```

```
        /// <summary>
        /// Uploads an object to an Amazon S3 bucket using the presigned URL
 passed in
        /// the url parameter.
        /// </summary>
        /// <param name="filePath">The path (including file name) to the local
        /// file you want to upload.</param>
        /// <param name="url">The presigned URL that will be used to upload the
        /// file to the Amazon S3 bucket.</param>
        /// <returns>A Boolean value indicating the success or failure of the
        /// operation, based on the HttpWebResponse.</returns>
        public static async Task<bool> UploadObject(string filePath, string url)
        {
            using var streamContent = new StreamContent(
                new FileStream(filePath, FileMode.Open, FileAccess.Read));

            var response = await httpClient.PutAsync(url, streamContent);
            return response.IsSuccessStatusCode;
        }

        /// <summary>
        /// Generates a presigned URL which will be used to upload an object to
        /// an Amazon S3 bucket.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used to
 call
        /// GetPreSignedURL.</param>
        /// <param name="bucketName">The name of the Amazon S3 bucket to which
 the
        /// presigned URL will point.</param>
        /// <param name="objectKey">The name of the file that will be uploaded.</
param>
        /// <param name="duration">How long (in hours) the presigned URL will
        /// be valid.</param>
        /// <returns>The generated URL.</returns>
        public static string GeneratePreSignedURL(
            IAmazonS3 client,
            string bucketName,
            string objectKey,
            double duration)
        {
            var request = new GetPreSignedUrlRequest
            {
                BucketName = bucketName,
```

```
                Key = objectKey,
                Verb = HttpVerb.PUT,
                Expires = DateTime.UtcNow.AddHours(duration),
            };

            string url = client.GetPreSignedURL(request);
            return url;
        }
    }
```

SDK for .NET (v4)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create and use presigned POST URLs for direct browser uploads.

```
/// <summary>
/// Scenario demonstrating the complete workflow for presigned POST URLs:
/// 1. Create an S3 bucket
/// 2. Create a presigned POST URL
/// 3. Upload a file using the presigned POST URL
/// 4. Clean up resources
/// </summary>
public class CreatePresignedPostBasics
{
    public static ILogger<CreatePresignedPostBasics> _logger = null!;
    public static S3Wrapper _s3Wrapper = null!;
    public static UiMethods _uiMethods = null!;
    public static IHttpClientFactory _httpClientFactory = null!;
    public static bool _isInteractive = true;
    public static string? _bucketName;
    public static string? _objectKey;

    /// <summary>
    /// Set up the services and logging.
    /// </summary>
    /// <param name="host">The IHost instance.</param>
```

```
    public static void SetUpServices(IHost host)
    {
        var loggerFactory = LoggerFactory.Create(builder =>
        {
            builder.AddConsole();
        });
        _logger = new Logger<CreatePresignedPostBasics>(loggerFactory);

        _s3Wrapper = host.Services.GetRequiredService<S3Wrapper>();
        _httpClientFactory =
host.Services.GetRequiredService<IHttpClientFactory>();
        _uiMethods = new UiMethods();
    }

    /// <summary>
    /// Perform the actions defined for the Amazon S3 Presigned POST scenario.
    /// </summary>
    /// <param name="args">Command line arguments.</param>
    /// <returns>A Task object.</returns>
    public static async Task Main(string[] args)
    {
        _isInteractive = !args.Contains("--non-interactive");

        // Set up dependency injection for Amazon S3
        using var host =
Microsoft.Extensions.Hosting.Host.CreateDefaultBuilder(args)
            .ConfigureServices((_, services) =>
                services.AddAWSService<IAmazonS3>()
                    .AddTransient<S3Wrapper>()
                    .AddHttpClient()
            )
            .Build();

        SetUpServices(host);

        try
        {
            // Display overview
            _uiMethods.DisplayOverview();
            _uiMethods.PressEnter(_isInteractive);

            // Step 1: Create bucket
            await CreateBucketAsync();
            _uiMethods.PressEnter(_isInteractive);
```

```
            // Step 2: Create presigned URL
            _uiMethods.DisplayTitle("Step 2: Create presigned POST URL");
            var response = await CreatePresignedPostAsync();
            _uiMethods.PressEnter(_isInteractive);

            // Step 3: Display URL and fields
            _uiMethods.DisplayTitle("Step 3: Presigned POST URL details");
            DisplayPresignedPostFields(response);
            _uiMethods.PressEnter(_isInteractive);

            // Step 4: Upload file
            _uiMethods.DisplayTitle("Step 4: Upload test file using presigned
POST URL");
            await UploadFileAsync(response);
            _uiMethods.PressEnter(_isInteractive);

            // Step 5: Verify file exists
            await VerifyFileExistsAsync();
            _uiMethods.PressEnter(_isInteractive);

            // Step 6: Cleanup
            _uiMethods.DisplayTitle("Step 6: Clean up resources");
            await CleanupAsync();

            _uiMethods.DisplayTitle("S3 Presigned POST Scenario completed
successfully!");
            _uiMethods.PressEnter(_isInteractive);
        }
        catch (Exception ex)
        {
            _logger.LogError(ex, "Error in scenario");
            Console.WriteLine($"Error: {ex.Message}");

            // Attempt cleanup if there was an error
            if (!string.IsNullOrEmpty(_bucketName))
            {
                _uiMethods.DisplayTitle("Cleaning up resources after error");
                await _s3Wrapper.DeleteBucketAsync(_bucketName);
                Console.WriteLine($"Cleaned up bucket: {_bucketName}");
            }
        }
    }
```

```
    /// <summary>
    /// Create an S3 bucket for the scenario.
    /// </summary>
    private static async Task CreateBucketAsync()
    {
        _uiMethods.DisplayTitle("Step 1: Create an S3 bucket");

        // Generate a default bucket name for the scenario
        var defaultBucketName = $"presigned-post-demo-
{DateTime.Now:yyyyMMddHHmmss}".ToLower();

        // Prompt user for bucket name or use default in non-interactive mode
        _bucketName = _uiMethods.GetUserInput(
            $"Enter S3 bucket name (or press Enter for '{defaultBucketName}'): ",
            defaultBucketName,
            _isInteractive);

        // Basic validation to ensure bucket name is not empty
        if (string.IsNullOrWhiteSpace(_bucketName))
        {
            _bucketName = defaultBucketName;
        }

        Console.WriteLine($"Creating bucket: {_bucketName}");

        await _s3Wrapper.CreateBucketAsync(_bucketName);

        Console.WriteLine($"Successfully created bucket: {_bucketName}");
    }


    /// <summary>
    /// Create a presigned POST URL.
    /// </summary>
    private static async Task<CreatePresignedPostResponse>
 CreatePresignedPostAsync()
    {
        _objectKey = "example-upload.txt";
        var expiration = DateTime.UtcNow.AddMinutes(10); // Short expiration for
 the demo

        Console.WriteLine($"Creating presigned POST URL for {_bucketName}/
{_objectKey}");
        Console.WriteLine($"Expiration: {expiration} UTC");
```

```
        var s3Client = _s3Wrapper.GetS3Client();

        var response = await _s3Wrapper.CreatePresignedPostAsync(
            s3Client, _bucketName!, _objectKey, expiration);

        Console.WriteLine("Successfully created presigned POST URL");
        return response;
    }

    /// <summary>
    /// Upload a file using the presigned POST URL.
    /// </summary>
    private static async Task UploadFileAsync(CreatePresignedPostResponse
response)
    {

        // Create a temporary test file to upload
        string testFilePath = Path.GetTempFileName();
        string testContent = "This is a test file for the S3 presigned POST
scenario.";

        await File.WriteAllTextAsync(testFilePath, testContent);
        Console.WriteLine($"Created test file at: {testFilePath}");

        // Upload the file using the presigned POST URL
        Console.WriteLine("\nUploading file using the presigned POST URL...");
        var uploadResult = await UploadFileWithPresignedPostAsync(response,
testFilePath);

        // Display the upload result
        if (uploadResult.Success)
        {
            Console.WriteLine($"Upload successful! Status code:
{uploadResult.StatusCode}");
        }
        else
        {
            Console.WriteLine($"Upload failed with status code:
{uploadResult.StatusCode}");
            Console.WriteLine($"Error: {uploadResult.Response}");
            throw new Exception("File upload failed");
        }
```

```
        // Clean up the temporary file
        File.Delete(testFilePath);
        Console.WriteLine("Temporary file deleted");
    }

    /// <summary>
    /// Helper method to upload a file using a presigned POST URL.
    /// </summary>
    private static async Task<(bool Success, HttpStatusCode StatusCode, string
 Response)> UploadFileWithPresignedPostAsync(
        CreatePresignedPostResponse response,
        string filePath)
    {
        try
        {
            _logger.LogInformation("Uploading file {filePath} using presigned
 POST URL", filePath);

            using var httpClient = _httpClientFactory.CreateClient();
            using var formContent = new MultipartFormDataContent();

            // Add all the fields from the presigned POST response
            foreach (var field in response.Fields)
            {
                formContent.Add(new StringContent(field.Value), field.Key);
            }

            // Add the file content
            var fileStream = File.OpenRead(filePath);
            var fileName = Path.GetFileName(filePath);
            var fileContent = new StreamContent(fileStream);
            fileContent.Headers.ContentType = new MediaTypeHeaderValue("text/
plain");
            formContent.Add(fileContent, "file", fileName);

            // Send the POST request
            var httpResponse = await httpClient.PostAsync(response.Url,
 formContent);
            var responseContent = await httpResponse.Content.ReadAsStringAsync();

            // Log and return the result
            _logger.LogInformation("Upload completed with status code
 {statusCode}", httpResponse.StatusCode);
```

```
            return (httpResponse.IsSuccessStatusCode, httpResponse.StatusCode,
 responseContent);
        }
        catch (Exception ex)
        {
            _logger.LogError(ex, "Error uploading file");
            return (false, HttpStatusCode.InternalServerError, ex.Message);
        }
    }

    /// <summary>
    /// Verify that the uploaded file exists in the S3 bucket.
    /// </summary>
    private static async Task VerifyFileExistsAsync()
    {
        _uiMethods.DisplayTitle("Step 5: Verify uploaded file exists");

        Console.WriteLine($"Checking if file exists at {_bucketName}/
{_objectKey}...");

        try
        {
            var metadata = await _s3Wrapper.GetObjectMetadataAsync(_bucketName!,
 _objectKey!);

            Console.WriteLine($"File verification successful! File exists in the
 bucket.");
            Console.WriteLine($"File size: {metadata.ContentLength} bytes");
            Console.WriteLine($"File type: {metadata.Headers.ContentType}");
            Console.WriteLine($"Last modified: {metadata.LastModified}");
        }
        catch (AmazonS3Exception ex) when (ex.StatusCode ==
 System.Net.HttpStatusCode.NotFound)
        {
            Console.WriteLine($"Error: File was not found in the bucket.");
            throw;
        }
    }

    private static void DisplayPresignedPostFields(CreatePresignedPostResponse
 response)
    {
        Console.WriteLine($"Presigned POST URL: {response.Url}");
        Console.WriteLine("Form fields to include:");
```

```
        foreach (var field in response.Fields)
        {
            Console.WriteLine($"  {field.Key}: {field.Value}");
        }
    }

    /// <summary>
    /// Clean up resources created by the scenario.
    /// </summary>
    private static async Task CleanupAsync()
    {
        if (!string.IsNullOrEmpty(_bucketName))
        {
            Console.WriteLine($"Deleting bucket {_bucketName} and its
 contents...");
            bool result = await _s3Wrapper.DeleteBucketAsync(_bucketName);

            if (result)
            {
                Console.WriteLine("Bucket deleted successfully");
            }
            else
            {
                Console.WriteLine("Failed to delete bucket - it may have been
 already deleted");
            }
        }
    }
}
```

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Generate a pre-signed URL to download an object.

```
//! Routine which demonstrates creating a pre-signed URL to download an object
 from an
//! Amazon Simple Storage Service (Amazon S3) bucket.
/*!
  \param bucketName: Name of the bucket.
  \param key: Name of an object key.
  \param expirationSeconds: Expiration in seconds for pre-signed URL.
  \param clientConfig: Aws client configuration.
  \return Aws::String: A pre-signed URL.
*/
Aws::String AwsDoc::S3::generatePreSignedGetObjectUrl(const Aws::String
 &bucketName,
                                                       const Aws::String &key,
                                                       uint64_t expirationSeconds,
                                                       const
 Aws::S3::S3ClientConfiguration &clientConfig) {
    Aws::S3::S3Client client(clientConfig);
    return client.GeneratePresignedUrl(bucketName, key,
 Aws::Http::HttpMethod::HTTP_GET,
                                        expirationSeconds);
}
```

Download using libcurl.

```
static size_t myCurlWriteBack(char *buffer, size_t size, size_t nitems, void
 *userdata) {
    Aws::StringStream *str = (Aws::StringStream *) userdata;

    if (nitems > 0) {
        str->write(buffer, size * nitems);
    }
    return size * nitems;
}

//! Utility routine to test getObject with a pre-signed URL.
/*!
  \param presignedURL: A pre-signed URL to get an object from a bucket.
  \param resultString: A string to hold the result.
  \return bool: Function succeeded.
*/
```

```
bool AwsDoc::S3::getObjectWithPresignedObjectUrl(const Aws::String &presignedURL,
                                                 Aws::String &resultString) {
    CURL *curl = curl_easy_init();
    CURLcode result;

    std::stringstream outWriteString;

    result = curl_easy_setopt(curl, CURLOPT_WRITEDATA, &outWriteString);

    if (result != CURLE_OK) {
        std::cerr << "Failed to set CURLOPT_WRITEDATA " << std::endl;
        return false;
    }

    result = curl_easy_setopt(curl, CURLOPT_WRITEFUNCTION, myCurlWriteBack);

    if (result != CURLE_OK) {
        std::cerr << "Failed to set CURLOPT_WRITEFUNCTION" << std::endl;
        return false;
    }

    result = curl_easy_setopt(curl, CURLOPT_URL, presignedURL.c_str());

    if (result != CURLE_OK) {
        std::cerr << "Failed to set CURLOPT_URL" << std::endl;
        return false;
    }

    result = curl_easy_perform(curl);

    if (result != CURLE_OK) {
        std::cerr << "Failed to perform CURL request" << std::endl;
        return false;
    }

    resultString = outWriteString.str();

    if (resultString.find("<?xml") == 0) {
        std::cerr << "Failed to get object, response:\n" << resultString <<
 std::endl;
        return false;
    }

    return true;
```

```
}
```

Generate a pre-signed URL to upload an object.

```
//! Routine which demonstrates creating a pre-signed URL to upload an object to
 an
//! Amazon Simple Storage Service (Amazon S3) bucket.
/*!
  \param bucketName: Name of the bucket.
  \param key: Name of an object key.
  \param clientConfig: Aws client configuration.
  \return Aws::String: A pre-signed URL.
*/
Aws::String AwsDoc::S3::generatePreSignedPutObjectUrl(const Aws::String
 &bucketName,
                                                       const Aws::String &key,
                                                       uint64_t expirationSeconds,
                                                       const
 Aws::S3::S3ClientConfiguration &clientConfig) {
    Aws::S3::S3Client client(clientConfig);
    return client.GeneratePresignedUrl(bucketName, key,
 Aws::Http::HttpMethod::HTTP_PUT,
                                        expirationSeconds);
}
```

Upload using libcurl.

```
static size_t myCurlReadBack(char *buffer, size_t size, size_t nitems, void
 *userdata) {
    Aws::StringStream *str = (Aws::StringStream *) userdata;

    str->read(buffer, size * nitems);

    return str->gcount();
}

static size_t myCurlWriteBack(char *buffer, size_t size, size_t nitems, void
 *userdata) {
    Aws::StringStream *str = (Aws::StringStream *) userdata;

    if (nitems > 0) {
```

```
        str->write(buffer, size * nitems);
    }
    return size * nitems;
}

//! Utility routine to test putObject with a pre-signed URL.
/*!
  \param presignedURL: A pre-signed URL to put an object in a bucket.
  \param data: Body of the putObject request.
  \return bool: Function succeeded.
*/
bool AwsDoc::S3::PutStringWithPresignedObjectURL(const Aws::String &presignedURL,
                                                 const Aws::String &data) {
    CURL *curl = curl_easy_init();
    CURLcode result;

    Aws::StringStream readStringStream;
    readStringStream << data;
    result = curl_easy_setopt(curl, CURLOPT_READFUNCTION, myCurlReadBack);

    if (result != CURLE_OK) {
        std::cerr << "Failed to set CURLOPT_READFUNCTION" << std::endl;
        return false;
    }

    result = curl_easy_setopt(curl, CURLOPT_READDATA, &readStringStream);
    if (result != CURLE_OK) {
        std::cerr << "Failed to set CURLOPT_READDATA" << std::endl;
        return false;
    }

    result = curl_easy_setopt(curl, CURLOPT_INFILESIZE_LARGE,
                              (curl_off_t) data.size());

    if (result != CURLE_OK) {
        std::cerr << "Failed to set CURLOPT_INFILESIZE_LARGE" << std::endl;
        return false;
    }

    result = curl_easy_setopt(curl, CURLOPT_WRITEFUNCTION, myCurlWriteBack);

    if (result != CURLE_OK) {
        std::cerr << "Failed to set CURLOPT_WRITEFUNCTION" << std::endl;
        return false;
```

```
    }

    std::stringstream outWriteString;

    result = curl_easy_setopt(curl, CURLOPT_WRITEDATA, &outWriteString);

    if (result != CURLE_OK) {
        std::cerr << "Failed to set CURLOPT_WRITEDATA " << std::endl;
        return false;
    }

    result = curl_easy_setopt(curl, CURLOPT_URL, presignedURL.c_str());

    if (result != CURLE_OK) {
        std::cerr << "Failed to set CURLOPT_URL" << std::endl;
        return false;
    }

    result = curl_easy_setopt(curl, CURLOPT_UPLOAD, 1L);

    if (result != CURLE_OK) {
        std::cerr << "Failed to set CURLOPT_PUT" << std::endl;
        return false;
    }

    result = curl_easy_perform(curl);

    if (result != CURLE_OK) {
        std::cerr << "Failed to perform CURL request" << std::endl;
        return false;
    }

    std::string outString = outWriteString.str();
    if (outString.empty()) {
        std::cout << "Successfully put object." << std::endl;
        return true;
    } else {
        std::cout << "A server error was encountered, output:\n" << outString
                  << std::endl;
        return false;
    }
}
```

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create functions that wrap S3 presigning actions.

```
import (
 "context"
 "log"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 v4 "github.com/aws/aws-sdk-go-v2/aws/signer/v4"
 "github.com/aws/aws-sdk-go-v2/service/s3"
)

// Presigner encapsulates the Amazon Simple Storage Service (Amazon S3) presign
 actions
// used in the examples.
// It contains PresignClient, a client that is used to presign requests to Amazon
 S3.
// Presigned requests contain temporary credentials and can be made from any HTTP
 client.
type Presigner struct {
 PresignClient *s3.PresignClient
}



// GetObject makes a presigned request that can be used to get an object from a
 bucket.
// The presigned request is valid for the specified number of seconds.
func (presigner Presigner) GetObject(
 ctx context.Context, bucketName string, objectKey string, lifetimeSecs int64)
 (*v4.PresignedHTTPRequest, error) {
```

```
 request, err := presigner.PresignClient.PresignGetObject(ctx,
 &s3.GetObjectInput{
  Bucket: aws.String(bucketName),
  Key:    aws.String(objectKey),
 }, func(opts *s3.PresignOptions) {
  opts.Expires = time.Duration(lifetimeSecs * int64(time.Second))
 })
 if err != nil {
  log.Printf("Couldn't get a presigned request to get %v:%v. Here's why: %v\n",
   bucketName, objectKey, err)
 }
 return request, err
}



// PutObject makes a presigned request that can be used to put an object in a
 bucket.
// The presigned request is valid for the specified number of seconds.
func (presigner Presigner) PutObject(
 ctx context.Context, bucketName string, objectKey string, lifetimeSecs int64)
 (*v4.PresignedHTTPRequest, error) {
 request, err := presigner.PresignClient.PresignPutObject(ctx,
 &s3.PutObjectInput{
  Bucket: aws.String(bucketName),
  Key:    aws.String(objectKey),
 }, func(opts *s3.PresignOptions) {
  opts.Expires = time.Duration(lifetimeSecs * int64(time.Second))
 })
 if err != nil {
  log.Printf("Couldn't get a presigned request to put %v:%v. Here's why: %v\n",
   bucketName, objectKey, err)
 }
 return request, err
}



// DeleteObject makes a presigned request that can be used to delete an object
 from a bucket.
func (presigner Presigner) DeleteObject(ctx context.Context, bucketName string,
 objectKey string) (*v4.PresignedHTTPRequest, error) {
 request, err := presigner.PresignClient.PresignDeleteObject(ctx,
 &s3.DeleteObjectInput{
```

```
  Bucket: aws.String(bucketName),
  Key:    aws.String(objectKey),
 })
 if err != nil {
  log.Printf("Couldn't get a presigned request to delete object %v. Here's why:
 %v\n", objectKey, err)
 }
 return request, err
}



func (presigner Presigner) PresignPostObject(ctx context.Context, bucketName
 string, objectKey string, lifetimeSecs int64) (*s3.PresignedPostRequest, error)
 {
 request, err := presigner.PresignClient.PresignPostObject(ctx,
 &s3.PutObjectInput{
  Bucket: aws.String(bucketName),
  Key:    aws.String(objectKey),
 }, func(options *s3.PresignPostOptions) {
  options.Expires = time.Duration(lifetimeSecs) * time.Second
 })
 if err != nil {
  log.Printf("Couldn't get a presigned post request to put %v:%v. Here's why: %v
\n", bucketName, objectKey, err)
 }
 return request, nil
}
```

Run an interactive example that generates and uses presigned URLs to upload, download, and delete an S3 object.

```
import (
 "bytes"
 "context"
 "io"
 "log"
 "mime/multipart"
 "net/http"
```

```
 "os"
 "strings"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/awsdocs/aws-doc-sdk-examples/gov2/demotools"
 "github.com/awsdocs/aws-doc-sdk-examples/gov2/s3/actions"
)



// RunPresigningScenario is an interactive example that shows you how to get
 presigned
// HTTP requests that you can use to move data into and out of Amazon Simple
 Storage
// Service (Amazon S3). The presigned requests contain temporary credentials and
 can
// be used by an HTTP client.
//
// 1. Get a presigned request to put an object in a bucket.
// 2. Use the net/http package to use the presigned request to upload a local
 file to the bucket.
// 3. Get a presigned request to get an object from a bucket.
// 4. Use the net/http package to use the presigned request to download the
 object to a local file.
// 5. Get a presigned request to delete an object from a bucket.
// 6. Use the net/http package to use the presigned request to delete the object.
//
// This example creates an Amazon S3 presign client from the specified sdkConfig
 so that
// you can replace it with a mocked or stubbed config for unit testing.
//
// It uses a questioner from the `demotools` package to get input during the
 example.
// This package can be found in the ..\..\demotools folder of this repo.
//
// It uses an IHttpRequester interface to abstract HTTP requests so they can be
 mocked
// during testing.
func RunPresigningScenario(ctx context.Context, sdkConfig aws.Config, questioner
 demotools.IQuestioner, httpRequester IHttpRequester) {
 defer func() {
  if r := recover(); r != nil {
   log.Println("Something went wrong with the demo.")
```

```
    _, isMock := questioner.(*demotools.MockQuestioner)
    if isMock || questioner.AskBool("Do you want to see the full error message (y/
n)?", "y") {
     log.Println(r)
    }
   }
  }()

  log.Println(strings.Repeat("-", 88))
  log.Println("Welcome to the Amazon S3 presigning demo.")
  log.Println(strings.Repeat("-", 88))

  s3Client := s3.NewFromConfig(sdkConfig)
  bucketBasics := actions.BucketBasics{S3Client: s3Client}
  presignClient := s3.NewPresignClient(s3Client)
  presigner := actions.Presigner{PresignClient: presignClient}

  bucketName := questioner.Ask("We'll need a bucket. Enter a name for a bucket "+
   "you own or one you want to create:", demotools.NotEmpty{})
  bucketExists, err := bucketBasics.BucketExists(ctx, bucketName)
  if err != nil {
   panic(err)
  }
  if !bucketExists {
   err = bucketBasics.CreateBucket(ctx, bucketName, sdkConfig.Region)
   if err != nil {
    panic(err)
   } else {
    log.Println("Bucket created.")
   }
  }
  log.Println(strings.Repeat("-", 88))

  log.Printf("Let's presign a request to upload a file to your bucket.")
  uploadFilename := questioner.Ask("Enter the path to a file you want to upload:",
   demotools.NotEmpty{})
  uploadKey := questioner.Ask("What would you like to name the uploaded object?",
   demotools.NotEmpty{})
  uploadFile, err := os.Open(uploadFilename)
  if err != nil {
   panic(err)
  }
  defer uploadFile.Close()
  presignedPutRequest, err := presigner.PutObject(ctx, bucketName, uploadKey, 60)
```

```
if err != nil {
 panic(err)
}
log.Printf("Got a presigned %v request to URL:\n\t%v\n",
presignedPutRequest.Method,
 presignedPutRequest.URL)
log.Println("Using net/http to send the request...")
info, err := uploadFile.Stat()
if err != nil {
 panic(err)
}
putResponse, err := httpRequester.Put(presignedPutRequest.URL, info.Size(),
uploadFile)
if err != nil {
 panic(err)
}
log.Printf("%v object %v with presigned URL returned %v.",
presignedPutRequest.Method,
 uploadKey, putResponse.StatusCode)
log.Println(strings.Repeat("-", 88))

log.Printf("Let's presign a request to download the object.")
questioner.Ask("Press Enter when you're ready.")
presignedGetRequest, err := presigner.GetObject(ctx, bucketName, uploadKey, 60)
if err != nil {
 panic(err)
}
log.Printf("Got a presigned %v request to URL:\n\t%v\n",
presignedGetRequest.Method,
 presignedGetRequest.URL)
log.Println("Using net/http to send the request...")
getResponse, err := httpRequester.Get(presignedGetRequest.URL)
if err != nil {
 panic(err)
}
log.Printf("%v object %v with presigned URL returned %v.",
presignedGetRequest.Method,
 uploadKey, getResponse.StatusCode)
defer getResponse.Body.Close()
downloadBody, err := io.ReadAll(getResponse.Body)
if err != nil {
 panic(err)
}
```

```
log.Printf("Downloaded %v bytes. Here are the first 100 of them:\n",
len(downloadBody))
log.Println(strings.Repeat("-", 88))
log.Println(string(downloadBody[:100]))
log.Println(strings.Repeat("-", 88))

log.Println("Now we'll create a new request to put the same object using a
presigned post request")
questioner.Ask("Press Enter when you're ready.")
presignPostRequest, err := presigner.PresignPostObject(ctx, bucketName,
uploadKey, 60)
if err != nil {
 panic(err)
}
log.Printf("Got a presigned post request to url %v with values %v\n",
presignPostRequest.URL, presignPostRequest.Values)
log.Println("Using net/http multipart to send the request...")
uploadFile, err = os.Open(uploadFilename)
if err != nil {
 panic(err)
}
defer uploadFile.Close()
multiPartResponse, err := sendMultipartRequest(presignPostRequest.URL,
presignPostRequest.Values, uploadFile, uploadKey, httpRequester)
if err != nil {
 panic(err)
}
log.Printf("Presign post object %v with presigned URL returned %v.", uploadKey,
multiPartResponse.StatusCode)

log.Println("Let's presign a request to delete the object.")
questioner.Ask("Press Enter when you're ready.")
presignedDelRequest, err := presigner.DeleteObject(ctx, bucketName, uploadKey)
if err != nil {
 panic(err)
}
log.Printf("Got a presigned %v request to URL:\n\t%v\n",
presignedDelRequest.Method,
 presignedDelRequest.URL)
log.Println("Using net/http to send the request...")
delResponse, err := httpRequester.Delete(presignedDelRequest.URL)
if err != nil {
 panic(err)
}
```

```
 log.Printf("%v object %v with presigned URL returned %v.\n",
 presignedDelRequest.Method,
  uploadKey, delResponse.StatusCode)
 log.Println(strings.Repeat("-", 88))

 log.Println("Thanks for watching!")
 log.Println(strings.Repeat("-", 88))
}
```

Define an HTTP request wrapper used by the example to make HTTP requests.

```
// IHttpRequester abstracts HTTP requests into an interface so it can be mocked
 during
// unit testing.
type IHttpRequester interface {
 Get(url string) (resp *http.Response, err error)
 Post(url, contentType string, body io.Reader) (resp *http.Response, err error)
 Put(url string, contentLength int64, body io.Reader) (resp *http.Response, err
 error)
 Delete(url string) (resp *http.Response, err error)
}

// HttpRequester uses the net/http package to make HTTP requests during the
 scenario.
type HttpRequester struct{}

func (httpReq HttpRequester) Get(url string) (resp *http.Response, err error) {
 return http.Get(url)
}
func (httpReq HttpRequester) Post(url, contentType string, body io.Reader) (resp
 *http.Response, err error) {
 postRequest, err := http.NewRequest("POST", url, body)
 if err != nil {
  return nil, err
 }
 postRequest.Header.Set("Content-Type", contentType)
 return http.DefaultClient.Do(postRequest)
}
```

```
func (httpReq HttpRequester) Put(url string, contentLength int64, body io.Reader)
 (resp *http.Response, err error) {
 putRequest, err := http.NewRequest("PUT", url, body)
 if err != nil {
  return nil, err
 }
 putRequest.ContentLength = contentLength
 return http.DefaultClient.Do(putRequest)
}
func (httpReq HttpRequester) Delete(url string) (resp *http.Response, err error)
 {
 delRequest, err := http.NewRequest("DELETE", url, nil)
 if err != nil {
  return nil, err
 }
 return http.DefaultClient.Do(delRequest)
}
```

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

The following shows three example of how to create presigned URLs and use the URLs with HTTP client libraries:

- An HTTP GET request that uses the URL with three HTTP client libraries
- An HTTP PUT request with metadata in headers that uses the URL with three HTTP client libraries
- An HTTP PUT request with query parameters that uses the URL with one HTTP client library

Generate a pre-signed URL for an object, then download it (GET request).

Imports.

```
import com.example.s3.util.PresignUrlUtils;
import org.slf4j.Logger;
import software.amazon.awssdk.http.HttpExecuteRequest;
import software.amazon.awssdk.http.HttpExecuteResponse;
import software.amazon.awssdk.http.SdkHttpClient;
import software.amazon.awssdk.http.SdkHttpMethod;
import software.amazon.awssdk.http.SdkHttpRequest;
import software.amazon.awssdk.http.apache.ApacheHttpClient;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.GetObjectRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.services.s3.presigner.S3Presigner;
import
 software.amazon.awssdk.services.s3.presigner.model.GetObjectPresignRequest;
import
 software.amazon.awssdk.services.s3.presigner.model.PresignedGetObjectRequest;
import software.amazon.awssdk.utils.IoUtils;

import java.io.ByteArrayOutputStream;
import java.io.File;
import java.io.IOException;
import java.io.InputStream;
import java.net.HttpURLConnection;
import java.net.URISyntaxException;
import java.net.URL;
import java.net.http.HttpClient;
import java.net.http.HttpRequest;
import java.net.http.HttpResponse;
import java.nio.file.Paths;
import java.time.Duration;
import java.util.UUID;
```

Generate the URL.

```
    /* Create a pre-signed URL to download an object in a subsequent GET request.
 */
    public String createPresignedGetUrl(String bucketName, String keyName) {
        try (S3Presigner presigner = S3Presigner.create()) {

            GetObjectRequest objectRequest = GetObjectRequest.builder()
```

```
                    .bucket(bucketName)
                    .key(keyName)
                    .build();

            GetObjectPresignRequest presignRequest =
GetObjectPresignRequest.builder()
                    .signatureDuration(Duration.ofMinutes(10))  // The URL will
expire in 10 minutes.
                    .getObjectRequest(objectRequest)
                    .build();

            PresignedGetObjectRequest presignedRequest =
presigner.presignGetObject(presignRequest);
            logger.info("Presigned URL: [{}]",
presignedRequest.url().toString());
            logger.info("HTTP method: [{}]",
presignedRequest.httpRequest().method());

            return presignedRequest.url().toExternalForm();
        }
    }
```

Download the object by using any one of the following three approaches.

Use JDK `HttpURLConnection` (since v1.1) class to do the download.

```
    /* Use the JDK HttpURLConnection (since v1.1) class to do the download. */
    public byte[] useHttpUrlConnectionToGet(String presignedUrlString) {
        ByteArrayOutputStream byteArrayOutputStream = new
ByteArrayOutputStream(); // Capture the response body to a byte array.

        try {
            URL presignedUrl = new URL(presignedUrlString);
            HttpURLConnection connection = (HttpURLConnection)
presignedUrl.openConnection();
            connection.setRequestMethod("GET");
            // Download the result of executing the request.
            try (InputStream content = connection.getInputStream()) {
                IoUtils.copy(content, byteArrayOutputStream);
            }
            logger.info("HTTP response code is " + connection.getResponseCode());

        } catch (S3Exception | IOException e) {
```

```
            logger.error(e.getMessage(), e);
        }
        return byteArrayOutputStream.toByteArray();
    }
```

Use JDK `HttpClient` (since v11) class to do the download.

```
    /* Use the JDK HttpClient (since v11) class to do the download. */
    public byte[] useHttpClientToGet(String presignedUrlString) {
        ByteArrayOutputStream byteArrayOutputStream = new
 ByteArrayOutputStream(); // Capture the response body to a byte array.

        HttpRequest.Builder requestBuilder = HttpRequest.newBuilder();
        HttpClient httpClient = HttpClient.newHttpClient();
        try {
            URL presignedUrl = new URL(presignedUrlString);
            HttpResponse<InputStream> response = httpClient.send(requestBuilder
                            .uri(presignedUrl.toURI())
                            .GET()
                            .build(),
                    HttpResponse.BodyHandlers.ofInputStream());

            IoUtils.copy(response.body(), byteArrayOutputStream);

            logger.info("HTTP response code is " + response.statusCode());

        } catch (URISyntaxException | InterruptedException | IOException e) {
            logger.error(e.getMessage(), e);
        }
        return byteArrayOutputStream.toByteArray();
    }
```

Use the AWS SDK for Java `SdkHttpClient` class to do the download.

```
    /* Use the AWS SDK for Java SdkHttpClient class to do the download. */
    public byte[] useSdkHttpClientToGet(String presignedUrlString) {

        ByteArrayOutputStream byteArrayOutputStream = new
 ByteArrayOutputStream(); // Capture the response body to a byte array.
        try {
            URL presignedUrl = new URL(presignedUrlString);
```

```
            SdkHttpRequest request = SdkHttpRequest.builder()
                    .method(SdkHttpMethod.GET)
                    .uri(presignedUrl.toURI())
                    .build();

            HttpExecuteRequest executeRequest = HttpExecuteRequest.builder()
                    .request(request)
                    .build();

            try (SdkHttpClient sdkHttpClient = ApacheHttpClient.create()) {
                HttpExecuteResponse response =
 sdkHttpClient.prepareRequest(executeRequest).call();
                response.responseBody().ifPresentOrElse(
                        abortableInputStream -> {
                            try {
                                IoUtils.copy(abortableInputStream,
 byteArrayOutputStream);
                            } catch (IOException e) {
                                throw new RuntimeException(e);
                            }
                        },
                        () -> logger.error("No response body."));

                logger.info("HTTP Response code is {}",
 response.httpResponse().statusCode());
            }
        } catch (URISyntaxException | IOException e) {
            logger.error(e.getMessage(), e);
        }
        return byteArrayOutputStream.toByteArray();
    }
```

Generate a pre-signed URL with metadata in headers for an upload, then upload a file (PUT request).

Imports.

```
import com.example.s3.util.PresignUrlUtils;
import org.slf4j.Logger;
import software.amazon.awssdk.core.internal.sync.FileContentStreamProvider;
import software.amazon.awssdk.http.HttpExecuteRequest;
import software.amazon.awssdk.http.HttpExecuteResponse;
```

```
import software.amazon.awssdk.http.SdkHttpClient;
import software.amazon.awssdk.http.SdkHttpMethod;
import software.amazon.awssdk.http.SdkHttpRequest;
import software.amazon.awssdk.http.apache.ApacheHttpClient;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.PutObjectRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.services.s3.presigner.S3Presigner;
import
 software.amazon.awssdk.services.s3.presigner.model.PresignedPutObjectRequest;
import
 software.amazon.awssdk.services.s3.presigner.model.PutObjectPresignRequest;

import java.io.File;
import java.io.IOException;
import java.io.OutputStream;
import java.io.RandomAccessFile;
import java.net.HttpURLConnection;
import java.net.URISyntaxException;
import java.net.URL;
import java.net.http.HttpClient;
import java.net.http.HttpRequest;
import java.net.http.HttpResponse;
import java.nio.ByteBuffer;
import java.nio.channels.FileChannel;
import java.nio.file.Path;
import java.nio.file.Paths;
import java.time.Duration;
import java.util.Map;
import java.util.UUID;
```

Generate the URL.

```
    /* Create a presigned URL to use in a subsequent PUT request */
    public String createPresignedUrl(String bucketName, String keyName,
 Map<String, String> metadata) {
        try (S3Presigner presigner = S3Presigner.create()) {

            PutObjectRequest objectRequest = PutObjectRequest.builder()
                    .bucket(bucketName)
                    .key(keyName)
                    .metadata(metadata)
```

```
                    .build();

            PutObjectPresignRequest presignRequest =
 PutObjectPresignRequest.builder()
                    .signatureDuration(Duration.ofMinutes(10))  // The URL
 expires in 10 minutes.
                    .putObjectRequest(objectRequest)
                    .build();


            PresignedPutObjectRequest presignedRequest =
 presigner.presignPutObject(presignRequest);
            String myURL = presignedRequest.url().toString();
            logger.info("Presigned URL to upload a file to: [{}]", myURL);
            logger.info("HTTP method: [{}]",
 presignedRequest.httpRequest().method());

            return presignedRequest.url().toExternalForm();
        }
    }
```

Upload a file object by using any one of the following three approaches.

Use the JDK `HttpURLConnection` (since v1.1) class to do the upload.

```
    /* Use the JDK HttpURLConnection (since v1.1) class to do the upload. */
    public void useHttpUrlConnectionToPut(String presignedUrlString, File
 fileToPut, Map<String, String> metadata) {
        logger.info("Begin [{}] upload", fileToPut.toString());
        try {
            URL presignedUrl = new URL(presignedUrlString);
            HttpURLConnection connection = (HttpURLConnection)
 presignedUrl.openConnection();
            connection.setDoOutput(true);
            metadata.forEach((k, v) -> connection.setRequestProperty("x-amz-
meta-" + k, v));
            connection.setRequestMethod("PUT");
            OutputStream out = connection.getOutputStream();

            try (RandomAccessFile file = new RandomAccessFile(fileToPut, "r");
                 FileChannel inChannel = file.getChannel()) {
                ByteBuffer buffer = ByteBuffer.allocate(8192); //Buffer size is
 8k
```

```
                while (inChannel.read(buffer) > 0) {
                    buffer.flip();
                    for (int i = 0; i < buffer.limit(); i++) {
                        out.write(buffer.get());
                    }
                    buffer.clear();
                }
            } catch (IOException e) {
                logger.error(e.getMessage(), e);
            }

            out.close();
            connection.getResponseCode();
            logger.info("HTTP response code is " + connection.getResponseCode());

        } catch (S3Exception | IOException e) {
            logger.error(e.getMessage(), e);
        }
    }
```

Use the JDK `HttpClient` (since v11) class to do the upload.

```
    /* Use the JDK HttpClient (since v11) class to do the upload. */
    public void useHttpClientToPut(String presignedUrlString, File fileToPut,
 Map<String, String> metadata) {
        logger.info("Begin [{}] upload", fileToPut.toString());

        HttpRequest.Builder requestBuilder = HttpRequest.newBuilder();
        metadata.forEach((k, v) -> requestBuilder.header("x-amz-meta-" + k, v));

        HttpClient httpClient = HttpClient.newHttpClient();
        try {
            final HttpResponse<Void> response = httpClient.send(requestBuilder
                            .uri(new URL(presignedUrlString).toURI())

 .PUT(HttpRequest.BodyPublishers.ofFile(Path.of(fileToPut.toURI())))
                            .build(),
                    HttpResponse.BodyHandlers.discarding());

            logger.info("HTTP response code is " + response.statusCode());
```

```
        } catch (URISyntaxException | InterruptedException | IOException e) {
            logger.error(e.getMessage(), e);
        }
    }
```

Use the AWS for Java V2 `SdkHttpClient` class to do the upload.

```
    /* Use the AWS SDK for Java V2 SdkHttpClient class to do the upload. */
    public void useSdkHttpClientToPut(String presignedUrlString, File fileToPut,
 Map<String, String> metadata) {
        logger.info("Begin [{}] upload", fileToPut.toString());

        try {
            URL presignedUrl = new URL(presignedUrlString);

            SdkHttpRequest.Builder requestBuilder = SdkHttpRequest.builder()
                    .method(SdkHttpMethod.PUT)
                    .uri(presignedUrl.toURI());
            // Add headers
            metadata.forEach((k, v) -> requestBuilder.putHeader("x-amz-meta-" +
 k, v));
            // Finish building the request.
            SdkHttpRequest request = requestBuilder.build();

            HttpExecuteRequest executeRequest = HttpExecuteRequest.builder()
                    .request(request)
                    .contentStreamProvider(new
 FileContentStreamProvider(fileToPut.toPath()))
                    .build();

            try (SdkHttpClient sdkHttpClient = ApacheHttpClient.create()) {
                HttpExecuteResponse response =
 sdkHttpClient.prepareRequest(executeRequest).call();
                logger.info("Response code: {}",
 response.httpResponse().statusCode());
            }
        } catch (URISyntaxException | IOException e) {
            logger.error(e.getMessage(), e);
        }
    }
```

Generate a pre-signed URL with query parameters for an upload, then upload a file (PUT request).

Imports.

```
import com.example.s3.util.PresignUrlUtils;
import org.slf4j.Logger;
import software.amazon.awssdk.awscore.AwsRequestOverrideConfiguration;
import software.amazon.awssdk.core.internal.sync.FileContentStreamProvider;
import software.amazon.awssdk.http.HttpExecuteRequest;
import software.amazon.awssdk.http.HttpExecuteResponse;
import software.amazon.awssdk.http.SdkHttpClient;
import software.amazon.awssdk.http.SdkHttpMethod;
import software.amazon.awssdk.http.SdkHttpRequest;
import software.amazon.awssdk.http.apache.ApacheHttpClient;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.PutObjectRequest;
import software.amazon.awssdk.services.s3.presigner.S3Presigner;
import
 software.amazon.awssdk.services.s3.presigner.model.PresignedPutObjectRequest;
import
 software.amazon.awssdk.services.s3.presigner.model.PutObjectPresignRequest;

import java.io.File;
import java.io.IOException;
import java.net.URISyntaxException;
import java.net.URL;
import java.nio.file.Paths;
import java.time.Duration;
import java.util.Map;
import java.util.UUID;
```

Generate the URL.

```
    /**
     *  Creates a presigned URL to use in a subsequent HTTP PUT request. The code
 adds query parameters
     *  to the request instead of using headers. By using query parameters, you
 do not need to add the
     *  the parameters as headers when the PUT request is eventually sent.
     *
     * @param bucketName Bucket name where the object will be uploaded.
```

```
    * @param keyName Key name of the object that will be uploaded.
    * @param queryParams Query string parameters to be added to the presigned
URL.
    * @return
    */
   public String createPresignedUrl(String bucketName, String keyName,
Map<String, String> queryParams) {
       try (S3Presigner presigner = S3Presigner.create()) {
           // Create an override configuration to store the query parameters.
           AwsRequestOverrideConfiguration.Builder overrideConfigurationBuilder
= AwsRequestOverrideConfiguration.builder();


queryParams.forEach(overrideConfigurationBuilder::putRawQueryParameter);

           PutObjectRequest objectRequest = PutObjectRequest.builder()
                   .bucket(bucketName)
                   .key(keyName)

.overrideConfiguration(overrideConfigurationBuilder.build()) // Add the override
configuration.
                   .build();

           PutObjectPresignRequest presignRequest =
PutObjectPresignRequest.builder()
                   .signatureDuration(Duration.ofMinutes(10))  // The URL
expires in 10 minutes.
                   .putObjectRequest(objectRequest)
                   .build();


           PresignedPutObjectRequest presignedRequest =
presigner.presignPutObject(presignRequest);
           String myURL = presignedRequest.url().toString();
           logger.info("Presigned URL to upload a file to: [{}]", myURL);
           logger.info("HTTP method: [{}]",
presignedRequest.httpRequest().method());

           return presignedRequest.url().toExternalForm();
       }
   }
```

Use the AWS for Java V2 `SdkHttpClient` class to do the upload.

```
   /**
    * Use the AWS SDK for Java V2 SdkHttpClient class to execute the PUT
request. Since the
    * URL contains the query parameters, no headers are needed for metadata, SSE
settings, or ACL settings.
    *
    * @param presignedUrlString The URL for the PUT request.
    * @param fileToPut File to uplaod
    */
   public void useSdkHttpClientToPut(String presignedUrlString, File fileToPut)
{
       logger.info("Begin [{}] upload", fileToPut.toString());

       try {
           URL presignedUrl = new URL(presignedUrlString);

           SdkHttpRequest.Builder requestBuilder = SdkHttpRequest.builder()
                   .method(SdkHttpMethod.PUT)
                   .uri(presignedUrl.toURI());

           SdkHttpRequest request = requestBuilder.build();

           HttpExecuteRequest executeRequest = HttpExecuteRequest.builder()
                   .request(request)
                   .contentStreamProvider(new
FileContentStreamProvider(fileToPut.toPath()))
                   .build();

           try (SdkHttpClient sdkHttpClient = ApacheHttpClient.create()) {
               HttpExecuteResponse response =
sdkHttpClient.prepareRequest(executeRequest).call();
               logger.info("Response code: {}",
response.httpResponse().statusCode());
           }
       } catch (URISyntaxException | IOException e) {
           logger.error(e.getMessage(), e);
       }
   }
```

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create a presigned URL to upload an object to a bucket.

```
import https from "node:https";

import { XMLParser } from "fast-xml-parser";
import { PutObjectCommand, S3Client } from "@aws-sdk/client-s3";
import { fromIni } from "@aws-sdk/credential-providers";
import { HttpRequest } from "@smithy/protocol-http";
import {
  getSignedUrl,
  S3RequestPresigner,
} from "@aws-sdk/s3-request-presigner";
import { parseUrl } from "@smithy/url-parser";
import { formatUrl } from "@aws-sdk/util-format-url";
import { Hash } from "@smithy/hash-node";

const createPresignedUrlWithoutClient = async ({ region, bucket, key }) => {
  const url = parseUrl(`https://${bucket}.s3.${region}.amazonaws.com/${key}`);
  const presigner = new S3RequestPresigner({
    credentials: fromIni(),
    region,
    sha256: Hash.bind(null, "sha256"),
  });

  const signedUrlObject = await presigner.presign(
    new HttpRequest({ ...url, method: "PUT" }),
  );
  return formatUrl(signedUrlObject);
};

const createPresignedUrlWithClient = ({ region, bucket, key }) => {
  const client = new S3Client({ region });
  const command = new PutObjectCommand({ Bucket: bucket, Key: key });
```

```
  return getSignedUrl(client, command, { expiresIn: 3600 });
};

/**
 * Make a PUT request to the provided URL.
 *
 * @param {string} url
 * @param {string} data
 */
const put = (url, data) => {
  return new Promise((resolve, reject) => {
    const req = https.request(
      url,
      { method: "PUT", headers: { "Content-Length": new Blob([data]).size } },
      (res) => {
        let responseBody = "";
        res.on("data", (chunk) => {
          responseBody += chunk;
        });
        res.on("end", () => {
          const parser = new XMLParser();
          if (res.statusCode >= 200 && res.statusCode <= 299) {
            resolve(parser.parse(responseBody, true));
          } else {
            reject(parser.parse(responseBody, true));
          }
        });
      },
    );
    req.on("error", (err) => {
      reject(err);
    });
    req.write(data);
    req.end();
  });
};

/**
 * Create two presigned urls for uploading an object to an S3 bucket.
 * The first presigned URL is created with credentials from the shared INI file
 * in the current environment. The second presigned URL is created using an
 * existing S3Client instance that has already been provided with credentials.
 * @param {{ bucketName: string, key: string, region: string }}
 */
```

```
export const main = async ({ bucketName, key, region }) => {
  try {
    const noClientUrl = await createPresignedUrlWithoutClient({
      bucket: bucketName,
      key,
      region,
    });

    const clientUrl = await createPresignedUrlWithClient({
      bucket: bucketName,
      region,
      key,
    });

    // After you get the presigned URL, you can provide your own file
    // data. Refer to put() above.
    console.log("Calling PUT using presigned URL without client");
    await put(noClientUrl, "Hello World");

    console.log("Calling PUT using presigned URL with client");
    await put(clientUrl, "Hello World");

    console.log("\nDone. Check your S3 console.");
  } catch (caught) {
    if (caught instanceof Error && caught.name === "CredentialsProviderError") {
      console.error(
        `There was an error getting your credentials. Are your local credentials
 configured?\n${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

Create a presigned URL to download an object from a bucket.

```
import { GetObjectCommand, S3Client } from "@aws-sdk/client-s3";
import { fromIni } from "@aws-sdk/credential-providers";
import { HttpRequest } from "@smithy/protocol-http";
import {
  getSignedUrl,
```

```
  S3RequestPresigner,
} from "@aws-sdk/s3-request-presigner";
import { parseUrl } from "@smithy/url-parser";
import { formatUrl } from "@aws-sdk/util-format-url";
import { Hash } from "@smithy/hash-node";

const createPresignedUrlWithoutClient = async ({ region, bucket, key }) => {
  const url = parseUrl(`https://${bucket}.s3.${region}.amazonaws.com/${key}`);
  const presigner = new S3RequestPresigner({
    credentials: fromIni(),
    region,
    sha256: Hash.bind(null, "sha256"),
  });

  const signedUrlObject = await presigner.presign(new HttpRequest(url));
  return formatUrl(signedUrlObject);
};

const createPresignedUrlWithClient = ({ region, bucket, key }) => {
  const client = new S3Client({ region });
  const command = new GetObjectCommand({ Bucket: bucket, Key: key });
  return getSignedUrl(client, command, { expiresIn: 3600 });
};

/**
 * Create two presigned urls for downloading an object from an S3 bucket.
 * The first presigned URL is created with credentials from the shared INI file
 * in the current environment. The second presigned URL is created using an
 * existing S3Client instance that has already been provided with credentials.
 * @param {{ bucketName: string, key: string, region: string }}
 */
export const main = async ({ bucketName, key, region }) => {
  try {
    const noClientUrl = await createPresignedUrlWithoutClient({
      bucket: bucketName,
      region,
      key,
    });

    const clientUrl = await createPresignedUrlWithClient({
      bucket: bucketName,
      region,
      key,
    });
```

```
    console.log("Presigned URL without client");
    console.log(noClientUrl);
    console.log("\n");

    console.log("Presigned URL with client");
    console.log(clientUrl);
  } catch (caught) {
    if (caught instanceof Error && caught.name === "CredentialsProviderError") {
      console.error(
        `There was an error getting your credentials. Are your local credentials
 configured?\n${caught.name}: ${caught.message}`,
      );
    } else {
      throw caught;
    }
  }
};
```

- For more information, see AWS SDK for JavaScript Developer Guide.

Kotlin

SDK for Kotlin

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create a `GetObject` presigned request and use the URL to download an object.

```
suspend fun getObjectPresigned(
    s3: S3Client,
    bucketName: String,
    keyName: String,
): String {
    // Create a GetObjectRequest.
    val unsignedRequest =
        GetObjectRequest {
```

```
            bucket = bucketName
            key = keyName
        }

    // Presign the GetObject request.
    val presignedRequest = s3.presignGetObject(unsignedRequest, 24.hours)

    // Use the URL from the presigned HttpRequest in a subsequent HTTP GET
 request to retrieve the object.
    val objectContents = URL(presignedRequest.url.toString()).readText()

    return objectContents
}
```

Create a `GetObject` presigned request with advanced options.

```
suspend fun getObjectPresignedMoreOptions(
    s3: S3Client,
    bucketName: String,
    keyName: String,
): HttpRequest {
    // Create a GetObjectRequest.
    val unsignedRequest =
        GetObjectRequest {
            bucket = bucketName
            key = keyName
        }

    // Presign the GetObject request.
    val presignedRequest =
        s3.presignGetObject(unsignedRequest, signer = CrtAwsSigner) {
            signingDate = Instant.now() + 12.hours // Presigned request can be
 used 12 hours from now.
            algorithm = AwsSigningAlgorithm.SIGV4_ASYMMETRIC
            signatureType = AwsSignatureType.HTTP_REQUEST_VIA_QUERY_PARAMS
            expiresAfter = 8.hours // Presigned request expires 8 hours later.
        }
    return presignedRequest
}
```

Create a `PutObject` presigned request and use it to upload an object.

```
suspend fun putObjectPresigned(
    s3: S3Client,
    bucketName: String,
    keyName: String,
    content: String,
) {
    // Create a PutObjectRequest.
    val unsignedRequest =
        PutObjectRequest {
            bucket = bucketName
            key = keyName
        }

    // Presign the request.
    val presignedRequest = s3.presignPutObject(unsignedRequest, 24.hours)

    // Use the URL and any headers from the presigned HttpRequest in a subsequent
 HTTP PUT request to retrieve the object.
    // Create a PUT request using the OKHttpClient API.
    val putRequest =
        Request
            .Builder()
            .url(presignedRequest.url.toString())
            .apply {
                presignedRequest.headers.forEach { key, values ->
                    header(key, values.joinToString(", "))
                }
            }.put(content.toRequestBody())
            .build()

    val response = OkHttpClient().newCall(putRequest).execute()
    assert(response.isSuccessful)
}
```

- For more information, see AWS SDK for Kotlin developer guide.

PHP

SDK for PHP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
namespace S3;
use Aws\Exception\AwsException;
use AwsUtilities\PrintableLineBreak;
use AwsUtilities\TestableReadline;
use DateTime;

require 'vendor/autoload.php';

class PresignedURL
{
    use PrintableLineBreak;
    use TestableReadline;

    public function run()
    {
        $s3Service = new S3Service();

        $expiration = new DateTime("+20 minutes");
        $linebreak = $this->getLineBreak();

        echo $linebreak;
        echo ("Welcome to the Amazon S3 presigned URL demo.\n");
        echo $linebreak;

        $bucket = $this->testable_readline("First, please enter the name of the
 S3 bucket to use: ");
        $key = $this->testable_readline("Next, provide the key of an object in
 the given bucket: ");
        echo $linebreak;
        $command = $s3Service->getClient()->getCommand('GetObject', [
            'Bucket' => $bucket,
            'Key' => $key,
```

```
        ]);
        try {
            $preSignedUrl = $s3Service->preSignedUrl($command, $expiration);
            echo "Your preSignedUrl is \n$preSignedUrl\nand will be good for the
 next 20 minutes.\n";
            echo $linebreak;
            echo "Thanks for trying the Amazon S3 presigned URL demo.\n";
        } catch (AwsException $exception) {
            echo $linebreak;
            echo "Something went wrong: $exception";
            die();
        }
    }
}

$runner = new PresignedURL();
$runner->run();



namespace S3;

use Aws\CommandInterface;
use Aws\Exception\AwsException;
use Aws\Result;
use Aws\S3\Exception\S3Exception;
use Aws\S3\S3Client;
use AwsUtilities\AWSServiceClass;
use DateTimeInterface;

class S3Service extends AWSServiceClass
{
    protected S3Client $client;
    protected bool $verbose;

    public function __construct(S3Client $client = null, $verbose = false)
    {
        if ($client) {
            $this->client = $client;
        } else {
            $this->client = new S3Client([
                'version' => 'latest',
                'region' => 'us-west-2',
            ]);
```

```
        }
        $this->verbose = $verbose;
    }

    public function setVerbose($verbose)
    {
        $this->verbose = $verbose;
    }

    public function isVerbose(): bool
    {
        return $this->verbose;
    }

    public function getClient(): S3Client
    {
        return $this->client;
    }

    public function setClient(S3Client $client)
    {
        $this->client = $client;
    }


    public function emptyAndDeleteBucket($bucketName, array $args = [])
    {
        try {
            $objects = $this->listAllObjects($bucketName, $args);
            $this->deleteObjects($bucketName, $objects, $args);
            if ($this->verbose) {
                echo "Deleted all objects and folders from $bucketName.\n";
            }
            $this->deleteBucket($bucketName, $args);
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to delete $bucketName with error: {$exception-
>getMessage()}\n";
                echo "\nPlease fix error with bucket deletion before continuing.
\n";
            }
            throw $exception;
        }
    }
```

```
    public function createBucket(string $bucketName, array $args = [])
    {
        $parameters = array_merge(['Bucket' => $bucketName], $args);
        try {
            $this->client->createBucket($parameters);
            if ($this->verbose) {
                echo "Created the bucket named: $bucketName.\n";
            }
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to create $bucketName with error: {$exception-
>getMessage()}\n";
                echo "Please fix error with bucket creation before continuing.";
            }
            throw $exception;
        }
    }



    public function putObject(string $bucketName, string $key, array $args = [])
    {
        $parameters = array_merge(['Bucket' => $bucketName, 'Key' => $key],
 $args);
        try {
            $this->client->putObject($parameters);
            if ($this->verbose) {
                echo "Uploaded the object named: $key to the bucket named:
 $bucketName.\n";
            }
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to create $key in $bucketName with error:
 {$exception->getMessage()}\n";
                echo "Please fix error with object uploading before continuing.";
            }
            throw $exception;
        }
    }
```

```
   public function getObject(string $bucketName, string $key, array $args = []):
Result
   {
       $parameters = array_merge(['Bucket' => $bucketName, 'Key' => $key],
$args);
       try {
           $object = $this->client->getObject($parameters);
           if ($this->verbose) {
               echo "Downloaded the object named: $key to the bucket named:
$bucketName.\n";
           }
       } catch (AwsException $exception) {
           if ($this->verbose) {
               echo "Failed to download $key from $bucketName with error:
{$exception->getMessage()}\n";
               echo "Please fix error with object downloading before
continuing.";
           }
           throw $exception;
       }
       return $object;
   }



   public function copyObject($bucketName, $key, $copySource, array $args = [])
   {
       $parameters = array_merge(['Bucket' => $bucketName, 'Key' => $key,
"CopySource" => $copySource], $args);
       try {
           $this->client->copyObject($parameters);
           if ($this->verbose) {
               echo "Copied the object from: $copySource in $bucketName to:
$key.\n";
           }
       } catch (AwsException $exception) {
           if ($this->verbose) {
               echo "Failed to copy $copySource in $bucketName with error:
{$exception->getMessage()}\n";
               echo "Please fix error with object copying before continuing.";
           }
           throw $exception;
       }
```

```
    }



    public function listObjects(string $bucketName, $start = 0, $max = 1000,
array $args = [])
    {
        $parameters = array_merge(['Bucket' => $bucketName, 'Marker' => $start,
"MaxKeys" => $max], $args);
        try {
            $objects = $this->client->listObjectsV2($parameters);
            if ($this->verbose) {
                echo "Retrieved the list of objects from: $bucketName.\n";
            }
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to retrieve the objects from $bucketName with error:
{$exception->getMessage()}\n";
                echo "Please fix error with list objects before continuing.";
            }
            throw $exception;
        }
        return $objects;
    }



    public function listAllObjects($bucketName, array $args = [])
    {
        $parameters = array_merge(['Bucket' => $bucketName], $args);

        $contents = [];
        $paginator = $this->client->getPaginator("ListObjectsV2", $parameters);

        foreach ($paginator as $result) {
            if($result['KeyCount'] == 0){
                break;
            }
            foreach ($result['Contents'] as $object) {
                $contents[] = $object;
            }
        }
        return $contents;
    }
```

```
   public function deleteObjects(string $bucketName, array $objects, array $args
= [])
   {
       $listOfObjects = array_map(
           function ($object) {
               return ['Key' => $object];
           },
           array_column($objects, 'Key')
       );
       if(!$listOfObjects){
           return;
       }

       $parameters = array_merge(['Bucket' => $bucketName, 'Delete' =>
['Objects' => $listOfObjects]], $args);
       try {
           $this->client->deleteObjects($parameters);
           if ($this->verbose) {
               echo "Deleted the list of objects from: $bucketName.\n";
           }
       } catch (AwsException $exception) {
           if ($this->verbose) {
               echo "Failed to delete the list of objects from $bucketName with
error: {$exception->getMessage()}\n";
               echo "Please fix error with object deletion before continuing.";
           }
           throw $exception;
       }
   }



   public function deleteBucket(string $bucketName, array $args = [])
   {
       $parameters = array_merge(['Bucket' => $bucketName], $args);
       try {
           $this->client->deleteBucket($parameters);
           if ($this->verbose) {
               echo "Deleted the bucket named: $bucketName.\n";
           }
       } catch (AwsException $exception) {
```

```
            if ($this->verbose) {
                echo "Failed to delete $bucketName with error: {$exception-
>getMessage()}\n";
                echo "Please fix error with bucket deletion before continuing.";
            }
            throw $exception;
        }
    }



    public function deleteObject(string $bucketName, string $fileName, array
 $args = [])
    {
        $parameters = array_merge(['Bucket' => $bucketName, 'Key' => $fileName],
 $args);
        try {
            $this->client->deleteObject($parameters);
            if ($this->verbose) {
                echo "Deleted the object named: $fileName from $bucketName.\n";
            }
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to delete $fileName from $bucketName with error:
 {$exception->getMessage()}\n";
                echo "Please fix error with object deletion before continuing.";
            }
            throw $exception;
        }
    }



    public function listBuckets(array $args = [])
    {
        try {
            $buckets = $this->client->listBuckets($args);
            if ($this->verbose) {
                echo "Retrieved all " . count($buckets) . "\n";
            }
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to retrieve bucket list with error: {$exception-
>getMessage()}\n";
```

```
                echo "Please fix error with bucket lists before continuing.";
            }
            throw $exception;
        }
        return $buckets;
    }



    public function preSignedUrl(CommandInterface $command, DateTimeInterface|
int|string $expires, array $options = [])
    {
        $request = $this->client->createPresignedRequest($command, $expires,
 $options);
        try {
            $presignedUrl = (string)$request->getUri();
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to create a presigned url: {$exception-
>getMessage()}\n";
                echo "Please fix error with presigned urls before continuing.";
            }
            throw $exception;
        }
        return $presignedUrl;
    }



    public function createSession(string $bucketName)
    {
        try{
            $result = $this->client->createSession([
                'Bucket' => $bucketName,
            ]);
            return $result;
        }catch(S3Exception $caught){
            if($caught->getAwsErrorType() == "NoSuchBucket"){
                echo "The specified bucket does not exist.";
            }
            throw $caught;
        }
    }
```

```
}
```

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Generate a presigned URL that can perform an S3 action for a limited time. Use the Requests package to make a request with the URL.

```
import argparse
import logging
import boto3
from botocore.exceptions import ClientError
import requests

logger = logging.getLogger(__name__)


def generate_presigned_url(s3_client, client_method, method_parameters,
 expires_in):
    """
    Generate a presigned Amazon S3 URL that can be used to perform an action.

    :param s3_client: A Boto3 Amazon S3 client.
    :param client_method: The name of the client method that the URL performs.
    :param method_parameters: The parameters of the specified client method.
    :param expires_in: The number of seconds the presigned URL is valid for.
    :return: The presigned URL.
    """
    try:
        url = s3_client.generate_presigned_url(
            ClientMethod=client_method, Params=method_parameters,
 ExpiresIn=expires_in
```

```
        )
        logger.info("Got presigned URL: %s", url)
    except ClientError:
        logger.exception(
            "Couldn't get a presigned URL for client method '%s'.", client_method
        )
        raise
    return url


def usage_demo():
    logging.basicConfig(level=logging.INFO, format="%(levelname)s: %(message)s")

    print("-" * 88)
    print("Welcome to the Amazon S3 presigned URL demo.")
    print("-" * 88)

    parser = argparse.ArgumentParser()
    parser.add_argument("bucket", help="The name of the bucket.")
    parser.add_argument(
        "key",
        help="For a GET operation, the key of the object in Amazon S3. For a "
        "PUT operation, the name of a file to upload.",
    )
    parser.add_argument("action", choices=("get", "put"), help="The action to
 perform.")
    args = parser.parse_args()

    s3_client = boto3.client("s3")
    client_action = "get_object" if args.action == "get" else "put_object"
    url = generate_presigned_url(
        s3_client, client_action, {"Bucket": args.bucket, "Key": args.key}, 1000
    )

    print("Using the Requests package to send a request to the URL.")
    response = None
    if args.action == "get":
        response = requests.get(url)
        if response.status_code == 200:
            with open(args.key.split("/")[-1], 'wb') as object_file:
                object_file.write(response.content)
    elif args.action == "put":
        print("Putting data to the URL.")
        try:
```

```
            with open(args.key, "rb") as object_file:
                object_text = object_file.read()
            response = requests.put(url, data=object_text)
        except FileNotFoundError:
            print(
                f"Couldn't find {args.key}. For a PUT operation, the key must be
 the "
                f"name of a file that exists on your computer."
            )

    if response is not None:
        print(f"Status: {response.status_code}\nReason: {response.reason}")

    print("-" * 88)


if __name__ == "__main__":
    usage_demo()
```

Generate a presigned POST request to upload a file.

```
class BucketWrapper:
    """Encapsulates S3 bucket actions."""

    def __init__(self, bucket):
        """
        :param bucket: A Boto3 Bucket resource. This is a high-level resource in
 Boto3
                       that wraps bucket actions in a class-like structure.
        """
        self.bucket = bucket
        self.name = bucket.name


    def generate_presigned_post(self, object_key, expires_in):
        """
        Generate a presigned Amazon S3 POST request to upload a file.
        A presigned POST can be used for a limited time to let someone without an
 AWS
        account upload a file to a bucket.

        :param object_key: The object key to identify the uploaded object.
```

```
        :param expires_in: The number of seconds the presigned POST is valid.
        :return: A dictionary that contains the URL and form fields that contain
                 required access data.
        """
        try:
            response = self.bucket.meta.client.generate_presigned_post(
                Bucket=self.bucket.name, Key=object_key, ExpiresIn=expires_in
            )
            logger.info("Got presigned POST URL: %s", response["url"])
        except ClientError:
            logger.exception(
                "Couldn't get a presigned POST URL for bucket '%s' and object
'%s'",
                self.bucket.name,
                object_key,
            )
            raise
        return response
```

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
require 'aws-sdk-s3'
require 'net/http'

# Creates a presigned URL that can be used to upload content to an object.
#
# @param bucket [Aws::S3::Bucket] An existing Amazon S3 bucket.
# @param object_key [String] The key to give the uploaded object.
# @return [URI, nil] The parsed URI if successful; otherwise nil.
def get_presigned_url(bucket, object_key)
```

```
  url = bucket.object(object_key).presigned_url(:put)
  puts "Created presigned URL: #{url}"
  URI(url)
rescue Aws::Errors::ServiceError => e
  puts "Couldn't create presigned URL for #{bucket.name}:#{object_key}. Here's
 why: #{e.message}"
end

# Example usage:
def run_demo
  bucket_name = "amzn-s3-demo-bucket"
  object_key = "my-file.txt"
  object_content = "This is the content of my-file.txt."

  bucket = Aws::S3::Bucket.new(bucket_name)
  presigned_url = get_presigned_url(bucket, object_key)
  return unless presigned_url

  response = Net::HTTP.start(presigned_url.host) do |http|
    http.send_request('PUT', presigned_url.request_uri, object_content,
 'content_type' => '')
  end

  case response
  when Net::HTTPSuccess
    puts 'Content uploaded!'
  else
    puts response.value
  end
end

run_demo if $PROGRAM_NAME == __FILE__
```

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create presigning requests to GET S3 objects.

```
/// Generate a URL for a presigned GET request.
async fn get_object(
    client: &Client,
    bucket: &str,
    object: &str,
    expires_in: u64,
) -> Result<(), Box<dyn Error>> {
    let expires_in = Duration::from_secs(expires_in);
    let presigned_request = client
        .get_object()
        .bucket(bucket)
        .key(object)
        .presigned(PresigningConfig::expires_in(expires_in)?)
        .await?;

    println!("Object URI: {}", presigned_request.uri());
    let valid_until = chrono::offset::Local::now() + expires_in;
    println!("Valid until: {valid_until}");

    Ok(())
}
```

Create presigning requests to PUT S3 objects.

```
async fn put_object(
    client: &Client,
    bucket: &str,
    object: &str,
    expires_in: u64,
```

```
) -> Result<String, S3ExampleError> {
    let expires_in: std::time::Duration =
 std::time::Duration::from_secs(expires_in);
    let expires_in: aws_sdk_s3::presigning::PresigningConfig =
        PresigningConfig::expires_in(expires_in).map_err(|err| {
            S3ExampleError::new(format!(
                "Failed to convert expiration to PresigningConfig: {err:?}"
            ))
        })?;
    let presigned_request = client
        .put_object()
        .bucket(bucket)
        .key(object)
        .presigned(expires_in)
        .await?;

    Ok(presigned_request.uri().into())
}
```

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Create a photo asset management application that lets users manage photos using labels

The following code examples show how to create a serverless application that lets users manage photos using labels.

.NET

SDK for .NET

Shows how to develop a photo asset management application that detects labels in images using Amazon Rekognition and stores them for later retrieval.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

For a deep dive into the origin of this example see the post on AWS Community.

Services used in this example

- API Gateway
- DynamoDB
- Lambda
- Amazon Rekognition
- Amazon S3
- Amazon SNS

C++

SDK for C++

Shows how to develop a photo asset management application that detects labels in images using Amazon Rekognition and stores them for later retrieval.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

For a deep dive into the origin of this example see the post on AWS Community.

Services used in this example

- API Gateway
- DynamoDB
- Lambda
- Amazon Rekognition
- Amazon S3
- Amazon SNS

Java

SDK for Java 2.x

Shows how to develop a photo asset management application that detects labels in images using Amazon Rekognition and stores them for later retrieval.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

For a deep dive into the origin of this example see the post on AWS Community.

Services used in this example

- API Gateway
- DynamoDB
- Lambda
- Amazon Rekognition
- Amazon S3
- Amazon SNS

JavaScript

SDK for JavaScript (v3)

Shows how to develop a photo asset management application that detects labels in images using Amazon Rekognition and stores them for later retrieval.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

For a deep dive into the origin of this example see the post on AWS Community.

Services used in this example

- API Gateway
- DynamoDB
- Lambda
- Amazon Rekognition
- Amazon S3
- Amazon SNS

Kotlin

SDK for Kotlin

Shows how to develop a photo asset management application that detects labels in images using Amazon Rekognition and stores them for later retrieval.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

For a deep dive into the origin of this example see the post on AWS Community.

Services used in this example

- API Gateway
- DynamoDB
- Lambda
- Amazon Rekognition
- Amazon S3
- Amazon SNS

PHP

SDK for PHP

Shows how to develop a photo asset management application that detects labels in images using Amazon Rekognition and stores them for later retrieval.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

For a deep dive into the origin of this example see the post on AWS Community.

Services used in this example

- API Gateway
- DynamoDB
- Lambda
- Amazon Rekognition
- Amazon S3
- Amazon SNS

Rust

SDK for Rust

Shows how to develop a photo asset management application that detects labels in images using Amazon Rekognition and stores them for later retrieval.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

For a deep dive into the origin of this example see the post on AWS Community.

Services used in this example

- API Gateway
- DynamoDB
- Lambda
- Amazon Rekognition
- Amazon S3
- Amazon SNS

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

A web page that lists Amazon S3 objects using an AWS SDK

The following code example shows how to list Amazon S3 objects in a web page.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

The following code is the relevant React component that makes calls to the AWS SDK. A runnable version of the application containing this component can be found at the preceding GitHub link.

```
import { useEffect, useState } from "react";
import {
  ListObjectsCommand,
  type ListObjectsCommandOutput,
  S3Client,
} from "@aws-sdk/client-s3";
import { fromCognitoIdentityPool } from "@aws-sdk/credential-providers";
import "./App.css";

function App() {
  const [objects, setObjects] = useState<
    Required<ListObjectsCommandOutput>["Contents"]
  >([]);

  useEffect(() => {
    const client = new S3Client({
      region: "us-east-1",
      // Unless you have a public bucket, you'll need access to a private bucket.
      // One way to do this is to create an Amazon Cognito identity pool, attach
 a role to the pool,
      // and grant the role access to the 's3:GetObject' action.
      //
      // You'll also need to configure the CORS settings on the bucket to allow
 traffic from
      // this example site. Here's an example configuration that allows all
 origins. Don't
      // do this in production.
      //[
      //  {
      //    "AllowedHeaders": ["*"],
      //    "AllowedMethods": ["GET"],
      //    "AllowedOrigins": ["*"],
      //    "ExposeHeaders": [],
      //  },
      //]
      //
      credentials: fromCognitoIdentityPool({
        clientConfig: { region: "us-east-1" },
        identityPoolId: "<YOUR_IDENTITY_POOL_ID>",
```

```
      }),
    });
    const command = new ListObjectsCommand({ Bucket: "bucket-name" });
    client.send(command).then(({ Contents }) => setObjects(Contents || []));
  }, []);

  return (
    <div className="App">
      {objects.map((o) => (
        <div key={o.ETag}>{o.Key}</div>
      ))}
    </div>
  );
}

export default App;
```

- For API details, see ListObjects in *AWS SDK for JavaScript API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Create an Amazon Textract explorer application

The following code examples show how to explore Amazon Textract output through an interactive application.

JavaScript

SDK for JavaScript (v3)

Shows how to use the AWS SDK for JavaScript to build a React application that uses Amazon Textract to extract data from a document image and display it in an interactive web page. This example runs in a web browser and requires an authenticated Amazon Cognito identity for credentials. It uses Amazon Simple Storage Service (Amazon S3) for storage, and for notifications it polls an Amazon Simple Queue Service (Amazon SQS) queue that is subscribed to an Amazon Simple Notification Service (Amazon SNS) topic.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

Services used in this example

- Amazon Cognito Identity
- Amazon S3
- Amazon SNS
- Amazon SQS
- Amazon Textract

Python

SDK for Python (Boto3)

Shows how to use the AWS SDK for Python (Boto3) with Amazon Textract to detect text, form, and table elements in a document image. The input image and Amazon Textract output are shown in a Tkinter application that lets you explore the detected elements.

- Submit a document image to Amazon Textract and explore the output of detected elements.
- Submit images directly to Amazon Textract or through an Amazon Simple Storage Service (Amazon S3) bucket.
- Use asynchronous APIs to start a job that publishes a notification to an Amazon Simple Notification Service (Amazon SNS) topic when the job completes.
- Poll an Amazon Simple Queue Service (Amazon SQS) queue for a job completion message and display the results.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

Services used in this example

- Amazon Cognito Identity
- Amazon S3
- Amazon SNS
- Amazon SQS

- Amazon Textract

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Delete all objects in a given Amazon S3 bucket using an AWS SDK

The following code example shows how to delete all of the objects in an Amazon S3 bucket.

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete all objects for a given Amazon S3 bucket.

```
import {
  DeleteObjectsCommand,
  paginateListObjectsV2,
  S3Client,
} from "@aws-sdk/client-s3";

/**
 *
 * @param {{ bucketName: string }} config
 */
export const main = async ({ bucketName }) => {
  const client = new S3Client({});
  try {
    console.log(`Deleting all objects in bucket: ${bucketName}`);

    const paginator = paginateListObjectsV2(
      { client },
      {
        Bucket: bucketName,
```

```
      },
    );

    const objectKeys = [];
    for await (const { Contents } of paginator) {
      objectKeys.push(...Contents.map((obj) => ({ Key: obj.Key })));
    }

    const deleteCommand = new DeleteObjectsCommand({
      Bucket: bucketName,
      Delete: { Objects: objectKeys },
    });

    await client.send(deleteCommand);

    console.log(`All objects deleted from bucket: ${bucketName}`);
  } catch (caught) {
    if (caught instanceof Error) {
      console.error(
        `Failed to empty ${bucketName}. ${caught.name}: ${caught.message}`,
      );
    }
  }
};

// Call function if run directly.
import { fileURLToPath } from "node:url";
import { parseArgs } from "node:util";
if (process.argv[1] === fileURLToPath(import.meta.url)) {
  const options = {
    bucketName: {
      type: "string",
    },
  };

  const { values } = parseArgs({ options });
  main(values);
}
```

- For API details, see the following topics in *AWS SDK for JavaScript API Reference*.
  - DeleteObjects
  - ListObjectsV2

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Delete incomplete multipart uploads to Amazon S3 using an AWS SDK

The following code example shows how to how to delete or stop incomplete Amazon S3 multipart uploads.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

To stop multipart uploads that are in-progress or incomplete for any reason, you can get a list uploads and then delete them as shown in the following example.

```
   /**
    * Aborts all incomplete multipart uploads from the specified S3 bucket.
    * <p>
    * This method retrieves a list of all incomplete multipart uploads in the
specified S3 bucket,
    * and then aborts each of those uploads.
    */
   public static void abortIncompleteMultipartUploadsFromList() {
       ListMultipartUploadsRequest listMultipartUploadsRequest =
ListMultipartUploadsRequest.builder()
           .bucket(bucketName)
           .build();

       ListMultipartUploadsResponse response =
s3Client.listMultipartUploads(listMultipartUploadsRequest);
       List<MultipartUpload> uploads = response.uploads();

       AbortMultipartUploadRequest abortMultipartUploadRequest;
       for (MultipartUpload upload : uploads) {
           abortMultipartUploadRequest = AbortMultipartUploadRequest.builder()
```

```
                .bucket(bucketName)
                .key(upload.key())
                .expectedBucketOwner(accountId)
                .uploadId(upload.uploadId())
                .build();

            AbortMultipartUploadResponse abortMultipartUploadResponse =
s3Client.abortMultipartUpload(abortMultipartUploadRequest);
            if (abortMultipartUploadResponse.sdkHttpResponse().isSuccessful()) {
                logger.info("Upload ID [{}] to bucket [{}] successfully
aborted.", upload.uploadId(), bucketName);
            }
        }
    }
```

To delete incomplete multipart uploads that were initiated before or after a date, you can selectively delete multipart uploads based on a point in time as shown in the following example.

```
    static void abortIncompleteMultipartUploadsOlderThan(Instant pointInTime) {
        ListMultipartUploadsRequest listMultipartUploadsRequest =
ListMultipartUploadsRequest.builder()
            .bucket(bucketName)
            .build();

        ListMultipartUploadsResponse response =
s3Client.listMultipartUploads(listMultipartUploadsRequest);
        List<MultipartUpload> uploads = response.uploads();

        AbortMultipartUploadRequest abortMultipartUploadRequest;
        for (MultipartUpload upload : uploads) {
            logger.info("Found multipartUpload with upload ID [{}], initiated
[{}]", upload.uploadId(), upload.initiated());
            if (upload.initiated().isBefore(pointInTime)) {
                abortMultipartUploadRequest =
AbortMultipartUploadRequest.builder()
                    .bucket(bucketName)
                    .key(upload.key())
                    .expectedBucketOwner(accountId)
                    .uploadId(upload.uploadId())
                    .build();
```

```
                AbortMultipartUploadResponse abortMultipartUploadResponse =
 s3Client.abortMultipartUpload(abortMultipartUploadRequest);
                if
 (abortMultipartUploadResponse.sdkHttpResponse().isSuccessful()) {
                    logger.info("Upload ID [{}] to bucket [{}] successfully
 aborted.", upload.uploadId(), bucketName);
                }
            }
        }
    }
```

If you have access to the upload ID after you begin a multipart upload, you can delete the in-progress upload by using the ID.

```
    static void abortMultipartUploadUsingUploadId() {
        String uploadId = startUploadReturningUploadId();
        AbortMultipartUploadResponse response = s3Client.abortMultipartUpload(b -
> b
            .uploadId(uploadId)
            .bucket(bucketName)
            .key(key));

        if (response.sdkHttpResponse().isSuccessful()) {
            logger.info("Upload ID [{}] to bucket [{}] successfully aborted.",
 uploadId, bucketName);
        }
    }
```

To consistently delete incomplete multipart uploads older that a certain number of days, set up a bucket lifecycle configuration for the bucket. The following example shows how to create a rule to delete incomplete uploads older than 7 days.

```
    static void abortMultipartUploadsUsingLifecycleConfig() {
        Collection<LifecycleRule> lifeCycleRules =
 List.of(LifecycleRule.builder()
            .abortIncompleteMultipartUpload(b -> b.
                daysAfterInitiation(7))
            .status("Enabled")
            .filter(SdkBuilder::build) // Filter element is required.
            .build());
```

```
        // If the action is successful, the service sends back an HTTP 200
response with an empty HTTP body.
        PutBucketLifecycleConfigurationResponse response =
s3Client.putBucketLifecycleConfiguration(b -> b
            .bucket(bucketName)
            .lifecycleConfiguration(b1 -> b1.rules(lifeCycleRules)));

        if (response.sdkHttpResponse().isSuccessful()) {
            logger.info("Rule to abort incomplete multipart uploads added to
bucket.");
        } else {
            logger.error("Unsuccessfully applied rule. HTTP status code is [{}]",
response.sdkHttpResponse().statusCode());
        }
    }
```

- For API details, see the following topics in *AWS SDK for Java 2.x API Reference*.
  - AbortMultipartUpload
  - ListMultipartUploads
  - PutBucketLifecycleConfiguration

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Detect PPE in images with Amazon Rekognition using an AWS SDK

The following code example shows how to build an app that uses Amazon Rekognition to detect Personal Protective Equipment (PPE) in images.

Java

SDK for Java 2.x

Shows how to create an AWS Lambda function that detects images with Personal Protective Equipment.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

Services used in this example

- DynamoDB
- Amazon Rekognition
- Amazon S3
- Amazon SES

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Detect entities in text extracted from an image using an AWS SDK

The following code example shows how to use Amazon Comprehend to detect entities in text extracted by Amazon Textract from an image that is stored in Amazon S3.

Python

SDK for Python (Boto3)

Shows how to use the AWS SDK for Python (Boto3) in a Jupyter notebook to detect entities in text that is extracted from an image. This example uses Amazon Textract to extract text from an image stored in Amazon Simple Storage Service (Amazon S3) and Amazon Comprehend to detect entities in the extracted text.

This example is a Jupyter notebook and must be run in an environment that can host notebooks. For instructions on how to run the example using Amazon SageMaker AI, see the directions in TextractAndComprehendNotebook.ipynb.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

Services used in this example

- Amazon Comprehend
- Amazon S3
- Amazon Textract

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Detect faces in an image using an AWS SDK

The following code example shows how to:

- Save an image in an Amazon S3 bucket.
- Use Amazon Rekognition to detect facial details, such as age range, gender, and emotion (such as smiling).
- Display those details.

Rust

SDK for Rust

Save the image in an Amazon S3 bucket with an **uploads** prefix, use Amazon Rekognition to detect facial details, such as age range, gender, and emotion (smiling, etc.), and display those details.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

Services used in this example

- Amazon Rekognition
- Amazon S3

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Detect objects in images with Amazon Rekognition using an AWS SDK

The following code examples show how to build an app that uses Amazon Rekognition to detect objects by category in images.

.NET

SDK for .NET

Shows how to use Amazon Rekognition .NET API to create an app that uses Amazon Rekognition to identify objects by category in images located in an Amazon Simple Storage Service (Amazon S3) bucket. The app sends the admin an email notification with the results using Amazon Simple Email Service (Amazon SES).

For complete source code and instructions on how to set up and run, see the full example on GitHub.

Services used in this example

- Amazon Rekognition
- Amazon S3
- Amazon SES

Java

SDK for Java 2.x

Shows how to use Amazon Rekognition Java API to create an app that uses Amazon Rekognition to identify objects by category in images located in an Amazon Simple Storage Service (Amazon S3) bucket. The app sends the admin an email notification with the results using Amazon Simple Email Service (Amazon SES).

For complete source code and instructions on how to set up and run, see the full example on GitHub.

Services used in this example

- Amazon Rekognition
- Amazon S3
- Amazon SES

JavaScript

SDK for JavaScript (v3)

Shows how to use Amazon Rekognition with the AWS SDK for JavaScript to create an app that uses Amazon Rekognition to identify objects by category in images located in an Amazon Simple Storage Service (Amazon S3) bucket. The app sends the admin an email notification with the results using Amazon Simple Email Service (Amazon SES).

Learn how to:

- Create an unauthenticated user using Amazon Cognito.
- Analyze images for objects using Amazon Rekognition.
- Verify an email address for Amazon SES.
- Send an email notification using Amazon SES.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

Services used in this example

- Amazon Rekognition
- Amazon S3
- Amazon SES

Kotlin

SDK for Kotlin

Shows how to use Amazon Rekognition Kotlin API to create an app that uses Amazon Rekognition to identify objects by category in images located in an Amazon Simple Storage Service (Amazon S3) bucket. The app sends the admin an email notification with the results using Amazon Simple Email Service (Amazon SES).

For complete source code and instructions on how to set up and run, see the full example on GitHub.

Services used in this example

- Amazon Rekognition
- Amazon S3

- Amazon SES

Python

SDK for Python (Boto3)

Shows you how to use the AWS SDK for Python (Boto3) to create a web application that lets you do the following:

- Upload photos to an Amazon Simple Storage Service (Amazon S3) bucket.
- Use Amazon Rekognition to analyze and label the photos.
- Use Amazon Simple Email Service (Amazon SES) to send email reports of image analysis.

This example contains two main components: a webpage written in JavaScript that is built with React, and a REST service written in Python that is built with Flask-RESTful.

You can use the React webpage to:

- Display a list of images that are stored in your S3 bucket.
- Upload images from your computer to your S3 bucket.
- Display images and labels that identify items that are detected in the image.
- Get a report of all images in your S3 bucket and send an email of the report.

The webpage calls the REST service. The service sends requests to AWS to perform the following actions:

- Get and filter the list of images in your S3 bucket.
- Upload photos to your S3 bucket.
- Use Amazon Rekognition to analyze individual photos and get a list of labels that identify items that are detected in the photo.
- Analyze all photos in your S3 bucket and use Amazon SES to email a report.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

Services used in this example

- Amazon Rekognition
- Amazon S3
- Amazon SES

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Detect people and objects in a video with Amazon Rekognition using an AWS SDK

The following code examples show how to detect people and objects in a video with Amazon Rekognition.

Java

SDK for Java 2.x

Shows how to use Amazon Rekognition Java API to create an app to detect faces and objects in videos located in an Amazon Simple Storage Service (Amazon S3) bucket. The app sends the admin an email notification with the results using Amazon Simple Email Service (Amazon SES).

For complete source code and instructions on how to set up and run, see the full example on GitHub.

Services used in this example

- Amazon Rekognition
- Amazon S3
- Amazon SES
- Amazon SNS
- Amazon SQS

Python

SDK for Python (Boto3)

Use Amazon Rekognition to detect faces, objects, and people in videos by starting asynchronous detection jobs. This example also configures Amazon Rekognition to notify an Amazon Simple Notification Service (Amazon SNS) topic when jobs complete and subscribes an Amazon Simple Queue Service (Amazon SQS) queue to the topic. When the queue receives a message about a job, the job is retrieved and the results are output.

This example is best viewed on GitHub. For complete source code and instructions on how to set up and run, see the full example on GitHub.

Services used in this example

- Amazon Rekognition
- Amazon S3
- Amazon SES
- Amazon SNS
- Amazon SQS

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Download S3 'directories' from an Amazon Simple Storage Service (Amazon S3) bucket

The following code example shows how to download and filter the contents of Amazon S3 bucket 'directories'.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

This example show how to use the S3TransferManager in the AWS SDK for Java 2.x to download 'directories' from an Amazon S3 bucket. It also demonstrates how to use DownloadFilters in the request.

```
    /**
     * For standard buckets, S3 provides the illusion of a directory structure
through the use of keys. When you upload
```

```
    * an object to an S3 bucket, you specify a key, which is essentially the
"path" to the object. The key can contain
    * forward slashes ("/") to make it appear as if the object is stored in a
directory structure, but this is just a
    * logical representation, not an actual directory.
    * <p><pre>
    * In this example, our S3 bucket contains the following objects:
    *
    * folder1/file1.txt
    * folder1/file2.txt
    * folder1/file3.txt
    * folder2/file1.txt
    * folder2/file2.txt
    * folder2/file3.txt
    * folder3/file1.txt
    * folder3/file2.txt
    * folder3/file3.txt
    *
    * When method `downloadS3Directories` is invoked with
    * `destinationPathURI` set to `/test`, the downloaded
    * directory looks like:
    *
    * |- test
    *    |- folder1
    *       |- file1.txt
    *       |- file2.txt
    *       |- file3.txt
    *    |- folder3
    *       |- file1.txt
    *       |- file2.txt
    *       |- file3.txt
    * </pre>
    *
    * @param transferManager    An S3TransferManager instance.
    * @param destinationPathURI local directory to hold the downloaded S3
'directories' and files.
    * @param bucketName         The S3 bucket that contains the 'directories' to
download.
    * @return The number of objects (files, in this case) that were downloaded.
    */
   public Integer downloadS3Directories(S3TransferManager transferManager,
                                        URI destinationPathURI, String
bucketName) {
```

```
        // Define the filters for which 'directories' we want to download.
        DownloadFilter folder1Filter = (S3Object s3Object) ->
 s3Object.key().startsWith("folder1/");
        DownloadFilter folder3Filter = (S3Object s3Object) ->
 s3Object.key().startsWith("folder3/");
        DownloadFilter folderFilter = s3Object ->
 folder1Filter.or(folder3Filter).test(s3Object);

        DirectoryDownload directoryDownload =
 transferManager.downloadDirectory(DownloadDirectoryRequest.builder()
                .destination(Paths.get(destinationPathURI))
                .bucket(bucketName)
                .filter(folderFilter)
                .build());
        CompletedDirectoryDownload completedDirectoryDownload =
 directoryDownload.completionFuture().join();

        Integer numFilesInFolder1 =
 Paths.get(destinationPathURI).resolve("folder1").toFile().list().length;
        Integer numFilesInFolder3 =
 Paths.get(destinationPathURI).resolve("folder3").toFile().list().length;

        try {
            assert numFilesInFolder1 == 3;
            assert numFilesInFolder3 == 3;
            assert !
Paths.get(destinationPathURI).resolve("folder2").toFile().exists(); // `folder2`
 was not downloaded.
        } catch (AssertionError e) {
            logger.error("An assertion failed.");
        }

        completedDirectoryDownload.failedTransfers()
                .forEach(fail -> logger.warn("Object failed to transfer  [{}]",
 fail.exception().getMessage()));
        return numFilesInFolder1 + numFilesInFolder3;
    }
```

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Download all objects in an Amazon Simple Storage Service (Amazon S3) bucket to a local directory

The following code example shows how to download all objects in an Amazon Simple Storage Service (Amazon S3) bucket to a local directory.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Use an S3TransferManager to download all S3 objects in the same S3 bucket. View the complete file and test.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.core.sync.RequestBody;
import software.amazon.awssdk.services.s3.model.ObjectIdentifier;
import software.amazon.awssdk.transfer.s3.S3TransferManager;
import software.amazon.awssdk.transfer.s3.model.CompletedDirectoryDownload;
import software.amazon.awssdk.transfer.s3.model.DirectoryDownload;
import software.amazon.awssdk.transfer.s3.model.DownloadDirectoryRequest;
import java.io.IOException;
import java.net.URI;
import java.net.URISyntaxException;
import java.nio.file.Files;
import java.nio.file.Path;
import java.nio.file.Paths;
import java.util.HashSet;
import java.util.Set;
import java.util.UUID;
import java.util.stream.Collectors;

    public Integer downloadObjectsToDirectory(S3TransferManager transferManager,
            URI destinationPathURI, String bucketName) {
        DirectoryDownload directoryDownload =
 transferManager.downloadDirectory(DownloadDirectoryRequest.builder()
```

```
                .destination(Paths.get(destinationPathURI))
                .bucket(bucketName)
                .build());
        CompletedDirectoryDownload completedDirectoryDownload =
directoryDownload.completionFuture().join();

        completedDirectoryDownload.failedTransfers()
                .forEach(fail -> logger.warn("Object [{}] failed to transfer",
fail.toString()));
        return completedDirectoryDownload.failedTransfers().size();
    }
```

- For API details, see DownloadDirectory in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Download a stream of unknown size from an Amazon S3 object using an AWS SDK

The following code example shows how to download a stream of unknown size from an Amazon S3 object.

Swift

SDK for Swift

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import ArgumentParser
import AWSClientRuntime
import AWSS3
import Foundation
import Smithy
import SmithyHTTPAPI
```

```
import SmithyStreams


    /// Download a file from the specified bucket.
    ///
    /// - Parameters:
    ///   - bucket: The Amazon S3 bucket name to get the file from.
    ///   - key: The name (or path) of the file to download from the bucket.
    ///   - destPath: The pathname on the local filesystem at which to store
    ///     the downloaded file.
    func downloadFile(bucket: String, key: String, destPath: String?) async
 throws {
        let fileURL: URL

        // If no destination path was provided, use the key as the name to use
        // for the file in the downloads folder.

        if destPath == nil {
            do {
                try fileURL = FileManager.default.url(
                    for: .downloadsDirectory,
                    in: .userDomainMask,
                    appropriateFor: URL(string: key),
                    create: true
                ).appendingPathComponent(key)
            } catch {
                throw TransferError.directoryError
            }
        } else {
            fileURL = URL(fileURLWithPath: destPath!)
        }

        let config = try await S3Client.S3ClientConfiguration(region: region)
        let s3Client = S3Client(config: config)

        // Create a `FileHandle` referencing the local destination. Then
        // create a `ByteStream` from that.

        FileManager.default.createFile(atPath: fileURL.path, contents: nil,
 attributes: nil)
        let fileHandle = try FileHandle(forWritingTo: fileURL)

        // Download the file using `GetObject`.
```

```
        let getInput = GetObjectInput(
            bucket: bucket,
            key: key
        )

        do {
            let getOutput = try await s3Client.getObject(input: getInput)

            guard let body = getOutput.body else {
                throw TransferError.downloadError("Error: No data returned for
download")
            }

            // If the body is returned as a `Data` object, write that to the
            // file. If it's a stream, read the stream chunk by chunk,
            // appending each chunk to the destination file.

            switch body {
            case .data:
                guard let data = try await body.readData() else {
                    throw TransferError.downloadError("Download error")
                }

                // Write the `Data` to the file.

                do {
                    try data.write(to: fileURL)
                } catch {
                    throw TransferError.writeError
                }
                break

            case .stream(let stream as ReadableStream):
                while (true) {
                    let chunk = try await stream.readAsync(upToCount: 5 * 1024 *
1024)
                    guard let chunk = chunk else {
                        break
                    }

                    // Write the chunk to the destination file.

                    do {
                        try fileHandle.write(contentsOf: chunk)
```

```
                    } catch {
                        throw TransferError.writeError
                    }
                }

                break
            default:
                throw TransferError.downloadError("Received data is unknown
object type")
            }
        } catch {
            throw TransferError.downloadError("Error downloading the file:
\(error)")
        }

        print("File downloaded to \(fileURL.path).")
    }
```

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Get an Amazon S3 object from a Multi-Region Access Point by using an AWS SDK

The following code example shows how to get an object from a Multi-Region Access Point.

Kotlin

SDK for Kotlin

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Configure the S3 client to use the Asymmetric Sigv4 (Sigv4a) signing algorithm.

```
        suspend fun createS3Client(): S3Client {
```

```
            // Configure your S3Client to use the Asymmetric SigV4 (SigV4a)
signing algorithm.
            val sigV4aScheme = SigV4AsymmetricAuthScheme(DefaultAwsSigner)
            val s3 = S3Client.fromEnvironment {
                authSchemes = listOf(sigV4aScheme)
            }
            return s3
        }
```

Use the Multi-Region Access Point ARN instead of a bucket name to retrieve the object.

```
    suspend fun getObjectFromMrap(
        s3: S3Client,
        mrapArn: String,
        keyName: String,
    ): String? {
        val request = GetObjectRequest {
            bucket = mrapArn // Use the ARN instead of the bucket name for object
operations.
            key = keyName
        }

        var stringObj: String? = null
        s3.getObject(request) { resp ->
            stringObj = resp.body?.decodeToString()
            if (stringObj != null) {
                println("Successfully read $keyName from $mrapArn")
            }
        }
        return stringObj
    }
```

- For more information, see AWS SDK for Kotlin developer guide.
- For API details, see GetObject in *AWS SDK for Kotlin API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Get an object from an Amazon S3 bucket using an AWS SDK, specifying an If-Modified-Since header

The following code example shows how to read data from an object in an S3 bucket, but only if that bucket has not been modified since the last retrieval time.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
use aws_sdk_s3::{
    error::SdkError,
    primitives::{ByteStream, DateTime, DateTimeFormat},
    Client,
};
use s3_code_examples::error::S3ExampleError;
use tracing::{error, warn};

const KEY: &str = "key";
const BODY: &str = "Hello, world!";

/// Demonstrate how `if-modified-since` reports that matching objects haven't
/// changed.
///
/// # Steps
/// - Create a bucket.
/// - Put an object in the bucket.
/// - Get the bucket headers.
/// - Get the bucket headers again but only if modified.
/// - Delete the bucket.
#[tokio::main]
async fn main() -> Result<(), S3ExampleError> {
    tracing_subscriber::fmt::init();

    // Get a new UUID to use when creating a unique bucket name.
    let uuid = uuid::Uuid::new_v4();
```

```
    // Load the AWS configuration from the environment.
    let client = Client::new(&aws_config::load_from_env().await);

    // Generate a unique bucket name using the previously generated UUID.
    // Then create a new bucket with that name.
    let bucket_name = format!("if-modified-since-{uuid}");
    client
        .create_bucket()
        .bucket(bucket_name.clone())
        .send()
        .await?;

    // Create a new object in the bucket whose name is `KEY` and whose
    // contents are `BODY`.
    let put_object_output = client
        .put_object()
        .bucket(bucket_name.as_str())
        .key(KEY)
        .body(ByteStream::from_static(BODY.as_bytes()))
        .send()
        .await;

    // If the `PutObject` succeeded, get the eTag string from it. Otherwise,
    // report an error and return an empty string.
    let e_tag_1 = match put_object_output {
        Ok(put_object) => put_object.e_tag.unwrap(),
        Err(err) => {
            error!("{err:?}");
            String::new()
        }
    };

    // Request the object's headers.
    let head_object_output = client
        .head_object()
        .bucket(bucket_name.as_str())
        .key(KEY)
        .send()
        .await;

    // If the `HeadObject` request succeeded, create a tuple containing the
    // values of the headers `last-modified` and `etag`. If the request
    // failed, return the error in a tuple instead.
```

```
    let (last_modified, e_tag_2) = match head_object_output {
        Ok(head_object) => (
            Ok(head_object.last_modified().cloned().unwrap()),
            head_object.e_tag.unwrap(),
        ),
        Err(err) => (Err(err), String::new()),
    };

    warn!("last modified: {last_modified:?}");
    assert_eq!(
        e_tag_1, e_tag_2,
        "PutObject and first GetObject had differing eTags"
    );

    println!("First value of last_modified: {last_modified:?}");
    println!("First tag: {}\n", e_tag_1);

    // Send a second `HeadObject` request. This time, the `if_modified_since`
    // option is specified, giving the `last_modified` value returned by the
    // first call to `HeadObject`.
    //
    // Since the object hasn't been changed, and there are no other objects in
    // the bucket, there should be no matching objects.

    let head_object_output = client
        .head_object()
        .bucket(bucket_name.as_str())
        .key(KEY)
        .if_modified_since(last_modified.unwrap())
        .send()
        .await;

    // If the `HeadObject` request succeeded, the result is a typle containing
    // the `last_modified` and `e_tag_1` properties. This is _not_ the expected
    // result.
    //
    // The _expected_ result of the second call to `HeadObject` is an
    // `SdkError::ServiceError` containing the HTTP error response. If that's
    // the case and the HTTP status is 304 (not modified), the output is a
    // tuple containing the values of the HTTP `last-modified` and `etag`
    // headers.
    //
    // If any other HTTP error occurred, the error is returned as an
    // `SdkError::ServiceError`.
```

```
    let (last_modified, e_tag_2) = match head_object_output {
        Ok(head_object) => (
            Ok(head_object.last_modified().cloned().unwrap()),
            head_object.e_tag.unwrap(),
        ),
        Err(err) => match err {
            SdkError::ServiceError(err) => {
                // Get the raw HTTP response. If its status is 304, the
                // object has not changed. This is the expected code path.
                let http = err.raw();
                match http.status().as_u16() {
                    // If the HTTP status is 304: Not Modified, return a
                    // tuple containing the values of the HTTP
                    // `last-modified` and `etag` headers.
                    304 => (
                        Ok(DateTime::from_str(
                            http.headers().get("last-modified").unwrap(),
                            DateTimeFormat::HttpDate,
                        )
                        .unwrap()),
                        http.headers().get("etag").map(|t| t.into()).unwrap(),
                    ),
                    // Any other HTTP status code is returned as an
                    // `SdkError::ServiceError`.
                    _ => (Err(SdkError::ServiceError(err)), String::new()),
                }
            }
            // Any other kind of error is returned in a tuple containing the
            // error and an empty string.
            _ => (Err(err), String::new()),
        },
    };

    warn!("last modified: {last_modified:?}");
    assert_eq!(
        e_tag_1, e_tag_2,
        "PutObject and second HeadObject had different eTags"
    );

    println!("Second value of last modified: {last_modified:?}");
    println!("Second tag: {}", e_tag_2);

    // Clean up by deleting the object and the bucket.
```

```
    client
        .delete_object()
        .bucket(bucket_name.as_str())
        .key(KEY)
        .send()
        .await?;

    client
        .delete_bucket()
        .bucket(bucket_name.as_str())
        .send()
        .await?;

    Ok(())
}
```

- For API details, see GetObject in *AWS SDK for Rust API reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Get started with Amazon S3 using the CLI

The following code example shows how to:

- Create an S3 bucket with unique naming and regional configuration
- Configure bucket security settings including public access blocking
- Enable versioning and default encryption for data protection
- Upload objects with and without custom metadata
- Download objects from the bucket to local storage
- Copy objects within the bucket to organize data in folders
- List bucket contents and objects with specific prefixes
- Add tags to buckets for resource management
- Clean up all resources including versioned objects

Bash

AWS CLI with Bash script

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the Sample developer tutorials repository.

```
#!/bin/bash

# Amazon S3 Getting Started Tutorial Script
# This script demonstrates basic S3 operations including:
# - Creating a bucket
# - Configuring bucket settings
# - Uploading, downloading, and copying objects
# - Deleting objects and buckets

# Latest fixes:
# 1. Fixed folder creation using temporary file
# 2. Corrected versioned object deletion in cleanup
# 3. Improved error handling for cleanup operations

# Set up error handling
set -e
trap 'cleanup_handler $?' EXIT

# Log file setup
LOG_FILE="s3-tutorial-$(date +%Y%m%d-%H%M%S).log"
exec > >(tee -a "$LOG_FILE") 2>&1

# Function to log messages
log() {
    echo "[$(date +"%Y-%m-%d %H:%M:%S")] $1"
}

# Function to handle errors
handle_error() {
    log "ERROR: $1"
    exit 1
}
```

```
# Function to check if a bucket exists
bucket_exists() {
    if aws s3api head-bucket --bucket "$1" 2>/dev/null; then
        return 0
    else
        return 1
    fi
}

# Function to delete all versions of objects in a bucket
delete_all_versions() {
    local bucket=$1
    log "Deleting all object versions from bucket $bucket..."

    # Get and delete all versions
    versions=$(aws s3api list-object-versions --bucket "$bucket" --query
 'Versions[].{Key:Key,VersionId:VersionId}' --output json 2>/dev/null)
    if [ -n "$versions" ] && [ "$versions" != "null" ]; then
        echo "{\"Objects\": $versions}" | aws s3api delete-objects --bucket
 "$bucket" --delete file:///dev/stdin >/dev/null 2>&1 || log "Warning: Some
 versions could not be deleted"
    fi

    # Get and delete all delete markers
    markers=$(aws s3api list-object-versions --bucket "$bucket" --query
 'DeleteMarkers[].{Key:Key,VersionId:VersionId}' --output json 2>/dev/null)
    if [ -n "$markers" ] && [ "$markers" != "null" ]; then
        echo "{\"Objects\": $markers}" | aws s3api delete-objects --bucket
 "$bucket" --delete file:///dev/stdin >/dev/null 2>&1 || log "Warning: Some
 delete markers could not be deleted"
    fi
}

# Function to handle cleanup on exit
cleanup_handler() {
    local exit_code=$1

    # Only run cleanup if it hasn't been run already
    if [ -z "$CLEANUP_DONE" ]; then
        cleanup
    fi

    exit $exit_code
```

```
}

# Function to clean up resources
cleanup() {
    log "Starting cleanup process..."
    CLEANUP_DONE=1

    # List all resources created for confirmation
    log "Resources created:"
    if [ -n "$BUCKET_NAME" ]; then
        log "- S3 Bucket: $BUCKET_NAME"

        # Only try to list objects if the bucket exists
        if bucket_exists "$BUCKET_NAME"; then
            # Check if any objects were created
            OBJECTS=$(aws s3api list-objects-v2 --bucket "$BUCKET_NAME" --query
 'Contents[].Key' --output text 2>/dev/null || echo "")
            if [ -n "$OBJECTS" ]; then
                log "- Objects in bucket:"
                echo "$OBJECTS" | tr '\t' '\n' | while read -r obj; do
                    log "  - $obj"
                done
            fi

            # Ask for confirmation before cleanup
            read -p "Do you want to proceed with cleanup and delete all
 resources? (y/n): " confirm
            if [[ $confirm != [yY] && $confirm != [yY][eE][sS] ]]; then
                log "Cleanup aborted by user."
                return
            fi

            # Delete all versions of objects
            delete_all_versions "$BUCKET_NAME"

            # Delete the bucket
            log "Deleting bucket $BUCKET_NAME..."
            aws s3api delete-bucket --bucket "$BUCKET_NAME" || log "Warning:
 Failed to delete bucket"
        else
            log "Bucket $BUCKET_NAME does not exist, skipping cleanup"
        fi
    fi
```

```
    # Clean up local files
    log "Removing local files..."
    rm -f sample-file.txt sample-document.txt downloaded-sample-file.txt empty-
file.tmp

    log "Cleanup completed."
}

# Generate a random bucket name
generate_bucket_name() {
    local hex_id
    hex_id=$(openssl rand -hex 6)
    echo "demo-s3-bucket-$hex_id"
}

# Main script execution
main() {
    log "Starting Amazon S3 Getting Started Tutorial"

    # Generate a unique bucket name
    BUCKET_NAME=$(generate_bucket_name)
    log "Generated bucket name: $BUCKET_NAME"

    # Step 1: Create a bucket
    log "Step 1: Creating S3 bucket..."

    # Get the current region or default to us-east-1
    REGION=$(aws configure get region)
    REGION=${REGION:-us-east-1}
    log "Using region: $REGION"

    if [ "$REGION" = "us-east-1" ]; then
        aws s3api create-bucket --bucket "$BUCKET_NAME" || handle_error "Failed
 to create bucket"
    else
        aws s3api create-bucket \
            --bucket "$BUCKET_NAME" \
            --region "$REGION" \
            --create-bucket-configuration LocationConstraint="$REGION" ||
 handle_error "Failed to create bucket"
    fi
    log "Bucket created successfully"

    # Configure bucket settings
```

```
   log "Configuring bucket settings..."

   # Block public access (security best practice)
   log "Blocking public access..."
   aws s3api put-public-access-block \
       --bucket "$BUCKET_NAME" \
       --public-access-block-configuration
"BlockPublicAcls=true,IgnorePublicAcls=true,BlockPublicPolicy=true,RestrictPublicBuckets
|| handle_error "Failed to configure public access block"

   # Enable versioning
   log "Enabling versioning..."
   aws s3api put-bucket-versioning \
       --bucket "$BUCKET_NAME" \
       --versioning-configuration Status=Enabled || handle_error "Failed to
enable versioning"

   # Set default encryption
   log "Setting default encryption..."
   aws s3api put-bucket-encryption \
       --bucket "$BUCKET_NAME" \
       --server-side-encryption-configuration '{"Rules":
[{"ApplyServerSideEncryptionByDefault": {"SSEAlgorithm": "AES256"}}]}' ||
handle_error "Failed to set encryption"

   # Step 2: Upload an object
   log "Step 2: Uploading objects to bucket..."

   # Create a sample file
   echo "This is a sample file for the S3 tutorial." > sample-file.txt

   # Upload the file
   aws s3api put-object \
       --bucket "$BUCKET_NAME" \
       --key "sample-file.txt" \
       --body "sample-file.txt" || handle_error "Failed to upload object"
   log "Object uploaded successfully"

   # Upload with metadata
   echo "This is a document with metadata." > sample-document.txt
   aws s3api put-object \
       --bucket "$BUCKET_NAME" \
       --key "documents/sample-document.txt" \
       --body "sample-document.txt" \
```

```
        --content-type "text/plain" \
        --metadata "author=AWSDocumentation,purpose=tutorial" || handle_error
"Failed to upload object with metadata"
   log "Object with metadata uploaded successfully"

   # Step 3: Download an object
   log "Step 3: Downloading object from bucket..."
   aws s3api get-object \
       --bucket "$BUCKET_NAME" \
       --key "sample-file.txt" \
       "downloaded-sample-file.txt" || handle_error "Failed to download object"
   log "Object downloaded successfully"

   # Check if an object exists
   log "Checking if object exists..."
   aws s3api head-object \
       --bucket "$BUCKET_NAME" \
       --key "sample-file.txt" || handle_error "Object does not exist"
   log "Object exists"

   # Step 4: Copy object to a folder
   log "Step 4: Copying object to a folder..."

   # Create a folder structure using a temporary empty file
   log "Creating folder structure..."
   touch empty-file.tmp
   aws s3api put-object \
       --bucket "$BUCKET_NAME" \
       --key "favorite-files/" \
       --body empty-file.tmp || handle_error "Failed to create folder"

   # Copy the object
   log "Copying object..."
   aws s3api copy-object \
       --bucket "$BUCKET_NAME" \
       --copy-source "$BUCKET_NAME/sample-file.txt" \
       --key "favorite-files/sample-file.txt" || handle_error "Failed to copy
object"
   log "Object copied successfully"

   # List objects in the bucket
   log "Listing all objects in the bucket..."
   aws s3api list-objects-v2 \
       --bucket "$BUCKET_NAME" \
```

```
        --query 'Contents[].Key' \
        --output table || handle_error "Failed to list objects"

    # List objects with a specific prefix
    log "Listing objects in the favorite-files folder..."
    aws s3api list-objects-v2 \
        --bucket "$BUCKET_NAME" \
        --prefix "favorite-files/" \
        --query 'Contents[].Key' \
        --output table || handle_error "Failed to list objects with prefix"

    # Add tags to the bucket
    log "Adding tags to the bucket..."
    aws s3api put-bucket-tagging \
        --bucket "$BUCKET_NAME" \
        --tagging 'TagSet=[{Key=Project,Value=S3Tutorial},
{Key=Environment,Value=Demo}]' || handle_error "Failed to add tags"
    log "Tags added successfully"

    log "Tutorial completed successfully!"
}

# Execute the main function
main
```

- For API details, see the following topics in *AWS CLI Command Reference*.
  - CopyObject
  - CreateBucket
  - DeleteBucket
  - DeleteObjects
  - GetObject
  - HeadObject
  - ListObjectVersions
  - ListObjectsV2
  - PutBucketEncryption
  - PutBucketTagging
  - PutBucketVersioning

- PutObject
- PutPublicAccessBlock

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Get started with encryption for Amazon S3 objects using an AWS SDK

The following code example shows how to get started with encryption for Amazon S3 objects.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
using System;
using System.IO;
using System.Security.Cryptography;
using System.Threading.Tasks;
using Amazon.S3;
using Amazon.S3.Model;

/// <summary>
/// This example shows how to apply client encryption to an object in an
/// Amazon Simple Storage Service (Amazon S3) bucket.
/// </summary>
public class SSEClientEncryption
{
    public static async Task Main()
    {
        string bucketName = "amzn-s3-demo-bucket";
        string keyName = "exampleobject.txt";
        string copyTargetKeyName = "examplecopy.txt";

        // If the AWS Region defined for your default user is different
```

```
            // from the Region where your Amazon S3 bucket is located,
            // pass the Region name to the Amazon S3 client object's constructor.
            // For example: RegionEndpoint.USWest2.
            IAmazonS3 client = new AmazonS3Client();

            try
            {
                // Create an encryption key.
                Aes aesEncryption = Aes.Create();
                aesEncryption.KeySize = 256;
                aesEncryption.GenerateKey();
                string base64Key = Convert.ToBase64String(aesEncryption.Key);

                // Upload the object.
                PutObjectRequest putObjectRequest = await
UploadObjectAsync(client, bucketName, keyName, base64Key);

                // Download the object and verify that its contents match what
you uploaded.
                await DownloadObjectAsync(client, bucketName, keyName, base64Key,
putObjectRequest);

                // Get object metadata and verify that the object uses AES-256
encryption.
                await GetObjectMetadataAsync(client, bucketName, keyName,
base64Key);

                // Copy both the source and target objects using server-side
encryption with
                // an encryption key.
                await CopyObjectAsync(client, bucketName, keyName,
copyTargetKeyName, aesEncryption, base64Key);
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Error: {ex.Message}");
            }
        }

        /// <summary>
        /// Uploads an object to an Amazon S3 bucket.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used to
call
```

```
        /// PutObjectAsync.</param>
        /// <param name="bucketName">The name of the Amazon S3 bucket to which
 the
        /// object will be uploaded.</param>
        /// <param name="keyName">The name of the object to upload to the Amazon
 S3
        /// bucket.</param>
        /// <param name="base64Key">The encryption key.</param>
        /// <returns>The PutObjectRequest object for use by
 DownloadObjectAsync.</returns>
        public static async Task<PutObjectRequest> UploadObjectAsync(
            IAmazonS3 client,
            string bucketName,
            string keyName,
            string base64Key)
        {
            PutObjectRequest putObjectRequest = new PutObjectRequest
            {
                BucketName = bucketName,
                Key = keyName,
                ContentBody = "sample text",
                ServerSideEncryptionCustomerMethod =
 ServerSideEncryptionCustomerMethod.AES256,
                ServerSideEncryptionCustomerProvidedKey = base64Key,
            };
            PutObjectResponse putObjectResponse = await
 client.PutObjectAsync(putObjectRequest);
            return putObjectRequest;
        }

        /// <summary>
        /// Downloads an encrypted object from an Amazon S3 bucket.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used to
 call
        /// GetObjectAsync.</param>
        /// <param name="bucketName">The name of the Amazon S3 bucket where the
 object
        /// is located.</param>
        /// <param name="keyName">The name of the Amazon S3 object to download.</
param>
        /// <param name="base64Key">The encryption key used to encrypt the
        /// object.</param>
        /// <param name="putObjectRequest">The PutObjectRequest used to upload
```

```
        /// the object.</param>
        public static async Task DownloadObjectAsync(
            IAmazonS3 client,
            string bucketName,
            string keyName,
            string base64Key,
            PutObjectRequest putObjectRequest)
        {
            GetObjectRequest getObjectRequest = new GetObjectRequest
            {
                BucketName = bucketName,
                Key = keyName,

                // Provide encryption information for the object stored in Amazon
S3.
                ServerSideEncryptionCustomerMethod =
ServerSideEncryptionCustomerMethod.AES256,
                ServerSideEncryptionCustomerProvidedKey = base64Key,
            };

            using (GetObjectResponse getResponse = await
client.GetObjectAsync(getObjectRequest))
            using (StreamReader reader = new
StreamReader(getResponse.ResponseStream))
            {
                string content = reader.ReadToEnd();
                if (string.Compare(putObjectRequest.ContentBody, content) == 0)
                {
                    Console.WriteLine("Object content is same as we uploaded");
                }
                else
                {
                    Console.WriteLine("Error...Object content is not same.");
                }

                if (getResponse.ServerSideEncryptionCustomerMethod ==
ServerSideEncryptionCustomerMethod.AES256)
                {
                    Console.WriteLine("Object encryption method is AES256, same
as we set");
                }
                else
                {
```

```
                    Console.WriteLine("Error...Object encryption method is not
the same as AES256 we set");
                }
            }
        }

        /// <summary>
        /// Retrieves the metadata associated with an Amazon S3 object.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used
        /// to call GetObjectMetadataAsync.</param>
        /// <param name="bucketName">The name of the Amazon S3 bucket containing
the
        /// object for which we want to retrieve metadata.</param>
        /// <param name="keyName">The name of the object for which we wish to
        /// retrieve the metadata.</param>
        /// <param name="base64Key">The encryption key associated with the
        /// object.</param>
        public static async Task GetObjectMetadataAsync(
            IAmazonS3 client,
            string bucketName,
            string keyName,
            string base64Key)
        {
            GetObjectMetadataRequest getObjectMetadataRequest = new
GetObjectMetadataRequest
            {
                BucketName = bucketName,
                Key = keyName,

                // The object stored in Amazon S3 is encrypted, so provide the
necessary encryption information.
                ServerSideEncryptionCustomerMethod =
ServerSideEncryptionCustomerMethod.AES256,
                ServerSideEncryptionCustomerProvidedKey = base64Key,
            };

            GetObjectMetadataResponse getObjectMetadataResponse = await
client.GetObjectMetadataAsync(getObjectMetadataRequest);
            Console.WriteLine("The object metadata show encryption method used
is: {0}", getObjectMetadataResponse.ServerSideEncryptionCustomerMethod);
        }

        /// <summary>
```

```
        /// Copies an encrypted object from one Amazon S3 bucket to another.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used to
call
        /// CopyObjectAsync.</param>
        /// <param name="bucketName">The Amazon S3 bucket containing the object
        /// to copy.</param>
        /// <param name="keyName">The name of the object to copy.</param>
        /// <param name="copyTargetKeyName">The Amazon S3 bucket to which the
object
        /// will be copied.</param>
        /// <param name="aesEncryption">The encryption type to use.</param>
        /// <param name="base64Key">The encryption key to use.</param>
        public static async Task CopyObjectAsync(
            IAmazonS3 client,
            string bucketName,
            string keyName,
            string copyTargetKeyName,
            Aes aesEncryption,
            string base64Key)
        {
            aesEncryption.GenerateKey();
            string copyBase64Key = Convert.ToBase64String(aesEncryption.Key);

            CopyObjectRequest copyRequest = new CopyObjectRequest
            {
                SourceBucket = bucketName,
                SourceKey = keyName,
                DestinationBucket = bucketName,
                DestinationKey = copyTargetKeyName,

                // Information about the source object's encryption.
                CopySourceServerSideEncryptionCustomerMethod =
ServerSideEncryptionCustomerMethod.AES256,
                CopySourceServerSideEncryptionCustomerProvidedKey = base64Key,

                // Information about the target object's encryption.
                ServerSideEncryptionCustomerMethod =
ServerSideEncryptionCustomerMethod.AES256,
                ServerSideEncryptionCustomerProvidedKey = copyBase64Key,
            };
            await client.CopyObjectAsync(copyRequest);
        }
    }
```

- For API details, see the following topics in *AWS SDK for .NET API Reference*.
  - CopyObject
  - GetObject
  - GetObjectMetadata

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Get started with tags for Amazon S3 objects using an AWS SDK

The following code example shows how to get started with tags for Amazon S3 objects.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
using System;
using System.Collections.Generic;
using System.Threading.Tasks;
using Amazon;
using Amazon.S3;
using Amazon.S3.Model;

/// <summary>
/// This example shows how to work with tags in Amazon Simple Storage
/// Service (Amazon S3) objects.
/// </summary>
public class ObjectTag
{
    public static async Task Main()
```

```
        {
            string bucketName = "amzn-s3-demo-bucket";
            string keyName = "newobject.txt";
            string filePath = @"*** file path ***";

            // Specify your bucket region (an example region is shown).
            RegionEndpoint bucketRegion = RegionEndpoint.USWest2;

            var client = new AmazonS3Client(bucketRegion);
            await PutObjectsWithTagsAsync(client, bucketName, keyName, filePath);
        }

        /// <summary>
        /// This method uploads an object with tags. It then shows the tag
        /// values, changes the tags, and shows the new tags.
        /// </summary>
        /// <param name="client">The Initialized Amazon S3 client object used
        /// to call the methods to create and change an objects tags.</param>
        /// <param name="bucketName">A string representing the name of the
        /// bucket where the object will be stored.</param>
        /// <param name="keyName">A string representing the key name of the
        /// object to be tagged.</param>
        /// <param name="filePath">The directory location and file name of the
        /// object to be uploaded to the Amazon S3 bucket.</param>
        public static async Task PutObjectsWithTagsAsync(IAmazonS3 client, string
 bucketName, string keyName, string filePath)
        {
            try
            {
                // Create an object with tags.
                var putRequest = new PutObjectRequest
                {
                    BucketName = bucketName,
                    Key = keyName,
                    FilePath = filePath,
                    TagSet = new List<Tag>
                    {
                        new Tag { Key = "Keyx1", Value = "Value1" },
                        new Tag { Key = "Keyx2", Value = "Value2" },
                    },
                };

                PutObjectResponse response = await
 client.PutObjectAsync(putRequest);
```

```
                // Now retrieve the new object's tags.
                GetObjectTaggingRequest getTagsRequest = new
GetObjectTaggingRequest()
                {
                    BucketName = bucketName,
                    Key = keyName,
                };

                GetObjectTaggingResponse objectTags = await
client.GetObjectTaggingAsync(getTagsRequest);

                // Display the tag values.
                objectTags.Tagging
                    .ForEach(t => Console.WriteLine($"Key: {t.Key}, Value:
{t.Value}"));

                Tagging newTagSet = new Tagging()
                {
                    TagSet = new List<Tag>
                    {
                        new Tag { Key = "Key3", Value = "Value3" },
                        new Tag { Key = "Key4", Value = "Value4" },
                    },
                };

                PutObjectTaggingRequest putObjTagsRequest = new
PutObjectTaggingRequest()
                {
                    BucketName = bucketName,
                    Key = keyName,
                    Tagging = newTagSet,
                };

                PutObjectTaggingResponse response2 = await
client.PutObjectTaggingAsync(putObjTagsRequest);

                // Retrieve the tags again and show the values.
                GetObjectTaggingRequest getTagsRequest2 = new
GetObjectTaggingRequest()
                {
                    BucketName = bucketName,
                    Key = keyName,
                };
```

```
                GetObjectTaggingResponse objectTags2 = await
 client.GetObjectTaggingAsync(getTagsRequest2);

                objectTags2.Tagging
                    .ForEach(t => Console.WriteLine($"Key: {t.Key}, Value:
 {t.Value}"));
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine(
                        $"Error: '{ex.Message}'");
            }
        }
    }
```

- For API details, see GetObjectTagging in *AWS SDK for .NET API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Work with Amazon S3 object lock features using an AWS SDK

The following code examples show how to work with S3 object lock features.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Run an interactive scenario demonstrating Amazon S3 object lock features.

```
using Amazon.S3;
using Amazon.S3.Model;
```

```
using Microsoft.Extensions.Configuration;
using Microsoft.Extensions.DependencyInjection;
using Microsoft.Extensions.Hosting;
using Microsoft.Extensions.Logging;
using Microsoft.Extensions.Logging.Console;
using Microsoft.Extensions.Logging.Debug;

namespace S3ObjectLockScenario;

public static class S3ObjectLockWorkflow
{
    /*
    Before running this .NET code example, set up your development environment,
 including your credentials.

    This .NET example performs the following tasks:
        1. Create test Amazon Simple Storage Service (S3) buckets with different
 lock policies.
        2. Upload sample objects to each bucket.
        3. Set some Legal Hold and Retention Periods on objects and buckets.
        4. Investigate lock policies by viewing settings or attempting to delete
 or overwrite objects.
        5. Clean up objects and buckets.
   */

    public static S3ActionsWrapper _s3ActionsWrapper = null!;
    public static IConfiguration _configuration = null!;
    private static string _resourcePrefix = null!;
    private static string noLockBucketName = null!;
    private static string lockEnabledBucketName = null!;
    private static string retentionAfterCreationBucketName = null!;
    private static List<string> bucketNames = new List<string>();
    private static List<string> fileNames = new List<string>();

    public static async Task Main(string[] args)
    {
        // Set up dependency injection for the Amazon service.
        using var host = Host.CreateDefaultBuilder(args)
            .ConfigureLogging(logging =>
                logging.AddFilter("System", LogLevel.Debug)
                    .AddFilter<DebugLoggerProvider>("Microsoft",
 LogLevel.Information)
                    .AddFilter<ConsoleLoggerProvider>("Microsoft",
 LogLevel.Trace))
```

```
            .ConfigureServices((_, services) =>
                services.AddAWSService<IAmazonS3>()
                    .AddTransient<S3ActionsWrapper>()
            )
            .Build();

        _configuration = new ConfigurationBuilder()
            .SetBasePath(Directory.GetCurrentDirectory())
            .AddJsonFile("settings.json") // Load settings from .json file.
            .AddJsonFile("settings.local.json",
                true) // Optionally, load local settings.
            .Build();

        ConfigurationSetup();

        ServicesSetup(host);

        try
        {
            Console.WriteLine(new string('-', 80));
            Console.WriteLine("Welcome to the Amazon Simple Storage Service (S3)
 Object Locking Feature Scenario.");
            Console.WriteLine(new string('-', 80));
            await Setup(true);

            await DemoActionChoices();

            Console.WriteLine(new string('-', 80));
            Console.WriteLine("Cleaning up resources.");
            Console.WriteLine(new string('-', 80));
            await Cleanup(true);

            Console.WriteLine(new string('-', 80));
            Console.WriteLine("Amazon S3 Object Locking Scenario is complete.");
            Console.WriteLine(new string('-', 80));
        }
        catch (Exception ex)
        {
            Console.WriteLine(new string('-', 80));
            Console.WriteLine($"There was a problem: {ex.Message}");
            await Cleanup(true);
            Console.WriteLine(new string('-', 80));
        }
    }
```

```
    /// <summary>
    /// Populate the services for use within the console application.
    /// </summary>
    /// <param name="host">The services host.</param>
    private static void ServicesSetup(IHost host)
    {
        _s3ActionsWrapper = host.Services.GetRequiredService<S3ActionsWrapper>();
    }

    /// <summary>
    /// Any setup operations needed.
    /// </summary>
    public static void ConfigurationSetup()
    {
        _resourcePrefix = _configuration["resourcePrefix"] ?? "dotnet-example";

        noLockBucketName = _resourcePrefix + "-no-lock";
        lockEnabledBucketName = _resourcePrefix + "-lock-enabled";
        retentionAfterCreationBucketName = _resourcePrefix + "-retention-after-
creation";

        bucketNames.Add(noLockBucketName);
        bucketNames.Add(lockEnabledBucketName);
        bucketNames.Add(retentionAfterCreationBucketName);
    }

    // <summary>
    /// Deploy necessary resources for the scenario.
    /// </summary>
    /// <param name="interactive">True to run as interactive.</param>
    /// <returns>True if successful.</returns>
    public static async Task<bool> Setup(bool interactive)
    {
        Console.WriteLine(
            "\nFor this scenario, we will use the AWS SDK for .NET to create
 several S3\n" +
            "buckets and files to demonstrate working with S3 locking features.
\n");

        Console.WriteLine(new string('-', 80));
        Console.WriteLine("Press Enter when you are ready to start.");
        if (interactive)
            Console.ReadLine();
```

```
        Console.WriteLine("\nS3 buckets can be created either with or without
object lock enabled.");
        await _s3ActionsWrapper.CreateBucketWithObjectLock(noLockBucketName,
false);
        await _s3ActionsWrapper.CreateBucketWithObjectLock(lockEnabledBucketName,
true);
        await
_s3ActionsWrapper.CreateBucketWithObjectLock(retentionAfterCreationBucketName,
false);

        Console.WriteLine("Press Enter to continue.");
        if (interactive)
            Console.ReadLine();

        Console.WriteLine("\nA bucket can be configured to use object locking
with a default retention period.");
        await
_s3ActionsWrapper.ModifyBucketDefaultRetention(retentionAfterCreationBucketName,
true,
            ObjectLockRetentionMode.Governance, DateTime.UtcNow.AddDays(1));

        Console.WriteLine("Press Enter to continue.");
        if (interactive)
            Console.ReadLine();

        Console.WriteLine("\nObject lock policies can also be added to existing
buckets.");
        await _s3ActionsWrapper.EnableObjectLockOnBucket(lockEnabledBucketName);

        Console.WriteLine("Press Enter to continue.");
        if (interactive)
            Console.ReadLine();

        // Upload some files to the buckets.
        Console.WriteLine("\nNow let's add some test files:");
        var fileName = _configuration["exampleFileName"] ?? "exampleFile.txt";
        int fileCount = 2;
        // Create the file if it does not already exist.
        if (!File.Exists(fileName))
        {
            await using StreamWriter sw = File.CreateText(fileName);
            await sw.WriteLineAsync(
                "This is a sample file for uploading to a bucket.");
```

```
        }

        foreach (var bucketName in bucketNames)
        {
            for (int i = 0; i < fileCount; i++)
            {
                var numberedFileName = Path.GetFileNameWithoutExtension(fileName)
+ i + Path.GetExtension(fileName);
                fileNames.Add(numberedFileName);
                await _s3ActionsWrapper.UploadFileAsync(bucketName,
numberedFileName, fileName);
            }
        }
        Console.WriteLine("Press Enter to continue.");
        if (interactive)
            Console.ReadLine();

        if (!interactive)
            return true;
        Console.WriteLine("\nNow we can set some object lock policies on
individual files:");
        foreach (var bucketName in bucketNames)
        {
            for (int i = 0; i < fileNames.Count; i++)
            {
                // No modifications to the objects in the first bucket.
                if (bucketName != bucketNames[0])
                {
                    var exampleFileName = fileNames[i];
                    switch (i)
                    {
                        case 0:
                            {
                                var question =
                                    $"\nWould you like to add a legal hold to
{exampleFileName} in {bucketName}? (y/n)";
                                if (GetYesNoResponse(question))
                                {
                                    // Set a legal hold.
                                    await
_s3ActionsWrapper.ModifyObjectLegalHold(bucketName, exampleFileName,
ObjectLockLegalHoldStatus.On);

                                }
```

```
                                break;
                            }
                        case 1:
                            {
                                var question =
                                    $"\nWould you like to add a 1 day Governance
retention period to {exampleFileName} in {bucketName}? (y/n)" +
                                    "\nReminder: Only a user with the
s3:BypassGovernanceRetention permission will be able to delete this file or its
bucket until the retention period has expired.";
                                if (GetYesNoResponse(question))
                                {
                                    // Set a Governance mode retention period for
1 day.
                                    await
_s3ActionsWrapper.ModifyObjectRetentionPeriod(
                                        bucketName, exampleFileName,
                                        ObjectLockRetentionMode.Governance,
                                        DateTime.UtcNow.AddDays(1));
                                }
                                break;
                            }
                    }
                }
            }
        }
        Console.WriteLine(new string('-', 80));
        return true;
    }

    // <summary>
    /// List all of the current buckets and objects.
    /// </summary>
    /// <param name="interactive">True to run as interactive.</param>
    /// <returns>The list of buckets and objects.</returns>
    public static async Task<List<S3ObjectVersion>> ListBucketsAndObjects(bool
interactive)
    {
        var allObjects = new List<S3ObjectVersion>();
        foreach (var bucketName in bucketNames)
        {
            var objectsInBucket = await
_s3ActionsWrapper.ListBucketObjectsAndVersions(bucketName);
            foreach (var objectKey in objectsInBucket.Versions)
```

```
            {
                allObjects.Add(objectKey);
            }
        }

        if (interactive)
        {
            Console.WriteLine("\nCurrent buckets and objects:\n");
            int i = 0;
            foreach (var bucketObject in allObjects)
            {
                i++;
                Console.WriteLine(
                    $"{i}: {bucketObject.Key} \n\tBucket:
{bucketObject.BucketName}\n\tVersion: {bucketObject.VersionId}");
            }
        }

        return allObjects;
    }

    /// <summary>
    /// Present the user with the demo action choices.
    /// </summary>
    /// <returns>Async task.</returns>
    public static async Task<bool> DemoActionChoices()
    {
        var choices = new string[]{
            "List all files in buckets.",
            "Attempt to delete a file.",
            "Attempt to delete a file with retention period bypass.",
            "Attempt to overwrite a file.",
            "View the object and bucket retention settings for a file.",
            "View the legal hold settings for a file.",
            "Finish the scenario."};

        var choice = 0;
        // Keep asking the user until they choose to move on.
        while (choice != 6)
        {
            Console.WriteLine(new string('-', 80));
            choice = GetChoiceResponse(
                "\nExplore the S3 locking features by selecting one of the
following choices:"
```

```
                , choices);
            Console.WriteLine(new string('-', 80));
            switch (choice)
            {
                case 0:
                    {
                        await ListBucketsAndObjects(true);
                        break;
                    }
                case 1:
                    {
                        Console.WriteLine("\nEnter the number of the object to
delete:");
                        var allFiles = await ListBucketsAndObjects(true);
                        var fileChoice = GetChoiceResponse(null,
allFiles.Select(f => f.Key).ToArray());
                        await
_s3ActionsWrapper.DeleteObjectFromBucket(allFiles[fileChoice].BucketName,
allFiles[fileChoice].Key, false, allFiles[fileChoice].VersionId);
                        break;
                    }
                case 2:
                    {
                        Console.WriteLine("\nEnter the number of the object to
delete:");
                        var allFiles = await ListBucketsAndObjects(true);
                        var fileChoice = GetChoiceResponse(null,
allFiles.Select(f => f.Key).ToArray());
                        await
_s3ActionsWrapper.DeleteObjectFromBucket(allFiles[fileChoice].BucketName,
allFiles[fileChoice].Key, true, allFiles[fileChoice].VersionId);
                        break;
                    }
                case 3:
                    {
                        var allFiles = await ListBucketsAndObjects(true);
                        Console.WriteLine("\nEnter the number of the object to
overwrite:");
                        var fileChoice = GetChoiceResponse(null,
allFiles.Select(f => f.Key).ToArray());
                        // Create the file if it does not already exist.
                        if (!File.Exists(allFiles[fileChoice].Key))
                        {
```

```
                            await using StreamWriter sw =
File.CreateText(allFiles[fileChoice].Key);
                            await sw.WriteLineAsync(
                                "This is a sample file for uploading to a
bucket.");
                        }
                        await
_s3ActionsWrapper.UploadFileAsync(allFiles[fileChoice].BucketName,
allFiles[fileChoice].Key, allFiles[fileChoice].Key);
                        break;
                    }
                case 4:
                    {
                        var allFiles = await ListBucketsAndObjects(true);
                        Console.WriteLine("\nEnter the number of the object and
bucket to view:");
                        var fileChoice = GetChoiceResponse(null,
allFiles.Select(f => f.Key).ToArray());
                        await
_s3ActionsWrapper.GetObjectRetention(allFiles[fileChoice].BucketName,
allFiles[fileChoice].Key);
                        await
_s3ActionsWrapper.GetBucketObjectLockConfiguration(allFiles[fileChoice].BucketName);
                        break;
                    }
                case 5:
                    {
                        var allFiles = await ListBucketsAndObjects(true);
                        Console.WriteLine("\nEnter the number of the object to
view:");
                        var fileChoice = GetChoiceResponse(null,
allFiles.Select(f => f.Key).ToArray());
                        await
_s3ActionsWrapper.GetObjectLegalHold(allFiles[fileChoice].BucketName,
allFiles[fileChoice].Key);
                        break;
                    }
            }
        }
        return true;
    }

    // <summary>
    /// Clean up the resources from the scenario.
```

```
    /// </summary>
    /// <param name="interactive">True to run as interactive.</param>
    /// <returns>True if successful.</returns>
    public static async Task<bool> Cleanup(bool interactive)
    {
        Console.WriteLine(new string('-', 80));

        if (!interactive || GetYesNoResponse("Do you want to clean up all files
and buckets? (y/n) "))
        {
            // Remove all locks and delete all buckets and objects.
            var allFiles = await ListBucketsAndObjects(false);
            foreach (var fileInfo in allFiles)
            {
                // Check for a legal hold.
                var legalHold = await
_s3ActionsWrapper.GetObjectLegalHold(fileInfo.BucketName, fileInfo.Key);
                if (legalHold?.Status?.Value == ObjectLockLegalHoldStatus.On)
                {
                    await
_s3ActionsWrapper.ModifyObjectLegalHold(fileInfo.BucketName, fileInfo.Key,
ObjectLockLegalHoldStatus.Off);
                }

                // Check for a retention period.
                var retention = await
_s3ActionsWrapper.GetObjectRetention(fileInfo.BucketName, fileInfo.Key);
                var hasRetentionPeriod = retention?.Mode ==
ObjectLockRetentionMode.Governance && retention.RetainUntilDate >
DateTime.UtcNow.Date;
                await
_s3ActionsWrapper.DeleteObjectFromBucket(fileInfo.BucketName, fileInfo.Key,
hasRetentionPeriod, fileInfo.VersionId);
            }

            foreach (var bucketName in bucketNames)
            {
                await _s3ActionsWrapper.DeleteBucketByName(bucketName);
            }

        }
        else
        {
            Console.WriteLine(
```

```
                "Ok, we'll leave the resources intact.\n" +
                "Don't forget to delete them when you're done with them or you
 might incur unexpected charges."
            );
        }

        Console.WriteLine(new string('-', 80));
        return true;
    }

    /// <summary>
    /// Helper method to get a yes or no response from the user.
    /// </summary>
    /// <param name="question">The question string to print on the console.</
param>
    /// <returns>True if the user responds with a yes.</returns>
    private static bool GetYesNoResponse(string question)
    {
        Console.WriteLine(question);
        var ynResponse = Console.ReadLine();
        var response = ynResponse != null && ynResponse.Equals("y",
 StringComparison.InvariantCultureIgnoreCase);
        return response;
    }

    /// <summary>
    /// Helper method to get a choice response from the user.
    /// </summary>
    /// <param name="question">The question string to print on the console.</
param>
    /// <param name="choices">The choices to print on the console.</param>
    /// <returns>The index of the selected choice</returns>
    private static int GetChoiceResponse(string? question, string[] choices)
    {
        if (question != null)
        {
            Console.WriteLine(question);

            for (int i = 0; i < choices.Length; i++)
            {
                Console.WriteLine($"\t{i + 1}. {choices[i]}");
            }
        }
```

```
        var choiceNumber = 0;
        while (choiceNumber < 1 || choiceNumber > choices.Length)
        {
            var choice = Console.ReadLine();
            Int32.TryParse(choice, out choiceNumber);
        }

        return choiceNumber - 1;
    }
}
```

A wrapper class for S3 functions.

```
using System.Net;
using Amazon.S3;
using Amazon.S3.Model;
using Microsoft.Extensions.Configuration;

namespace S3ObjectLockScenario;

/// <summary>
/// Encapsulate the Amazon S3 operations.
/// </summary>
public class S3ActionsWrapper
{
    private readonly IAmazonS3 _amazonS3;

    /// <summary>
    /// Constructor for the S3ActionsWrapper.
    /// </summary>
    /// <param name="amazonS3">The injected S3 client.</param>
    public S3ActionsWrapper(IAmazonS3 amazonS3, IConfiguration configuration)
    {
        _amazonS3 = amazonS3;
    }

    /// <summary>
    /// Create a new Amazon S3 bucket with object lock actions.
    /// </summary>
    /// <param name="bucketName">The name of the bucket to create.</param>
```

```
   /// <param name="enableObjectLock">True to enable object lock on the
bucket.</param>
   /// <returns>True if successful.</returns>
   public async Task<bool> CreateBucketWithObjectLock(string bucketName, bool
enableObjectLock)
   {
       Console.WriteLine($"\tCreating bucket {bucketName} with object lock
{enableObjectLock}.");
       try
       {
           var request = new PutBucketRequest
           {
               BucketName = bucketName,
               UseClientRegion = true,
               ObjectLockEnabledForBucket = enableObjectLock,
           };

           var response = await _amazonS3.PutBucketAsync(request);

           return response.HttpStatusCode == System.Net.HttpStatusCode.OK;
       }
       catch (AmazonS3Exception ex)
       {
           Console.WriteLine($"Error creating bucket: '{ex.Message}'");
           return false;
       }
   }

   /// <summary>
   /// Enable object lock on an existing bucket.
   /// </summary>
   /// <param name="bucketName">The name of the bucket to modify.</param>
   /// <returns>True if successful.</returns>
   public async Task<bool> EnableObjectLockOnBucket(string bucketName)
   {
       try
       {
           // First, enable Versioning on the bucket.
           await _amazonS3.PutBucketVersioningAsync(new
PutBucketVersioningRequest()
           {
               BucketName = bucketName,
               VersioningConfig = new S3BucketVersioningConfig()
               {
```

```
                    EnableMfaDelete = false,
                    Status = VersionStatus.Enabled
                }
            });

            var request = new PutObjectLockConfigurationRequest()
            {
                BucketName = bucketName,
                ObjectLockConfiguration = new ObjectLockConfiguration()
                {
                    ObjectLockEnabled = new ObjectLockEnabled("Enabled"),
                },
            };

            var response = await
_amazonS3.PutObjectLockConfigurationAsync(request);
            Console.WriteLine($"\tAdded an object lock policy to bucket
{bucketName}.");
            return response.HttpStatusCode == System.Net.HttpStatusCode.OK;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"Error modifying object lock: '{ex.Message}'");
            return false;
        }
    }

    /// <summary>
    /// Set or modify a retention period on an object in an S3 bucket.
    /// </summary>
    /// <param name="bucketName">The bucket of the object.</param>
    /// <param name="objectKey">The key of the object.</param>
    /// <param name="retention">The retention mode.</param>
    /// <param name="retainUntilDate">The date retention expires.</param>
    /// <returns>True if successful.</returns>
    public async Task<bool> ModifyObjectRetentionPeriod(string bucketName,
        string objectKey, ObjectLockRetentionMode retention, DateTime
retainUntilDate)
    {
        try
        {
            var request = new PutObjectRetentionRequest()
            {
                BucketName = bucketName,
```

```
                Key = objectKey,
                Retention = new ObjectLockRetention()
                {
                    Mode = retention,
                    RetainUntilDate = retainUntilDate
                }
            };

            var response = await _amazonS3.PutObjectRetentionAsync(request);
            Console.WriteLine($"\tSet retention for {objectKey} in {bucketName}
until {retainUntilDate:d}.");
            return response.HttpStatusCode == System.Net.HttpStatusCode.OK;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"\tError modifying retention period:
'{ex.Message}'");
            return false;
        }
    }

    /// <summary>
    /// Set or modify a retention period on an S3 bucket.
    /// </summary>
    /// <param name="bucketName">The bucket to modify.</param>
    /// <param name="retention">The retention mode.</param>
    /// <param name="retainUntilDate">The date for retention until.</param>
    /// <returns>True if successful.</returns>
    public async Task<bool> ModifyBucketDefaultRetention(string bucketName, bool
enableObjectLock, ObjectLockRetentionMode retention, DateTime retainUntilDate)
    {
        var enabledString = enableObjectLock ? "Enabled" : "Disabled";
        var timeDifference = retainUntilDate.Subtract(DateTime.Now);
        try
        {
            // First, enable Versioning on the bucket.
            await _amazonS3.PutBucketVersioningAsync(new
PutBucketVersioningRequest()
            {
                BucketName = bucketName,
                VersioningConfig = new S3BucketVersioningConfig()
                {
                    EnableMfaDelete = false,
                    Status = VersionStatus.Enabled
```

```
                }
            });

            var request = new PutObjectLockConfigurationRequest()
            {
                BucketName = bucketName,
                ObjectLockConfiguration = new ObjectLockConfiguration()
                {
                    ObjectLockEnabled = new ObjectLockEnabled(enabledString),
                    Rule = new ObjectLockRule()
                    {
                        DefaultRetention = new DefaultRetention()
                        {
                            Mode = retention,
                            Days = timeDifference.Days // Can be specified in
days or years but not both.
                        }
                    }
                }
            };

            var response = await
_amazonS3.PutObjectLockConfigurationAsync(request);
            Console.WriteLine($"\tAdded a default retention to bucket
{bucketName}.");
            return response.HttpStatusCode == System.Net.HttpStatusCode.OK;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"\tError modifying object lock: '{ex.Message}'");
            return false;
        }
    }

    /// <summary>
    /// Get the retention period for an S3 object.
    /// </summary>
    /// <param name="bucketName">The bucket of the object.</param>
    /// <param name="objectKey">The object key.</param>
    /// <returns>The object retention details.</returns>
    public async Task<ObjectLockRetention> GetObjectRetention(string bucketName,
        string objectKey)
    {
        try
```

```
        {
            var request = new GetObjectRetentionRequest()
            {
                BucketName = bucketName,
                Key = objectKey
            };

            var response = await _amazonS3.GetObjectRetentionAsync(request);
            Console.WriteLine($"\tObject retention for {objectKey} in
{bucketName}: " +
                              $"\n\t{response.Retention.Mode} until
{response.Retention.RetainUntilDate:d}.");
            return response.Retention;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"\tUnable to fetch object lock retention:
'{ex.Message}'");
            return new ObjectLockRetention();
        }
    }

    /// <summary>
    /// Set or modify a legal hold on an object in an S3 bucket.
    /// </summary>
    /// <param name="bucketName">The bucket of the object.</param>
    /// <param name="objectKey">The key of the object.</param>
    /// <param name="holdStatus">The On or Off status for the legal hold.</param>
    /// <returns>True if successful.</returns>
    public async Task<bool> ModifyObjectLegalHold(string bucketName,
        string objectKey, ObjectLockLegalHoldStatus holdStatus)
    {
        try
        {
            var request = new PutObjectLegalHoldRequest()
            {
                BucketName = bucketName,
                Key = objectKey,
                LegalHold = new ObjectLockLegalHold()
                {
                    Status = holdStatus
                }
            };
```

```
            var response = await _amazonS3.PutObjectLegalHoldAsync(request);
            Console.WriteLine($"\tModified legal hold for {objectKey} in
{bucketName}.");
            return response.HttpStatusCode == System.Net.HttpStatusCode.OK;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"\tError modifying legal hold: '{ex.Message}'");
            return false;
        }
    }

    /// <summary>
    /// Get the legal hold details for an S3 object.
    /// </summary>
    /// <param name="bucketName">The bucket of the object.</param>
    /// <param name="objectKey">The object key.</param>
    /// <returns>The object legal hold details.</returns>
    public async Task<ObjectLockLegalHold> GetObjectLegalHold(string bucketName,
        string objectKey)
    {
        try
        {
            var request = new GetObjectLegalHoldRequest()
            {
                BucketName = bucketName,
                Key = objectKey
            };

            var response = await _amazonS3.GetObjectLegalHoldAsync(request);
            Console.WriteLine($"\tObject legal hold for {objectKey} in
{bucketName}: " +
                              $"\n\tStatus: {response.LegalHold.Status}");
            return response.LegalHold;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"\tUnable to fetch legal hold: '{ex.Message}'");
            return new ObjectLockLegalHold();
        }
    }

    /// <summary>
    /// Get the object lock configuration details for an S3 bucket.
```

```
    /// </summary>
    /// <param name="bucketName">The bucket to get details.</param>
    /// <returns>The bucket's object lock configuration details.</returns>
    public async Task<ObjectLockConfiguration>
GetBucketObjectLockConfiguration(string bucketName)
    {
        try
        {
            var request = new GetObjectLockConfigurationRequest()
            {
                BucketName = bucketName
            };

            var response = await
_amazonS3.GetObjectLockConfigurationAsync(request);
            Console.WriteLine($"\tBucket object lock config for {bucketName} in
{bucketName}: " +
                              $"\n\tEnabled:
{response.ObjectLockConfiguration.ObjectLockEnabled}" +
                              $"\n\tRule:
{response.ObjectLockConfiguration.Rule?.DefaultRetention}");

            return response.ObjectLockConfiguration;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"\tUnable to fetch object lock config:
'{ex.Message}'");
            return new ObjectLockConfiguration();
        }
    }

    /// <summary>
    /// Upload a file from the local computer to an Amazon S3 bucket.
    /// </summary>
    /// <param name="bucketName">The Amazon S3 bucket to use.</param>
    /// <param name="objectName">The object to upload.</param>
    /// <param name="filePath">The path, including file name, of the object to
upload.</param>
    /// <returns>True if success.<returns>
    public async Task<bool> UploadFileAsync(string bucketName, string objectName,
string filePath)
    {
        var request = new PutObjectRequest
```

```
        {
            BucketName = bucketName,
            Key = objectName,
            FilePath = filePath,
            ChecksumAlgorithm = ChecksumAlgorithm.SHA256
        };

        var response = await _amazonS3.PutObjectAsync(request);
        if (response.HttpStatusCode == System.Net.HttpStatusCode.OK)
        {
            Console.WriteLine($"\tSuccessfully uploaded {objectName} to
{bucketName}.");
            return true;
        }
        else
        {
            Console.WriteLine($"\tCould not upload {objectName} to
{bucketName}.");
            return false;
        }
    }

    /// <summary>
    /// List bucket objects and versions.
    /// </summary>
    /// <param name="bucketName">The Amazon S3 bucket to use.</param>
    /// <returns>The list of objects and versions.</returns>
    public async Task<ListVersionsResponse> ListBucketObjectsAndVersions(string
bucketName)
    {
        var request = new ListVersionsRequest()
        {
            BucketName = bucketName
        };

        var response = await _amazonS3.ListVersionsAsync(request);
        return response;
    }

    /// <summary>
    /// Delete an object from a specific bucket.
    /// </summary>
    /// <param name="bucketName">The Amazon S3 bucket to use.</param>
    /// <param name="objectKey">The key of the object to delete.</param>
```

```
    /// <param name="hasRetention">True if the object has retention settings.</
param>
    /// <param name="versionId">Optional versionId.</param>
    /// <returns>True if successful.</returns>
    public async Task<bool> DeleteObjectFromBucket(string bucketName, string
 objectKey, bool hasRetention, string? versionId = null)
    {
        try
        {
            var request = new DeleteObjectRequest()
            {
                BucketName = bucketName,
                Key = objectKey,
                VersionId = versionId,
            };
            if (hasRetention)
            {
                // Set the BypassGovernanceRetention header
                // if the file has retention settings.
                request.BypassGovernanceRetention = true;
            }
            await _amazonS3.DeleteObjectAsync(request);
            Console.WriteLine(
                $"Deleted {objectKey} in {bucketName}.");
            return true;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"\tUnable to delete object {objectKey} in bucket
 {bucketName}: " + ex.Message);
            return false;
        }
    }

    /// <summary>
    /// Delete a specific bucket.
    /// </summary>
    /// <param name="bucketName">The Amazon S3 bucket to use.</param>
    /// <param name="objectKey">The key of the object to delete.</param>
    /// <param name="versionId">Optional versionId.</param>
    /// <returns>True if successful.</returns>
    public async Task<bool> DeleteBucketByName(string bucketName)
    {
        try
```

```
        {
            var request = new DeleteBucketRequest() { BucketName = bucketName, };
            var response = await _amazonS3.DeleteBucketAsync(request);
            Console.WriteLine($"\tDelete for {bucketName} complete.");
            return response.HttpStatusCode == HttpStatusCode.OK;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"\tUnable to delete bucket {bucketName}: " +
 ex.Message);
            return false;
        }

    }

}
```

- For API details, see the following topics in *AWS SDK for .NET API Reference*.
  - GetObjectLegalHold
  - GetObjectLockConfiguration
  - GetObjectRetention
  - PutObjectLegalHold
  - PutObjectLockConfiguration
  - PutObjectRetention

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Run an interactive scenario demonstrating Amazon S3 object lock features.

```
import (
 "context"
 "fmt"
 "log"
 "strings"

 "s3_object_lock/actions"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/awsdocs/aws-doc-sdk-examples/gov2/demotools"
)

// ObjectLockScenario contains the steps to run the S3 Object Lock workflow.
type ObjectLockScenario struct {
 questioner demotools.IQuestioner
 resources  Resources
 s3Actions  *actions.S3Actions
 sdkConfig  aws.Config
}

// NewObjectLockScenario constructs a new ObjectLockScenario instance.
func NewObjectLockScenario(sdkConfig aws.Config, questioner
 demotools.IQuestioner) ObjectLockScenario {
 scenario := ObjectLockScenario{
  questioner: questioner,
  resources:  Resources{},
  s3Actions:  &actions.S3Actions{S3Client: s3.NewFromConfig(sdkConfig)},
  sdkConfig:  sdkConfig,
 }
 scenario.s3Actions.S3Manager = manager.NewUploader(scenario.s3Actions.S3Client)
 scenario.resources.init(scenario.s3Actions, questioner)
 return scenario
}

type nameLocked struct {
 name   string
 locked bool
}

var createInfo = []nameLocked{
 {"standard-bucket", false},
```

```
 {"lock-bucket", true},
 {"retention-bucket", false},
}

// CreateBuckets creates the S3 buckets required for the workflow.
func (scenario *ObjectLockScenario) CreateBuckets(ctx context.Context) {
 log.Println("Let's create some S3 buckets to use for this workflow.")
 success := false
 for !success {
  prefix := scenario.questioner.Ask(
   "This example creates three buckets. Enter a prefix to name your buckets
 (remember bucket names must be globally unique):")

  for _, info := range createInfo {
   log.Println(fmt.Sprintf("%s.%s", prefix, info.name))
   bucketName, err := scenario.s3Actions.CreateBucketWithLock(ctx,
 fmt.Sprintf("%s.%s", prefix, info.name), scenario.sdkConfig.Region, info.locked)
   if err != nil {
    switch err.(type) {
    case *types.BucketAlreadyExists, *types.BucketAlreadyOwnedByYou:
     log.Printf("Couldn't create bucket %s.\n", bucketName)
    default:
     panic(err)
    }
    break
   }
   scenario.resources.demoBuckets[info.name] = &DemoBucket{
    name:       bucketName,
    objectKeys: []string{},
   }
   log.Printf("Created bucket %s.\n", bucketName)
  }

  if len(scenario.resources.demoBuckets) < len(createInfo) {
   scenario.resources.deleteBuckets(ctx)
  } else {
   success = true
  }
 }

 log.Println("S3 buckets created.")
 log.Println(strings.Repeat("-", 88))
}
```

```
// EnableLockOnBucket enables object locking on an existing bucket.
func (scenario *ObjectLockScenario) EnableLockOnBucket(ctx context.Context) {
 log.Println("\nA bucket can be configured to use object locking.")
 scenario.questioner.Ask("Press Enter to continue.")

 var err error
 bucket := scenario.resources.demoBuckets["retention-bucket"]
 err = scenario.s3Actions.EnableObjectLockOnBucket(ctx, bucket.name)
 if err != nil {
  switch err.(type) {
  case *types.NoSuchBucket:
   log.Printf("Couldn't enable object locking on bucket %s.\n", bucket.name)
  default:
   panic(err)
  }
 } else {
  log.Printf("Object locking enabled on bucket %s.", bucket.name)
 }

 log.Println(strings.Repeat("-", 88))
}

// SetDefaultRetentionPolicy sets a default retention governance policy on a
 bucket.
func (scenario *ObjectLockScenario) SetDefaultRetentionPolicy(ctx
 context.Context) {
 log.Println("\nA bucket can be configured to use object locking with a default
 retention period.")

 bucket := scenario.resources.demoBuckets["retention-bucket"]
 retentionPeriod := scenario.questioner.AskInt("Enter the default retention
 period in days: ")
 err := scenario.s3Actions.ModifyDefaultBucketRetention(ctx,
 bucket.name, types.ObjectLockEnabledEnabled, int32(retentionPeriod),
 types.ObjectLockRetentionModeGovernance)
 if err != nil {
  switch err.(type) {
  case *types.NoSuchBucket:
   log.Printf("Couldn't configure a default retention period on bucket %s.\n",
 bucket.name)
  default:
   panic(err)
  }
 } else {
```

```
  log.Printf("Default retention policy set on bucket %s with %d day retention
 period.", bucket.name, retentionPeriod)
  bucket.retentionEnabled = true
 }

 log.Println(strings.Repeat("-", 88))
}

// UploadTestObjects uploads test objects to the S3 buckets.
func (scenario *ObjectLockScenario) UploadTestObjects(ctx context.Context) {
 log.Println("Uploading test objects to S3 buckets.")

 for _, info := range createInfo {
  bucket := scenario.resources.demoBuckets[info.name]
  for i := 0; i < 2; i++ {
   key, err := scenario.s3Actions.UploadObject(ctx, bucket.name,
 fmt.Sprintf("example-%d", i),
    fmt.Sprintf("Example object content #%d in bucket %s.", i, bucket.name))
   if err != nil {
    switch err.(type) {
    case *types.NoSuchBucket:
     log.Printf("Couldn't upload %s to bucket %s.\n", key, bucket.name)
    default:
     panic(err)
    }
   } else {
    log.Printf("Uploaded %s to bucket %s.\n", key, bucket.name)
    bucket.objectKeys = append(bucket.objectKeys, key)
   }
  }
 }

 scenario.questioner.Ask("Test objects uploaded. Press Enter to continue.")
 log.Println(strings.Repeat("-", 88))
}

// SetObjectLockConfigurations sets object lock configurations on the test
 objects.
func (scenario *ObjectLockScenario) SetObjectLockConfigurations(ctx
 context.Context) {
 log.Println("Now let's set object lock configurations on individual objects.")

 buckets := []*DemoBucket{scenario.resources.demoBuckets["lock-bucket"],
 scenario.resources.demoBuckets["retention-bucket"]}
```

```
for _, bucket := range buckets {
 for index, objKey := range bucket.objectKeys {
  switch index {
  case 0:
   if scenario.questioner.AskBool(fmt.Sprintf("\nDo you want to add a legal hold
to %s in %s (y/n)? ", objKey, bucket.name), "y") {
    err := scenario.s3Actions.PutObjectLegalHold(ctx, bucket.name, objKey, "",
types.ObjectLockLegalHoldStatusOn)
    if err != nil {
     switch err.(type) {
     case *types.NoSuchKey:
      log.Printf("Couldn't set legal hold on %s.\n", objKey)
     default:
      panic(err)
     }
    } else {
     log.Printf("Legal hold set on %s.\n", objKey)
    }
   }
  case 1:
   q := fmt.Sprintf("\nDo you want to add a 1 day Governance retention period to
%s in %s?\n"+
    "Reminder: Only a user with the s3:BypassGovernanceRetention permission is
able to delete this object\n"+
    "or its bucket until the retention period has expired. (y/n) ", objKey,
bucket.name)
   if scenario.questioner.AskBool(q, "y") {
    err := scenario.s3Actions.PutObjectRetention(ctx, bucket.name, objKey,
types.ObjectLockRetentionModeGovernance, 1)
    if err != nil {
     switch err.(type) {
     case *types.NoSuchKey:
      log.Printf("Couldn't set retention period on %s in %s.\n", objKey,
bucket.name)
     default:
      panic(err)
     }
    } else {
     log.Printf("Retention period set to 1 for %s.", objKey)
     bucket.retentionEnabled = true
    }
   }
  }
 }
```

```
 }
 log.Println(strings.Repeat("-", 88))
}

const (
 ListAll = iota
 DeleteObject
 DeleteRetentionObject
 OverwriteObject
 ViewRetention
 ViewLegalHold
 Finish
)

// InteractWithObjects allows the user to interact with the objects and test the
 object lock configurations.
func (scenario *ObjectLockScenario) InteractWithObjects(ctx context.Context) {
 log.Println("Now you can interact with the objects to explore the object lock
 configurations.")
 interactiveChoices := []string{
  "List all objects and buckets.",
  "Attempt to delete an object.",
  "Attempt to delete an object with retention period bypass.",
  "Attempt to overwrite a file.",
  "View the retention settings for an object.",
  "View the legal hold settings for an object.",
  "Finish the workflow."}

 choice := ListAll
 for choice != Finish {
  objList := scenario.GetAllObjects(ctx)
  objChoices := scenario.makeObjectChoiceList(objList)
  choice = scenario.questioner.AskChoice("Choose an action from the menu:\n",
 interactiveChoices)
  switch choice {
  case ListAll:
   log.Println("The current objects in the example buckets are:")
   for _, objChoice := range objChoices {
    log.Println("\t", objChoice)
   }
  case DeleteObject, DeleteRetentionObject:
   objChoice := scenario.questioner.AskChoice("Enter the number of the object to
 delete:\n", objChoices)
   obj := objList[objChoice]
```

```
  deleted, err := scenario.s3Actions.DeleteObject(ctx, obj.bucket, obj.key,
obj.versionId, choice == DeleteRetentionObject)
  if err != nil {
   switch err.(type) {
   case *types.NoSuchKey:
    log.Println("Nothing to delete.")
   default:
    panic(err)
   }
  } else if deleted {
   log.Printf("Object %s deleted.\n", obj.key)
  }
 case OverwriteObject:
  objChoice := scenario.questioner.AskChoice("Enter the number of the object to
overwrite:\n", objChoices)
  obj := objList[objChoice]
  _, err := scenario.s3Actions.UploadObject(ctx, obj.bucket, obj.key,
fmt.Sprintf("New content in object %s.", obj.key))
  if err != nil {
   switch err.(type) {
   case *types.NoSuchBucket:
    log.Println("Couldn't upload to nonexistent bucket.")
   default:
    panic(err)
   }
  } else {
   log.Printf("Uploaded new content to object %s.\n", obj.key)
  }
 case ViewRetention:
  objChoice := scenario.questioner.AskChoice("Enter the number of the object to
view:\n", objChoices)
  obj := objList[objChoice]
  retention, err := scenario.s3Actions.GetObjectRetention(ctx, obj.bucket,
obj.key)
  if err != nil {
   switch err.(type) {
   case *types.NoSuchKey:
    log.Printf("Can't get retention configuration for %s.\n", obj.key)
   default:
    panic(err)
   }
  } else if retention != nil {
   log.Printf("Object %s has retention mode %s until %v.\n", obj.key,
retention.Mode, retention.RetainUntilDate)
```

```
    } else {
     log.Printf("Object %s does not have object retention configured.\n", obj.key)
    }
   case ViewLegalHold:
    objChoice := scenario.questioner.AskChoice("Enter the number of the object to
 view:\n", objChoices)
    obj := objList[objChoice]
    legalHold, err := scenario.s3Actions.GetObjectLegalHold(ctx, obj.bucket,
 obj.key, obj.versionId)
    if err != nil {
     switch err.(type) {
     case *types.NoSuchKey:
      log.Printf("Can't get legal hold configuration for %s.\n", obj.key)
     default:
      panic(err)
     }
    } else if legalHold != nil {
     log.Printf("Object %s has legal hold %v.", obj.key, *legalHold)
    } else {
     log.Printf("Object %s does not have legal hold configured.", obj.key)
    }
   case Finish:
    log.Println("Let's clean up.")
   }
   log.Println(strings.Repeat("-", 88))
  }
}

type BucketKeyVersionId struct {
 bucket    string
 key       string
 versionId string
}

// GetAllObjects gets the object versions in the example S3 buckets and returns
 them in a flattened list.
func (scenario *ObjectLockScenario) GetAllObjects(ctx context.Context)
 []BucketKeyVersionId {
 var objectList []BucketKeyVersionId
 for _, info := range createInfo {
  bucket := scenario.resources.demoBuckets[info.name]
  versions, err := scenario.s3Actions.ListObjectVersions(ctx, bucket.name)
  if err != nil {
   switch err.(type) {
```

```
    case *types.NoSuchBucket:
     log.Printf("Couldn't get object versions for %s.\n", bucket.name)
    default:
     panic(err)
    }
   } else {
    for _, version := range versions {
     objectList = append(objectList,
      BucketKeyVersionId{bucket: bucket.name, key: *version.Key, versionId:
 *version.VersionId})
    }
   }
  }
  return objectList
}

// makeObjectChoiceList makes the object version list into a list of strings that
 are displayed
// as choices.
func (scenario *ObjectLockScenario) makeObjectChoiceList(bucketObjects
 []BucketKeyVersionId) []string {
 choices := make([]string, len(bucketObjects))
 for i := 0; i < len(bucketObjects); i++ {
  choices[i] = fmt.Sprintf("%s in %s with VersionId %s.",
   bucketObjects[i].key, bucketObjects[i].bucket, bucketObjects[i].versionId)
 }
 return choices
}

// Run runs the S3 Object Lock scenario.
func (scenario *ObjectLockScenario) Run(ctx context.Context) {
 defer func() {
  if r := recover(); r != nil {
   log.Println("Something went wrong with the demo.")
   _, isMock := scenario.questioner.(*demotools.MockQuestioner)
   if isMock || scenario.questioner.AskBool("Do you want to see the full error
 message (y/n)?", "y") {
    log.Println(r)
   }
   scenario.resources.Cleanup(ctx)
  }
 }()

 log.Println(strings.Repeat("-", 88))
```

```
 log.Println("Welcome to the Amazon S3 Object Lock Feature Scenario.")
 log.Println(strings.Repeat("-", 88))

 scenario.CreateBuckets(ctx)
 scenario.EnableLockOnBucket(ctx)
 scenario.SetDefaultRetentionPolicy(ctx)
 scenario.UploadTestObjects(ctx)
 scenario.SetObjectLockConfigurations(ctx)
 scenario.InteractWithObjects(ctx)

 scenario.resources.Cleanup(ctx)

 log.Println(strings.Repeat("-", 88))
 log.Println("Thanks for watching!")
 log.Println(strings.Repeat("-", 88))
}
```

Define a struct that wraps S3 actions used in this example.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "log"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// S3Actions wraps S3 service actions.
type S3Actions struct {
 S3Client  *s3.Client
 S3Manager *manager.Uploader
}
```

```
// CreateBucketWithLock creates a new S3 bucket with optional object locking
 enabled
// and waits for the bucket to exist before returning.
func (actor S3Actions) CreateBucketWithLock(ctx context.Context, bucket string,
 region string, enableObjectLock bool) (string, error) {
 input := &s3.CreateBucketInput{
  Bucket: aws.String(bucket),
  CreateBucketConfiguration: &types.CreateBucketConfiguration{
   LocationConstraint: types.BucketLocationConstraint(region),
  },
 }

 if enableObjectLock {
  input.ObjectLockEnabledForBucket = aws.Bool(true)
 }

 _, err := actor.S3Client.CreateBucket(ctx, input)
 if err != nil {
  var owned *types.BucketAlreadyOwnedByYou
  var exists *types.BucketAlreadyExists
  if errors.As(err, &owned) {
   log.Printf("You already own bucket %s.\n", bucket)
   err = owned
  } else if errors.As(err, &exists) {
   log.Printf("Bucket %s already exists.\n", bucket)
   err = exists
  }
 } else {
  err = s3.NewBucketExistsWaiter(actor.S3Client).Wait(
   ctx, &s3.HeadBucketInput{Bucket: aws.String(bucket)}, time.Minute)
  if err != nil {
   log.Printf("Failed attempt to wait for bucket %s to exist.\n", bucket)
  }
 }

 return bucket, err
}



// GetObjectLegalHold retrieves the legal hold status for an S3 object.
```

```
func (actor S3Actions) GetObjectLegalHold(ctx context.Context, bucket string, key
 string, versionId string) (*types.ObjectLockLegalHoldStatus, error) {
 var status *types.ObjectLockLegalHoldStatus
 input := &s3.GetObjectLegalHoldInput{
  Bucket:    aws.String(bucket),
  Key:       aws.String(key),
  VersionId: aws.String(versionId),
 }

 output, err := actor.S3Client.GetObjectLegalHold(ctx, input)
 if err != nil {
  var noSuchKeyErr *types.NoSuchKey
  var apiErr *smithy.GenericAPIError
  if errors.As(err, &noSuchKeyErr) {
   log.Printf("Object %s does not exist in bucket %s.\n", key, bucket)
   err = noSuchKeyErr
  } else if errors.As(err, &apiErr) {
   switch apiErr.ErrorCode() {
   case "NoSuchObjectLockConfiguration":
    log.Printf("Object %s does not have an object lock configuration.\n", key)
    err = nil
   case "InvalidRequest":
    log.Printf("Bucket %s does not have an object lock configuration.\n", bucket)
    err = nil
   }
  }
 } else {
  status = &output.LegalHold.Status
 }

 return status, err
}



// GetObjectLockConfiguration retrieves the object lock configuration for an S3
 bucket.
func (actor S3Actions) GetObjectLockConfiguration(ctx context.Context, bucket
 string) (*types.ObjectLockConfiguration, error) {
 var lockConfig *types.ObjectLockConfiguration
 input := &s3.GetObjectLockConfigurationInput{
  Bucket: aws.String(bucket),
 }
```

```
 output, err := actor.S3Client.GetObjectLockConfiguration(ctx, input)
 if err != nil {
  var noBucket *types.NoSuchBucket
  var apiErr *smithy.GenericAPIError
  if errors.As(err, &noBucket) {
   log.Printf("Bucket %s does not exist.\n", bucket)
   err = noBucket
  } else if errors.As(err, &apiErr) && apiErr.ErrorCode() ==
 "ObjectLockConfigurationNotFoundError" {
   log.Printf("Bucket %s does not have an object lock configuration.\n", bucket)
   err = nil
  }
 } else {
  lockConfig = output.ObjectLockConfiguration
 }

 return lockConfig, err
}



// GetObjectRetention retrieves the object retention configuration for an S3
 object.
func (actor S3Actions) GetObjectRetention(ctx context.Context, bucket string, key
 string) (*types.ObjectLockRetention, error) {
 var retention *types.ObjectLockRetention
 input := &s3.GetObjectRetentionInput{
  Bucket: aws.String(bucket),
  Key:    aws.String(key),
 }

 output, err := actor.S3Client.GetObjectRetention(ctx, input)
 if err != nil {
  var noKey *types.NoSuchKey
  var apiErr *smithy.GenericAPIError
  if errors.As(err, &noKey) {
   log.Printf("Object %s does not exist in bucket %s.\n", key, bucket)
   err = noKey
  } else if errors.As(err, &apiErr) {
   switch apiErr.ErrorCode() {
   case "NoSuchObjectLockConfiguration":
    err = nil
   case "InvalidRequest":
    log.Printf("Bucket %s does not have locking enabled.", bucket)
```

```
    err = nil
   }
  }
 } else {
  retention = output.Retention
 }

 return retention, err
}



// PutObjectLegalHold sets the legal hold configuration for an S3 object.
func (actor S3Actions) PutObjectLegalHold(ctx context.Context, bucket string, key
 string, versionId string, legalHoldStatus types.ObjectLockLegalHoldStatus) error
 {
 input := &s3.PutObjectLegalHoldInput{
  Bucket: aws.String(bucket),
  Key:    aws.String(key),
  LegalHold: &types.ObjectLockLegalHold{
   Status: legalHoldStatus,
  },
 }
 if versionId != "" {
  input.VersionId = aws.String(versionId)
 }

 _, err := actor.S3Client.PutObjectLegalHold(ctx, input)
 if err != nil {
  var noKey *types.NoSuchKey
  if errors.As(err, &noKey) {
   log.Printf("Object %s does not exist in bucket %s.\n", key, bucket)
   err = noKey
  }
 }

 return err
}



// ModifyDefaultBucketRetention modifies the default retention period of an
 existing bucket.
func (actor S3Actions) ModifyDefaultBucketRetention(
```

```
 ctx context.Context, bucket string, lockMode types.ObjectLockEnabled,
 retentionPeriod int32, retentionMode types.ObjectLockRetentionMode) error {

 input := &s3.PutObjectLockConfigurationInput{
  Bucket: aws.String(bucket),
  ObjectLockConfiguration: &types.ObjectLockConfiguration{
   ObjectLockEnabled: lockMode,
   Rule: &types.ObjectLockRule{
    DefaultRetention: &types.DefaultRetention{
     Days: aws.Int32(retentionPeriod),
     Mode: retentionMode,
    },
   },
  },
 }
 _, err := actor.S3Client.PutObjectLockConfiguration(ctx, input)
 if err != nil {
  var noBucket *types.NoSuchBucket
  if errors.As(err, &noBucket) {
   log.Printf("Bucket %s does not exist.\n", bucket)
   err = noBucket
  }
 }

 return err
}



// EnableObjectLockOnBucket enables object locking on an existing bucket.
func (actor S3Actions) EnableObjectLockOnBucket(ctx context.Context, bucket
 string) error {
 // Versioning must be enabled on the bucket before object locking is enabled.
 verInput := &s3.PutBucketVersioningInput{
  Bucket: aws.String(bucket),
  VersioningConfiguration: &types.VersioningConfiguration{
   MFADelete: types.MFADeleteDisabled,
   Status:    types.BucketVersioningStatusEnabled,
  },
 }
 _, err := actor.S3Client.PutBucketVersioning(ctx, verInput)
 if err != nil {
  var noBucket *types.NoSuchBucket
  if errors.As(err, &noBucket) {
```

```
    log.Printf("Bucket %s does not exist.\n", bucket)
    err = noBucket
   }
   return err
  }

  input := &s3.PutObjectLockConfigurationInput{
   Bucket: aws.String(bucket),
   ObjectLockConfiguration: &types.ObjectLockConfiguration{
    ObjectLockEnabled: types.ObjectLockEnabledEnabled,
   },
  }
  _, err = actor.S3Client.PutObjectLockConfiguration(ctx, input)
  if err != nil {
   var noBucket *types.NoSuchBucket
   if errors.As(err, &noBucket) {
    log.Printf("Bucket %s does not exist.\n", bucket)
    err = noBucket
   }
  }

  return err
}



// PutObjectRetention sets the object retention configuration for an S3 object.
func (actor S3Actions) PutObjectRetention(ctx context.Context, bucket string, key
 string, retentionMode types.ObjectLockRetentionMode, retentionPeriodDays int32)
 error {
 input := &s3.PutObjectRetentionInput{
  Bucket: aws.String(bucket),
  Key:    aws.String(key),
  Retention: &types.ObjectLockRetention{
   Mode:            retentionMode,
   RetainUntilDate: aws.Time(time.Now().AddDate(0, 0, int(retentionPeriodDays))),
  },
  BypassGovernanceRetention: aws.Bool(true),
 }

 _, err := actor.S3Client.PutObjectRetention(ctx, input)
 if err != nil {
  var noKey *types.NoSuchKey
  if errors.As(err, &noKey) {
```

```
    log.Printf("Object %s does not exist in bucket %s.\n", key, bucket)
    err = noKey
   }
  }

  return err
}



// UploadObject uses the S3 upload manager to upload an object to a bucket.
func (actor S3Actions) UploadObject(ctx context.Context, bucket string, key
 string, contents string) (string, error) {
 var outKey string
 input := &s3.PutObjectInput{
  Bucket:            aws.String(bucket),
  Key:               aws.String(key),
  Body:              bytes.NewReader([]byte(contents)),
  ChecksumAlgorithm: types.ChecksumAlgorithmSha256,
 }
 output, err := actor.S3Manager.Upload(ctx, input)
 if err != nil {
  var noBucket *types.NoSuchBucket
  if errors.As(err, &noBucket) {
   log.Printf("Bucket %s does not exist.\n", bucket)
   err = noBucket
  }
 } else {
  err := s3.NewObjectExistsWaiter(actor.S3Client).Wait(ctx, &s3.HeadObjectInput{
   Bucket: aws.String(bucket),
   Key:    aws.String(key),
  }, time.Minute)
  if err != nil {
   log.Printf("Failed attempt to wait for object %s to exist in %s.\n", key,
 bucket)
  } else {
   outKey = *output.Key
  }
 }
 return outKey, err
}
```

```
// ListObjectVersions lists all versions of all objects in a bucket.
func (actor S3Actions) ListObjectVersions(ctx context.Context, bucket string)
 ([]types.ObjectVersion, error) {
 var err error
 var output *s3.ListObjectVersionsOutput
 var versions []types.ObjectVersion
 input := &s3.ListObjectVersionsInput{Bucket: aws.String(bucket)}
 versionPaginator := s3.NewListObjectVersionsPaginator(actor.S3Client, input)
 for versionPaginator.HasMorePages() {
  output, err = versionPaginator.NextPage(ctx)
  if err != nil {
   var noBucket *types.NoSuchBucket
   if errors.As(err, &noBucket) {
    log.Printf("Bucket %s does not exist.\n", bucket)
    err = noBucket
   }
   break
  } else {
   versions = append(versions, output.Versions...)
  }
 }
 return versions, err
}



// DeleteObject deletes an object from a bucket.
func (actor S3Actions) DeleteObject(ctx context.Context, bucket string, key
 string, versionId string, bypassGovernance bool) (bool, error) {
 deleted := false
 input := &s3.DeleteObjectInput{
  Bucket: aws.String(bucket),
  Key:    aws.String(key),
 }
 if versionId != "" {
  input.VersionId = aws.String(versionId)
 }
 if bypassGovernance {
  input.BypassGovernanceRetention = aws.Bool(true)
 }
 _, err := actor.S3Client.DeleteObject(ctx, input)
 if err != nil {
  var noKey *types.NoSuchKey
  var apiErr *smithy.GenericAPIError
```

```
  if errors.As(err, &noKey) {
   log.Printf("Object %s does not exist in %s.\n", key, bucket)
   err = noKey
  } else if errors.As(err, &apiErr) {
   switch apiErr.ErrorCode() {
   case "AccessDenied":
    log.Printf("Access denied: cannot delete object %s from %s.\n", key, bucket)
    err = nil
   case "InvalidArgument":
    if bypassGovernance {
     log.Printf("You cannot specify bypass governance on a bucket without lock
 enabled.")
     err = nil
    }
   }
  }
 } else {
  err = s3.NewObjectNotExistsWaiter(actor.S3Client).Wait(
   ctx, &s3.HeadObjectInput{Bucket: aws.String(bucket), Key: aws.String(key)},
 time.Minute)
  if err != nil {
   log.Printf("Failed attempt to wait for object %s in bucket %s to be deleted.
\n", key, bucket)
  } else {
   deleted = true
  }
 }
 return deleted, err
}



// DeleteObjects deletes a list of objects from a bucket.
func (actor S3Actions) DeleteObjects(ctx context.Context, bucket string, objects
 []types.ObjectIdentifier, bypassGovernance bool) error {
 if len(objects) == 0 {
  return nil
 }

 input := s3.DeleteObjectsInput{
  Bucket: aws.String(bucket),
  Delete: &types.Delete{
   Objects: objects,
   Quiet:   aws.Bool(true),
```

```
  },
 }
 if bypassGovernance {
  input.BypassGovernanceRetention = aws.Bool(true)
 }
 delOut, err := actor.S3Client.DeleteObjects(ctx, &input)
 if err != nil || len(delOut.Errors) > 0 {
  log.Printf("Error deleting objects from bucket %s.\n", bucket)
  if err != nil {
   var noBucket *types.NoSuchBucket
   if errors.As(err, &noBucket) {
    log.Printf("Bucket %s does not exist.\n", bucket)
    err = noBucket
   }
  } else if len(delOut.Errors) > 0 {
   for _, outErr := range delOut.Errors {
    log.Printf("%s: %s\n", *outErr.Key, *outErr.Message)
   }
   err = fmt.Errorf("%s", *delOut.Errors[0].Message)
  }
 } else {
  for _, delObjs := range delOut.Deleted {
   err = s3.NewObjectNotExistsWaiter(actor.S3Client).Wait(
    ctx, &s3.HeadObjectInput{Bucket: aws.String(bucket), Key: delObjs.Key},
 time.Minute)
   if err != nil {
    log.Printf("Failed attempt to wait for object %s to be deleted.\n",
 *delObjs.Key)
   } else {
    log.Printf("Deleted %s.\n", *delObjs.Key)
   }
  }
 }
 return err
}
```

Clean up resources.

```
import (
```

```
 "context"
 "log"
 "s3_object_lock/actions"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/awsdocs/aws-doc-sdk-examples/gov2/demotools"
)

// DemoBucket contains metadata for buckets used in this example.
type DemoBucket struct {
 name             string
 retentionEnabled bool
 objectKeys       []string
}

// Resources keeps track of AWS resources created during the ObjectLockScenario
 and handles
// cleanup when the scenario finishes.
type Resources struct {
 demoBuckets map[string]*DemoBucket

 s3Actions  *actions.S3Actions
 questioner demotools.IQuestioner
}

// init initializes objects in the Resources struct.
func (resources *Resources) init(s3Actions *actions.S3Actions, questioner
 demotools.IQuestioner) {
 resources.s3Actions = s3Actions
 resources.questioner = questioner
 resources.demoBuckets = map[string]*DemoBucket{}
}

// Cleanup deletes all AWS resources created during the ObjectLockScenario.
func (resources *Resources) Cleanup(ctx context.Context) {
 defer func() {
  if r := recover(); r != nil {
   log.Printf("Something went wrong during cleanup.\n%v\n", r)
   log.Println("Use the AWS Management Console to remove any remaining resources
 " +
    "that were created for this scenario.")
```

```
  }
 }()

 wantDelete := resources.questioner.AskBool("Do you want to remove all of the AWS
 resources that were created "+
  "during this demo (y/n)?", "y")
 if !wantDelete {
  log.Println("Be sure to remove resources when you're done with them to avoid
 unexpected charges!")
  return
 }

 log.Println("Removing objects from S3 buckets and deleting buckets...")
 resources.deleteBuckets(ctx)
 //resources.deleteRetentionObjects(resources.retentionBucket,
 resources.retentionObjects)

 log.Println("Cleanup complete.")
}

// deleteBuckets empties and then deletes all buckets created during the
 ObjectLockScenario.
func (resources *Resources) deleteBuckets(ctx context.Context) {
 for _, info := range createInfo {
  bucket := resources.demoBuckets[info.name]
  resources.deleteObjects(ctx, bucket)
  _, err := resources.s3Actions.S3Client.DeleteBucket(ctx, &s3.DeleteBucketInput{
   Bucket: aws.String(bucket.name),
  })
  if err != nil {
   panic(err)
  }
 }
 for _, info := range createInfo {
  bucket := resources.demoBuckets[info.name]
  err := s3.NewBucketNotExistsWaiter(resources.s3Actions.S3Client).Wait(
   ctx, &s3.HeadBucketInput{Bucket: aws.String(bucket.name)}, time.Minute)
  if err != nil {
   log.Printf("Failed attempt to wait for bucket %s to be deleted.\n",
 bucket.name)
  } else {
   log.Printf("Deleted %s.\n", bucket.name)
  }
 }
```

```
 resources.demoBuckets = map[string]*DemoBucket{}
}

// deleteObjects deletes all objects in the specified bucket.
func (resources *Resources) deleteObjects(ctx context.Context, bucket
 *DemoBucket) {
 lockConfig, err := resources.s3Actions.GetObjectLockConfiguration(ctx,
 bucket.name)
 if err != nil {
  panic(err)
 }
 versions, err := resources.s3Actions.ListObjectVersions(ctx, bucket.name)
 if err != nil {
  switch err.(type) {
  case *types.NoSuchBucket:
   log.Printf("No objects to get from %s.\n", bucket.name)
  default:
   panic(err)
  }
 }
 delObjects := make([]types.ObjectIdentifier, len(versions))
 for i, version := range versions {
  if lockConfig != nil && lockConfig.ObjectLockEnabled ==
 types.ObjectLockEnabledEnabled {
   status, err := resources.s3Actions.GetObjectLegalHold(ctx, bucket.name,
 *version.Key, *version.VersionId)
   if err != nil {
    switch err.(type) {
    case *types.NoSuchKey:
     log.Printf("Couldn't determine legal hold status for %s in %s.\n",
 *version.Key, bucket.name)
    default:
     panic(err)
    }
   } else if status != nil && *status == types.ObjectLockLegalHoldStatusOn {
    err = resources.s3Actions.PutObjectLegalHold(ctx, bucket.name, *version.Key,
 *version.VersionId, types.ObjectLockLegalHoldStatusOff)
    if err != nil {
     switch err.(type) {
     case *types.NoSuchKey:
      log.Printf("Couldn't turn off legal hold for %s in %s.\n", *version.Key,
 bucket.name)
     default:
      panic(err)
```

```
      }
     }
    }
   }
   delObjects[i] = types.ObjectIdentifier{Key: version.Key, VersionId:
  version.VersionId}
  }
  err = resources.s3Actions.DeleteObjects(ctx, bucket.name, delObjects,
  bucket.retentionEnabled)
  if err != nil {
   switch err.(type) {
   case *types.NoSuchBucket:
    log.Println("Nothing to delete.")
   default:
    panic(err)
   }
  }
 }
```

- For API details, see the following topics in *AWS SDK for Go API Reference*.
  - GetObjectLegalHold
  - GetObjectLockConfiguration
  - GetObjectRetention
  - PutObjectLegalHold
  - PutObjectLockConfiguration
  - PutObjectRetention

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Run an interactive scenario demonstrating Amazon S3 object lock features.

```
import software.amazon.awssdk.services.s3.model.ObjectLockLegalHold;
import software.amazon.awssdk.services.s3.model.ObjectLockRetention;
import java.io.BufferedWriter;
import java.io.IOException;
import java.util.ArrayList;
import java.util.List;
import java.util.Scanner;
import java.util.stream.Collectors;

/*
 Before running this Java V2 code example, set up your development
 environment, including your credentials.

 For more information, see the following documentation topic:
 https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/setup.html

 This Java example performs the following tasks:
    1. Create test Amazon Simple Storage Service (S3) buckets with different lock
 policies.
    2. Upload sample objects to each bucket.
    3. Set some Legal Hold and Retention Periods on objects and buckets.
    4. Investigate lock policies by viewing settings or attempting to delete or
 overwrite objects.
    5. Clean up objects and buckets.
 */
public class S3ObjectLockWorkflow {

    public static final String DASHES = new String(new char[80]).replace("\0",
 "-");
    static String bucketName;
    static S3LockActions s3LockActions;
    private static final List<String> bucketNames = new ArrayList<>();
    private static final List<String> fileNames = new ArrayList<>();

    public static void main(String[] args) {
        final String usage = """
            Usage:
                <bucketName> \s

            Where:
                bucketName - The Amazon S3 bucket name.
           """;
```

```
        if (args.length != 1) {
            System.out.println(usage);
            System.exit(1);
        }
        s3LockActions = new S3LockActions();
        bucketName = args[0];
        Scanner scanner = new Scanner(System.in);

        System.out.println(DASHES);
        System.out.println("Welcome to the Amazon Simple Storage Service (S3)
 Object Locking Feature Scenario.");
        System.out.println("Press Enter to continue...");
        scanner.nextLine();
        configurationSetup();
        System.out.println(DASHES);

        System.out.println(DASHES);
        setup();
        System.out.println("Setup is complete. Press Enter to continue...");
        scanner.nextLine();
        System.out.println(DASHES);

        System.out.println(DASHES);
        System.out.println("Lets present the user with choices.");
        System.out.println("Press Enter to continue...");
        scanner.nextLine();
        demoActionChoices() ;
        System.out.println(DASHES);

        System.out.println(DASHES);
        System.out.println("Would you like to clean up the resources? (y/n)");
        String delAns = scanner.nextLine().trim();
        if (delAns.equalsIgnoreCase("y")) {
            cleanup();
            System.out.println("Clean up is complete.");
        }

        System.out.println("Press Enter to continue...");
        scanner.nextLine();
        System.out.println(DASHES);

        System.out.println(DASHES);
        System.out.println("Amazon S3 Object Locking Workflow is complete.");
```

```
        System.out.println(DASHES);
    }

    // Present the user with the demo action choices.
    public static void demoActionChoices() {
        String[] choices = {
            "List all files in buckets.",
            "Attempt to delete a file.",
            "Attempt to delete a file with retention period bypass.",
            "Attempt to overwrite a file.",
            "View the object and bucket retention settings for a file.",
            "View the legal hold settings for a file.",
            "Finish the workflow."
        };

        int choice = 0;
        while (true) {
            System.out.println(DASHES);
            choice = getChoiceResponse("Explore the S3 locking features by
 selecting one of the following choices:", choices);
            System.out.println(DASHES);
            System.out.println("You selected "+choices[choice]);
            switch (choice) {
                case 0 -> {
                    s3LockActions.listBucketsAndObjects(bucketNames, true);
                }

                case 1 -> {
                    System.out.println("Enter the number of the object to
 delete:");
                    List<S3InfoObject> allFiles =
 s3LockActions.listBucketsAndObjects(bucketNames, true);
                    List<String> fileKeys = allFiles.stream().map(f ->
 f.getKeyName()).collect(Collectors.toList());
                    String[] fileKeysArray = fileKeys.toArray(new String[0]);
                    int fileChoice = getChoiceResponse(null, fileKeysArray);
                    String objectKey = fileKeys.get(fileChoice);
                    String bucketName = allFiles.get(fileChoice).getBucketName();
                    String version = allFiles.get(fileChoice).getVersion();
                    s3LockActions.deleteObjectFromBucket(bucketName, objectKey,
 false, version);
                }

                case 2 -> {
```

```
                    System.out.println("Enter the number of the object to
delete:");
                    List<S3InfoObject> allFiles =
s3LockActions.listBucketsAndObjects(bucketNames, true);
                    List<String> fileKeys = allFiles.stream().map(f ->
f.getKeyName()).collect(Collectors.toList());
                    String[] fileKeysArray = fileKeys.toArray(new String[0]);
                    int fileChoice = getChoiceResponse(null, fileKeysArray);
                    String objectKey = fileKeys.get(fileChoice);
                    String bucketName = allFiles.get(fileChoice).getBucketName();
                    String version = allFiles.get(fileChoice).getVersion();
                    s3LockActions.deleteObjectFromBucket(bucketName, objectKey,
true, version);
                }

                case 3 -> {
                    System.out.println("Enter the number of the object to
overwrite:");
                    List<S3InfoObject> allFiles =
s3LockActions.listBucketsAndObjects(bucketNames, true);
                    List<String> fileKeys = allFiles.stream().map(f ->
f.getKeyName()).collect(Collectors.toList());
                    String[] fileKeysArray = fileKeys.toArray(new String[0]);
                    int fileChoice = getChoiceResponse(null, fileKeysArray);
                    String objectKey = fileKeys.get(fileChoice);
                    String bucketName = allFiles.get(fileChoice).getBucketName();

                    // Attempt to overwrite the file.
                    try (BufferedWriter writer = new BufferedWriter(new
java.io.FileWriter(objectKey))) {
                        writer.write("This is a modified text.");

                    } catch (IOException e) {
                        e.printStackTrace();
                    }
                    s3LockActions.uploadFile(bucketName, objectKey, objectKey);
                }

                case 4 -> {
                    System.out.println("Enter the number of the object to
overwrite:");
                    List<S3InfoObject> allFiles =
s3LockActions.listBucketsAndObjects(bucketNames, true);
```

```
                    List<String> fileKeys = allFiles.stream().map(f ->
f.getKeyName()).collect(Collectors.toList());
                    String[] fileKeysArray = fileKeys.toArray(new String[0]);
                    int fileChoice = getChoiceResponse(null, fileKeysArray);
                    String objectKey = fileKeys.get(fileChoice);
                    String bucketName = allFiles.get(fileChoice).getBucketName();
                    s3LockActions.getObjectRetention(bucketName, objectKey);
                }

                case 5 -> {
                    System.out.println("Enter the number of the object to
view:");
                    List<S3InfoObject> allFiles =
s3LockActions.listBucketsAndObjects(bucketNames, true);
                    List<String> fileKeys = allFiles.stream().map(f ->
f.getKeyName()).collect(Collectors.toList());
                    String[] fileKeysArray = fileKeys.toArray(new String[0]);
                    int fileChoice = getChoiceResponse(null, fileKeysArray);
                    String objectKey = fileKeys.get(fileChoice);
                    String bucketName = allFiles.get(fileChoice).getBucketName();
                    s3LockActions.getObjectLegalHold(bucketName, objectKey);
                    s3LockActions.getBucketObjectLockConfiguration(bucketName);
                }

                case 6 -> {
                    System.out.println("Exiting the workflow...");
                    return;
                }

                default -> {
                    System.out.println("Invalid choice. Please select again.");
                }
            }
        }
    }

    // Clean up the resources from the scenario.
    private static void cleanup() {
        List<S3InfoObject> allFiles =
s3LockActions.listBucketsAndObjects(bucketNames, false);
        for (S3InfoObject fileInfo : allFiles) {
            String bucketName = fileInfo.getBucketName();
            String key = fileInfo.getKeyName();
            String version = fileInfo.getVersion();
```

```
            if (bucketName.contains("lock-enabled") ||
(bucketName.contains("retention-after-creation"))) {
                ObjectLockLegalHold legalHold =
s3LockActions.getObjectLegalHold(bucketName, key);
                if (legalHold != null) {
                    String holdStatus = legalHold.status().name();
                    System.out.println(holdStatus);
                    if (holdStatus.compareTo("ON") == 0) {
                        s3LockActions.modifyObjectLegalHold(bucketName, key,
false);
                    }
                }
                // Check for a retention period.
                ObjectLockRetention retention =
s3LockActions.getObjectRetention(bucketName, key);
                boolean hasRetentionPeriod ;
                hasRetentionPeriod = retention != null;
                s3LockActions.deleteObjectFromBucket(bucketName,
key,hasRetentionPeriod, version);

            } else {
                System.out.println(bucketName +" objects do not have a legal
lock");
                s3LockActions.deleteObjectFromBucket(bucketName, key,false,
version);
            }
        }

        // Delete the buckets.
        System.out.println("Delete "+bucketName);
        for (String bucket : bucketNames){
            s3LockActions.deleteBucketByName(bucket);
        }
    }

    private static void setup() {
        Scanner scanner = new Scanner(System.in);
        System.out.println("""
                For this workflow, we will use the AWS SDK for Java to create
several S3
                buckets and files to demonstrate working with S3 locking
features.
                """);
```

```
        System.out.println("S3 buckets can be created either with or without
object lock enabled.");
        System.out.println("Press Enter to continue...");
        scanner.nextLine();

        // Create three S3 buckets.
        s3LockActions.createBucketWithLockOptions(false, bucketNames.get(0));
        s3LockActions.createBucketWithLockOptions(true, bucketNames.get(1));
        s3LockActions.createBucketWithLockOptions(false, bucketNames.get(2));
        System.out.println("Press Enter to continue.");
        scanner.nextLine();

        System.out.println("Bucket "+bucketNames.get(2) +" will be configured to
use object locking with a default retention period.");
        s3LockActions.modifyBucketDefaultRetention(bucketNames.get(2));
        System.out.println("Press Enter to continue.");
        scanner.nextLine();

        System.out.println("Object lock policies can also be added to existing
buckets. For this example, we will use "+bucketNames.get(1));
        s3LockActions.enableObjectLockOnBucket(bucketNames.get(1));
        System.out.println("Press Enter to continue.");
        scanner.nextLine();

        // Upload some files to the buckets.
        System.out.println("Now let's add some test files:");
        String fileName = "exampleFile.txt";
        int fileCount = 2;
        try (BufferedWriter writer = new BufferedWriter(new
java.io.FileWriter(fileName))) {
            writer.write("This is a sample file for uploading to a bucket.");

        } catch (IOException e) {
            e.printStackTrace();
        }

        for (String bucketName : bucketNames){
            for (int i = 0; i < fileCount; i++) {
                // Get the file name without extension.
                String fileNameWithoutExtension =
java.nio.file.Paths.get(fileName).getFileName().toString();
                int extensionIndex = fileNameWithoutExtension.lastIndexOf('.');
                if (extensionIndex > 0) {
```

```
                    fileNameWithoutExtension =
fileNameWithoutExtension.substring(0, extensionIndex);
                }

                // Create the numbered file names.
                String numberedFileName = fileNameWithoutExtension + i +
getFileExtension(fileName);
                fileNames.add(numberedFileName);
                s3LockActions.uploadFile(bucketName, numberedFileName, fileName);
            }
        }

        String question = null;
        System.out.print("Press Enter to continue...");
        scanner.nextLine();
        System.out.println("Now we can set some object lock policies on
individual files:");
        for (String bucketName : bucketNames) {
            for (int i = 0; i < fileNames.size(); i++){

                // No modifications to the objects in the first bucket.
                if (!bucketName.equals(bucketNames.get(0))) {
                    String exampleFileName = fileNames.get(i);
                    switch (i) {
                        case 0 -> {
                            question = "Would you like to add a legal hold to " +
exampleFileName + " in " + bucketName + " (y/n)?";
                            System.out.println(question);
                            String ans = scanner.nextLine().trim();
                            if (ans.equalsIgnoreCase("y")) {
                                System.out.println("**** You have selected to put
a legal hold " + exampleFileName);

                                // Set a legal hold.
                                s3LockActions.modifyObjectLegalHold(bucketName,
exampleFileName, true);
                            }
                        }
                        case 1 -> {
                            """
                                Would you like to add a 1 day Governance
retention period to %s in %s (y/n)?
```

```
                                Reminder: Only a user with the
 s3:BypassGovernanceRetention permission will be able to delete this file or its
 bucket until the retention period has expired.
                                """.formatted(exampleFileName, bucketName);
                            System.out.println(question);
                            String ans2 = scanner.nextLine().trim();
                            if (ans2.equalsIgnoreCase("y")) {

 s3LockActions.modifyObjectRetentionPeriod(bucketName, exampleFileName);
                            }
                        }
                    }
                }
            }
        }
    }

    // Get file extension.
    private static String getFileExtension(String fileName) {
        int dotIndex = fileName.lastIndexOf('.');
        if (dotIndex > 0) {
            return fileName.substring(dotIndex);
        }
        return "";
    }

    public static void configurationSetup() {
        String noLockBucketName = bucketName + "-no-lock";
        String lockEnabledBucketName = bucketName + "-lock-enabled";
        String retentionAfterCreationBucketName = bucketName + "-retention-after-
creation";
        bucketNames.add(noLockBucketName);
        bucketNames.add(lockEnabledBucketName);
        bucketNames.add(retentionAfterCreationBucketName);
    }

    public static int getChoiceResponse(String question, String[] choices) {
        Scanner scanner = new Scanner(System.in);
        if (question != null) {
            System.out.println(question);
            for (int i = 0; i < choices.length; i++) {
                System.out.println("\t" + (i + 1) + ". " + choices[i]);
            }
        }
```

```
        int choiceNumber = 0;
        while (choiceNumber < 1 || choiceNumber > choices.length) {
            String choice = scanner.nextLine();
            try {
                choiceNumber = Integer.parseInt(choice);
            } catch (NumberFormatException e) {
                System.out.println("Invalid choice. Please enter a valid
 number.");
            }
        }

        return choiceNumber - 1;
    }
}
```

A wrapper class for S3 functions.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.BucketVersioningStatus;
import software.amazon.awssdk.services.s3.model.ChecksumAlgorithm;
import software.amazon.awssdk.services.s3.model.CreateBucketRequest;
import software.amazon.awssdk.services.s3.model.DefaultRetention;
import software.amazon.awssdk.services.s3.model.DeleteBucketRequest;
import software.amazon.awssdk.services.s3.model.DeleteObjectRequest;
import software.amazon.awssdk.services.s3.model.GetObjectLegalHoldRequest;
import software.amazon.awssdk.services.s3.model.GetObjectLegalHoldResponse;
import
 software.amazon.awssdk.services.s3.model.GetObjectLockConfigurationRequest;
import
 software.amazon.awssdk.services.s3.model.GetObjectLockConfigurationResponse;
import software.amazon.awssdk.services.s3.model.GetObjectRetentionRequest;
import software.amazon.awssdk.services.s3.model.GetObjectRetentionResponse;
import software.amazon.awssdk.services.s3.model.HeadBucketRequest;
import software.amazon.awssdk.services.s3.model.ListObjectVersionsRequest;
import software.amazon.awssdk.services.s3.model.ListObjectVersionsResponse;
import software.amazon.awssdk.services.s3.model.MFADelete;
import software.amazon.awssdk.services.s3.model.ObjectLockConfiguration;
import software.amazon.awssdk.services.s3.model.ObjectLockEnabled;
import software.amazon.awssdk.services.s3.model.ObjectLockLegalHold;
import software.amazon.awssdk.services.s3.model.ObjectLockLegalHoldStatus;
```

```
import software.amazon.awssdk.services.s3.model.ObjectLockRetention;
import software.amazon.awssdk.services.s3.model.ObjectLockRetentionMode;
import software.amazon.awssdk.services.s3.model.ObjectLockRule;
import software.amazon.awssdk.services.s3.model.PutBucketVersioningRequest;
import software.amazon.awssdk.services.s3.model.PutObjectLegalHoldRequest;
import
 software.amazon.awssdk.services.s3.model.PutObjectLockConfigurationRequest;
import software.amazon.awssdk.services.s3.model.PutObjectRequest;
import software.amazon.awssdk.services.s3.model.PutObjectResponse;
import software.amazon.awssdk.services.s3.model.PutObjectRetentionRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.services.s3.model.VersioningConfiguration;
import software.amazon.awssdk.services.s3.waiters.S3Waiter;
import java.nio.file.Path;
import java.nio.file.Paths;
import java.time.Instant;
import java.time.ZoneId;
import java.time.ZonedDateTime;
import java.time.format.DateTimeFormatter;
import java.time.temporal.ChronoUnit;
import java.util.List;
import java.util.concurrent.atomic.AtomicInteger;
import java.util.stream.Collectors;

// Contains application logic for the Amazon S3 operations used in this workflow.
public class S3LockActions {

    private static S3Client getClient() {
        return S3Client.builder()
            .region(Region.US_EAST_1)
            .build();
    }

    // Set or modify a retention period on an object in an S3 bucket.
    public void modifyObjectRetentionPeriod(String bucketName, String objectKey)
 {
        // Calculate the instant one day from now.
        Instant futureInstant = Instant.now().plus(1, ChronoUnit.DAYS);

        // Convert the Instant to a ZonedDateTime object with a specific time
 zone.
        ZonedDateTime zonedDateTime =
 futureInstant.atZone(ZoneId.systemDefault());
```

```
        // Define a formatter for human-readable output.
        DateTimeFormatter formatter = DateTimeFormatter.ofPattern("yyyy-MM-dd
HH:mm:ss");

        // Format the ZonedDateTime object to a human-readable date string.
        String humanReadableDate = formatter.format(zonedDateTime);

        // Print the formatted date string.
        System.out.println("Formatted Date: " + humanReadableDate);
        ObjectLockRetention retention = ObjectLockRetention.builder()
            .mode(ObjectLockRetentionMode.GOVERNANCE)
            .retainUntilDate(futureInstant)
            .build();

        PutObjectRetentionRequest retentionRequest =
PutObjectRetentionRequest.builder()
            .bucket(bucketName)
            .key(objectKey)
            .retention(retention)
            .build();

        getClient().putObjectRetention(retentionRequest);
        System.out.println("Set retention for "+objectKey +" in " +bucketName +"
until "+ humanReadableDate +".");
    }

    // Get the legal hold details for an S3 object.
    public ObjectLockLegalHold getObjectLegalHold(String bucketName, String
objectKey) {
        try {
            GetObjectLegalHoldRequest legalHoldRequest =
GetObjectLegalHoldRequest.builder()
                .bucket(bucketName)
                .key(objectKey)
                .build();

            GetObjectLegalHoldResponse response =
getClient().getObjectLegalHold(legalHoldRequest);
            System.out.println("Object legal hold for " + objectKey + " in " +
bucketName +
                ":\n\tStatus: " + response.legalHold().status());
            return response.legalHold();

        } catch (S3Exception ex) {
```

```
            System.out.println("\tUnable to fetch legal hold: '" +
ex.getMessage() + "'");
        }

        return null;
    }

    // Create a new Amazon S3 bucket with object lock options.
    public void createBucketWithLockOptions(boolean enableObjectLock, String
bucketName) {
        S3Waiter s3Waiter = getClient().waiter();
        CreateBucketRequest bucketRequest = CreateBucketRequest.builder()
            .bucket(bucketName)
            .objectLockEnabledForBucket(enableObjectLock)
            .build();

        getClient().createBucket(bucketRequest);
        HeadBucketRequest bucketRequestWait = HeadBucketRequest.builder()
            .bucket(bucketName)
            .build();

        // Wait until the bucket is created and print out the response.
        s3Waiter.waitUntilBucketExists(bucketRequestWait);
        System.out.println(bucketName + " is ready");
    }

    public List<S3InfoObject> listBucketsAndObjects(List<String> bucketNames,
Boolean interactive) {
        AtomicInteger counter = new AtomicInteger(0); // Initialize counter.
        return bucketNames.stream()
            .flatMap(bucketName ->
listBucketObjectsAndVersions(bucketName).versions().stream()
                .map(version -> {
                    S3InfoObject s3InfoObject = new S3InfoObject();
                    s3InfoObject.setBucketName(bucketName);
                    s3InfoObject.setVersion(version.versionId());
                    s3InfoObject.setKeyName(version.key());
                    return s3InfoObject;
                }))
            .peek(s3InfoObject -> {
                int i = counter.incrementAndGet(); // Increment and get the
updated value.
                if (interactive) {
                    System.out.println(i + ": "+ s3InfoObject.getKeyName());
```

```
                    System.out.printf("%5s Bucket name: %s\n", "",
s3InfoObject.getBucketName());
                    System.out.printf("%5s Version: %s\n", "",
s3InfoObject.getVersion());
                }
            })
            .collect(Collectors.toList());
    }

    public ListObjectVersionsResponse listBucketObjectsAndVersions(String
bucketName) {
        ListObjectVersionsRequest versionsRequest =
ListObjectVersionsRequest.builder()
            .bucket(bucketName)
            .build();

        return getClient().listObjectVersions(versionsRequest);
    }

    // Set or modify a retention period on an S3 bucket.
    public void modifyBucketDefaultRetention(String bucketName) {
        VersioningConfiguration versioningConfiguration =
VersioningConfiguration.builder()
            .mfaDelete(MFADelete.DISABLED)
            .status(BucketVersioningStatus.ENABLED)
            .build();

        PutBucketVersioningRequest versioningRequest =
PutBucketVersioningRequest.builder()
            .bucket(bucketName)
            .versioningConfiguration(versioningConfiguration)
            .build();

        getClient().putBucketVersioning(versioningRequest);
        DefaultRetention rention = DefaultRetention.builder()
            .days(1)
            .mode(ObjectLockRetentionMode.GOVERNANCE)
            .build();

        ObjectLockRule lockRule = ObjectLockRule.builder()
            .defaultRetention(rention)
            .build();
```

```
        ObjectLockConfiguration objectLockConfiguration =
ObjectLockConfiguration.builder()
            .objectLockEnabled(ObjectLockEnabled.ENABLED)
            .rule(lockRule)
            .build();

        PutObjectLockConfigurationRequest putObjectLockConfigurationRequest =
PutObjectLockConfigurationRequest.builder()
            .bucket(bucketName)
            .objectLockConfiguration(objectLockConfiguration)
            .build();


getClient().putObjectLockConfiguration(putObjectLockConfigurationRequest) ;
        System.out.println("Added a default retention to bucket "+bucketName
+".");
    }

    // Enable object lock on an existing bucket.
    public void enableObjectLockOnBucket(String bucketName) {
        try {
            VersioningConfiguration versioningConfiguration =
VersioningConfiguration.builder()
                .status(BucketVersioningStatus.ENABLED)
                .build();

            PutBucketVersioningRequest putBucketVersioningRequest =
PutBucketVersioningRequest.builder()
                .bucket(bucketName)
                .versioningConfiguration(versioningConfiguration)
                .build();

            // Enable versioning on the bucket.
            getClient().putBucketVersioning(putBucketVersioningRequest);
            PutObjectLockConfigurationRequest request =
PutObjectLockConfigurationRequest.builder()
                .bucket(bucketName)
                .objectLockConfiguration(ObjectLockConfiguration.builder()
                    .objectLockEnabled(ObjectLockEnabled.ENABLED)
                    .build())
                .build();

            getClient().putObjectLockConfiguration(request);
```

```
            System.out.println("Successfully enabled object lock on
"+bucketName);

        } catch (S3Exception ex) {
            System.out.println("Error modifying object lock: '" + ex.getMessage()
+ "'");
        }
    }

    public void uploadFile(String bucketName, String objectName, String filePath)
{
        Path file = Paths.get(filePath);
        PutObjectRequest request = PutObjectRequest.builder()
            .bucket(bucketName)
            .key(objectName)
            .checksumAlgorithm(ChecksumAlgorithm.SHA256)
            .build();

        PutObjectResponse response = getClient().putObject(request, file);
        if (response != null) {
            System.out.println("\tSuccessfully uploaded " + objectName + " to " +
bucketName + ".");
        } else {
            System.out.println("\tCould not upload " + objectName + " to " +
bucketName + ".");
        }
    }

    // Set or modify a legal hold on an object in an S3 bucket.
    public void modifyObjectLegalHold(String bucketName, String objectKey,
boolean legalHoldOn) {
        ObjectLockLegalHold legalHold ;
        if (legalHoldOn) {
            legalHold = ObjectLockLegalHold.builder()
                .status(ObjectLockLegalHoldStatus.ON)
                .build();
        } else {
            legalHold = ObjectLockLegalHold.builder()
                .status(ObjectLockLegalHoldStatus.OFF)
                .build();
        }

        PutObjectLegalHoldRequest legalHoldRequest =
PutObjectLegalHoldRequest.builder()
```

```
            .bucket(bucketName)
            .key(objectKey)
            .legalHold(legalHold)
            .build();

        getClient().putObjectLegalHold(legalHoldRequest) ;
        System.out.println("Modified legal hold for "+ objectKey +" in
"+bucketName +".");
    }

    // Delete an object from a specific bucket.
    public void deleteObjectFromBucket(String bucketName, String objectKey,
boolean hasRetention, String versionId) {
        try {
            DeleteObjectRequest objectRequest;
            if (hasRetention) {
                objectRequest = DeleteObjectRequest.builder()
                    .bucket(bucketName)
                    .key(objectKey)
                    .versionId(versionId)
                    .bypassGovernanceRetention(true)
                    .build();
            } else {
                objectRequest = DeleteObjectRequest.builder()
                    .bucket(bucketName)
                    .key(objectKey)
                    .versionId(versionId)
                    .build();
            }

            getClient().deleteObject(objectRequest) ;
            System.out.println("The object was successfully deleted");

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
        }
    }

    // Get the retention period for an S3 object.
    public ObjectLockRetention getObjectRetention(String bucketName, String key){
        try {
            GetObjectRetentionRequest retentionRequest =
GetObjectRetentionRequest.builder()
                .bucket(bucketName)
```

```
                .key(key)
                .build();

            GetObjectRetentionResponse response =
getClient().getObjectRetention(retentionRequest);
            System.out.println("tObject retention for "+key +"
in "+ bucketName +": " + response.retention().mode() +" until "+
response.retention().retainUntilDate() +".");
            return response.retention();

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            return null;
        }
    }

    public void deleteBucketByName(String bucketName) {
        try {
            DeleteBucketRequest request = DeleteBucketRequest.builder()
                .bucket(bucketName)
                .build();

            getClient().deleteBucket(request);
            System.out.println(bucketName +" was deleted.");

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
        }
    }

    // Get the object lock configuration details for an S3 bucket.
    public void getBucketObjectLockConfiguration(String bucketName) {
        GetObjectLockConfigurationRequest objectLockConfigurationRequest =
GetObjectLockConfigurationRequest.builder()
            .bucket(bucketName)
            .build();

        GetObjectLockConfigurationResponse response =
getClient().getObjectLockConfiguration(objectLockConfigurationRequest);
        System.out.println("Bucket object lock config for "+bucketName +":  ");
        System.out.println("\tEnabled:
"+response.objectLockConfiguration().objectLockEnabled());
        System.out.println("\tRule: "+
response.objectLockConfiguration().rule().defaultRetention());
```

```
    }
}
```

- For API details, see the following topics in *AWS SDK for Java 2.x API Reference*.
  - GetObjectLegalHold
  - GetObjectLockConfiguration
  - GetObjectRetention
  - PutObjectLegalHold
  - PutObjectLockConfiguration
  - PutObjectRetention

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Entrypoint for the scenario (index.js). This orchestrates all of the steps. Visit GitHub to see the implementation details for Scenario, ScenarioInput, ScenarioOutput, and ScenarioAction.

```
import * as Scenarios from "@aws-doc-sdk-examples/lib/scenario/index.js";
import {
  exitOnFalse,
  loadState,
  saveState,
} from "@aws-doc-sdk-examples/lib/scenario/steps-common.js";

import { welcome, welcomeContinue } from "./welcome.steps.js";
import {
  confirmCreateBuckets,
  confirmPopulateBuckets,
  confirmSetLegalHoldFileEnabled,
  confirmSetLegalHoldFileRetention,
  confirmSetRetentionPeriodFileEnabled,
```

```
  confirmSetRetentionPeriodFileRetention,
  confirmUpdateLockPolicy,
  confirmUpdateRetention,
  createBuckets,
  createBucketsAction,
  getBucketPrefix,
  populateBuckets,
  populateBucketsAction,
  setLegalHoldFileEnabledAction,
  setLegalHoldFileRetentionAction,
  setRetentionPeriodFileEnabledAction,
  setRetentionPeriodFileRetentionAction,
  updateLockPolicy,
  updateLockPolicyAction,
  updateRetention,
  updateRetentionAction,
} from "./setup.steps.js";

/**
 * @param {Scenarios} scenarios
 * @param {Record<string, any>} initialState
 */
export const getWorkflowStages = (scenarios, initialState = {}) => {
  const client = new S3Client({});

  return {
    deploy: new scenarios.Scenario(
      "S3 Object Locking - Deploy",
      [
        welcome(scenarios),
        welcomeContinue(scenarios),
        exitOnFalse(scenarios, "welcomeContinue"),
        getBucketPrefix(scenarios),
        createBuckets(scenarios),
        confirmCreateBuckets(scenarios),
        exitOnFalse(scenarios, "confirmCreateBuckets"),
        createBucketsAction(scenarios, client),
        updateRetention(scenarios),
        confirmUpdateRetention(scenarios),
        exitOnFalse(scenarios, "confirmUpdateRetention"),
        updateRetentionAction(scenarios, client),
        populateBuckets(scenarios),
        confirmPopulateBuckets(scenarios),
        exitOnFalse(scenarios, "confirmPopulateBuckets"),
```

```
        populateBucketsAction(scenarios, client),
        updateLockPolicy(scenarios),
        confirmUpdateLockPolicy(scenarios),
        exitOnFalse(scenarios, "confirmUpdateLockPolicy"),
        updateLockPolicyAction(scenarios, client),
        confirmSetLegalHoldFileEnabled(scenarios),
        setLegalHoldFileEnabledAction(scenarios, client),
        confirmSetRetentionPeriodFileEnabled(scenarios),
        setRetentionPeriodFileEnabledAction(scenarios, client),
        confirmSetLegalHoldFileRetention(scenarios),
        setLegalHoldFileRetentionAction(scenarios, client),
        confirmSetRetentionPeriodFileRetention(scenarios),
        setRetentionPeriodFileRetentionAction(scenarios, client),
        saveState,
      ],
      initialState,
    ),
    demo: new scenarios.Scenario(
      "S3 Object Locking - Demo",
      [loadState, replAction(scenarios, client)],
      initialState,
    ),
    clean: new scenarios.Scenario(
      "S3 Object Locking - Destroy",
      [
        loadState,
        confirmCleanup(scenarios),
        exitOnFalse(scenarios, "confirmCleanup"),
        cleanupAction(scenarios, client),
      ],
      initialState,
    ),
  };
};

// Call function if run directly
import { fileURLToPath } from "node:url";
import { S3Client } from "@aws-sdk/client-s3";
import { cleanupAction, confirmCleanup } from "./clean.steps.js";
import { replAction } from "./repl.steps.js";

if (process.argv[1] === fileURLToPath(import.meta.url)) {
  const objectLockingScenarios = getWorkflowStages(Scenarios);
  Scenarios.parseScenarioArgs(objectLockingScenarios, {
```

```
    name: "Amazon S3 object locking workflow",
    description:
      "Work with Amazon Simple Storage Service (Amazon S3) object locking
 features.",
    synopsis:
      "node index.js --scenario <deploy | demo | clean> [-h|--help] [-y|--yes] [-
v|--verbose]",
  });
}
```

Output welcome messages to the console (welcome.steps.js).

```
/**
 * @typedef {import("@aws-doc-sdk-examples/lib/scenario/index.js")} Scenarios
 */

/**
 * @param {Scenarios} scenarios
 */
const welcome = (scenarios) =>
  new scenarios.ScenarioOutput(
    "welcome",
    "Welcome to the Amazon Simple Storage Service (S3) Object Locking Feature
 Scenario. For this workflow, we will use the AWS SDK for JavaScript to create
 several S3 buckets and files to demonstrate working with S3 locking features.",
    { header: true },
  );

/**
 * @param {Scenarios} scenarios
 */
const welcomeContinue = (scenarios) =>
  new scenarios.ScenarioInput(
    "welcomeContinue",
    "Press Enter when you are ready to start.",
    { type: "confirm" },
  );

export { welcome, welcomeContinue };
```

Deploy buckets, objects, and file settings (setup.steps.js).

```
import {
  BucketVersioningStatus,
  ChecksumAlgorithm,
  CreateBucketCommand,
  MFADeleteStatus,
  PutBucketVersioningCommand,
  PutObjectCommand,
  PutObjectLockConfigurationCommand,
  PutObjectLegalHoldCommand,
  PutObjectRetentionCommand,
  ObjectLockLegalHoldStatus,
  ObjectLockRetentionMode,
  GetBucketVersioningCommand,
  BucketAlreadyExists,
  BucketAlreadyOwnedByYou,
  S3ServiceException,
  waitUntilBucketExists,
} from "@aws-sdk/client-s3";

import { retry } from "@aws-doc-sdk-examples/lib/utils/util-timers.js";

/**
 * @typedef {import("@aws-doc-sdk-examples/lib/scenario/index.js")} Scenarios
 */

/**
 * @typedef {import("@aws-sdk/client-s3").S3Client} S3Client
 */

/**
 * @param {Scenarios} scenarios
 */
const getBucketPrefix = (scenarios) =>
  new scenarios.ScenarioInput(
    "bucketPrefix",
    "Provide a prefix that will be used for bucket creation.",
    { type: "input", default: "amzn-s3-demo-bucket" },
  );

/**
 * @param {Scenarios} scenarios
 */
const createBuckets = (scenarios) =>
```

```
  new scenarios.ScenarioOutput(
    "createBuckets",
    (state) => `The following buckets will be created:
         ${state.bucketPrefix}-no-lock with object lock False.
         ${state.bucketPrefix}-lock-enabled with object lock True.
         ${state.bucketPrefix}-retention-after-creation with object lock False.`,
    { preformatted: true },
  );

/**
 * @param {Scenarios} scenarios
 */
const confirmCreateBuckets = (scenarios) =>
  new scenarios.ScenarioInput("confirmCreateBuckets", "Create the buckets?", {
    type: "confirm",
  });

/**
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
const createBucketsAction = (scenarios, client) =>
  new scenarios.ScenarioAction("createBucketsAction", async (state) => {
    const noLockBucketName = `${state.bucketPrefix}-no-lock`;
    const lockEnabledBucketName = `${state.bucketPrefix}-lock-enabled`;
    const retentionBucketName = `${state.bucketPrefix}-retention-after-creation`;

    try {
      await client.send(new CreateBucketCommand({ Bucket: noLockBucketName }));
      await waitUntilBucketExists({ client }, { Bucket: noLockBucketName });
      await client.send(
        new CreateBucketCommand({
          Bucket: lockEnabledBucketName,
          ObjectLockEnabledForBucket: true,
        }),
      );
      await waitUntilBucketExists(
        { client },
        { Bucket: lockEnabledBucketName },
      );
      await client.send(
        new CreateBucketCommand({ Bucket: retentionBucketName }),
      );
      await waitUntilBucketExists({ client }, { Bucket: retentionBucketName });
```

```
      state.noLockBucketName = noLockBucketName;
      state.lockEnabledBucketName = lockEnabledBucketName;
      state.retentionBucketName = retentionBucketName;
    } catch (caught) {
      if (
        caught instanceof BucketAlreadyExists ||
        caught instanceof BucketAlreadyOwnedByYou
      ) {
        console.error(`${caught.name}: ${caught.message}`);
        state.earlyExit = true;
      } else {
        throw caught;
      }
    }
  });

/**
 * @param {Scenarios} scenarios
 */
const populateBuckets = (scenarios) =>
  new scenarios.ScenarioOutput(
    "populateBuckets",
    (state) => `The following test files will be created:
         file0.txt in ${state.bucketPrefix}-no-lock.
         file1.txt in ${state.bucketPrefix}-no-lock.
         file0.txt in ${state.bucketPrefix}-lock-enabled.
         file1.txt in ${state.bucketPrefix}-lock-enabled.
         file0.txt in ${state.bucketPrefix}-retention-after-creation.
         file1.txt in ${state.bucketPrefix}-retention-after-creation.`,
    { preformatted: true },
  );

/**
 * @param {Scenarios} scenarios
 */
const confirmPopulateBuckets = (scenarios) =>
  new scenarios.ScenarioInput(
    "confirmPopulateBuckets",
    "Populate the buckets?",
    { type: "confirm" },
  );

/**
```

```
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
const populateBucketsAction = (scenarios, client) =>
  new scenarios.ScenarioAction("populateBucketsAction", async (state) => {
    try {
      await client.send(
        new PutObjectCommand({
          Bucket: state.noLockBucketName,
          Key: "file0.txt",
          Body: "Content",
          ChecksumAlgorithm: ChecksumAlgorithm.SHA256,
        }),
      );
      await client.send(
        new PutObjectCommand({
          Bucket: state.noLockBucketName,
          Key: "file1.txt",
          Body: "Content",
          ChecksumAlgorithm: ChecksumAlgorithm.SHA256,
        }),
      );
      await client.send(
        new PutObjectCommand({
          Bucket: state.lockEnabledBucketName,
          Key: "file0.txt",
          Body: "Content",
          ChecksumAlgorithm: ChecksumAlgorithm.SHA256,
        }),
      );
      await client.send(
        new PutObjectCommand({
          Bucket: state.lockEnabledBucketName,
          Key: "file1.txt",
          Body: "Content",
          ChecksumAlgorithm: ChecksumAlgorithm.SHA256,
        }),
      );
      await client.send(
        new PutObjectCommand({
          Bucket: state.retentionBucketName,
          Key: "file0.txt",
          Body: "Content",
          ChecksumAlgorithm: ChecksumAlgorithm.SHA256,
```

```
        }),
      );
      await client.send(
        new PutObjectCommand({
          Bucket: state.retentionBucketName,
          Key: "file1.txt",
          Body: "Content",
          ChecksumAlgorithm: ChecksumAlgorithm.SHA256,
        }),
      );
    } catch (caught) {
      if (caught instanceof S3ServiceException) {
        console.error(
          `Error from S3 while uploading object.  ${caught.name}:
 ${caught.message}`,
        );
      } else {
        throw caught;
      }
    }
  });

/**
 * @param {Scenarios} scenarios
 */
const updateRetention = (scenarios) =>
  new scenarios.ScenarioOutput(
    "updateRetention",
    (state) => `A bucket can be configured to use object locking with a default
 retention period.
A default retention period will be configured for ${state.bucketPrefix}-
retention-after-creation.`,
    { preformatted: true },
  );

/**
 * @param {Scenarios} scenarios
 */
const confirmUpdateRetention = (scenarios) =>
  new scenarios.ScenarioInput(
    "confirmUpdateRetention",
    "Configure default retention period?",
    { type: "confirm" },
  );
```

```
/**
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
const updateRetentionAction = (scenarios, client) =>
  new scenarios.ScenarioAction("updateRetentionAction", async (state) => {
    await client.send(
      new PutBucketVersioningCommand({
        Bucket: state.retentionBucketName,
        VersioningConfiguration: {
          MFADelete: MFADeleteStatus.Disabled,
          Status: BucketVersioningStatus.Enabled,
        },
      }),
    );

    const getBucketVersioning = new GetBucketVersioningCommand({
      Bucket: state.retentionBucketName,
    });

    await retry({ intervalInMs: 500, maxRetries: 10 }, async () => {
      const { Status } = await client.send(getBucketVersioning);
      if (Status !== "Enabled") {
        throw new Error("Bucket versioning is not enabled.");
      }
    });

    await client.send(
      new PutObjectLockConfigurationCommand({
        Bucket: state.retentionBucketName,
        ObjectLockConfiguration: {
          ObjectLockEnabled: "Enabled",
          Rule: {
            DefaultRetention: {
              Mode: "GOVERNANCE",
              Years: 1,
            },
          },
        },
      }),
    );
  });
```

```
/**
 * @param {Scenarios} scenarios
 */
const updateLockPolicy = (scenarios) =>
  new scenarios.ScenarioOutput(
    "updateLockPolicy",
    (state) => `Object lock policies can also be added to existing buckets.
An object lock policy will be added to ${state.bucketPrefix}-lock-enabled.`,
    { preformatted: true },
  );

/**
 * @param {Scenarios} scenarios
 */
const confirmUpdateLockPolicy = (scenarios) =>
  new scenarios.ScenarioInput(
    "confirmUpdateLockPolicy",
    "Add object lock policy?",
    { type: "confirm" },
  );

/**
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
const updateLockPolicyAction = (scenarios, client) =>
  new scenarios.ScenarioAction("updateLockPolicyAction", async (state) => {
    await client.send(
      new PutObjectLockConfigurationCommand({
        Bucket: state.lockEnabledBucketName,
        ObjectLockConfiguration: {
          ObjectLockEnabled: "Enabled",
        },
      }),
    );
  });

/**
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
const confirmSetLegalHoldFileEnabled = (scenarios) =>
  new scenarios.ScenarioInput(
    "confirmSetLegalHoldFileEnabled",
```

```
    (state) =>
      `Would you like to add a legal hold to file0.txt in
 ${state.lockEnabledBucketName}?`,
    {
      type: "confirm",
    },
  );

/**
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
const setLegalHoldFileEnabledAction = (scenarios, client) =>
  new scenarios.ScenarioAction(
    "setLegalHoldFileEnabledAction",
    async (state) => {
      await client.send(
        new PutObjectLegalHoldCommand({
          Bucket: state.lockEnabledBucketName,
          Key: "file0.txt",
          LegalHold: {
            Status: ObjectLockLegalHoldStatus.ON,
          },
        }),
      );
      console.log(
        `Modified legal hold for file0.txt in ${state.lockEnabledBucketName}.`,
      );
    },
    { skipWhen: (state) => !state.confirmSetLegalHoldFileEnabled },
  );

/**
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
const confirmSetRetentionPeriodFileEnabled = (scenarios) =>
  new scenarios.ScenarioInput(
    "confirmSetRetentionPeriodFileEnabled",
    (state) =>
      `Would you like to add a 1 day Governance retention period to file1.txt in
 ${state.lockEnabledBucketName}?
Reminder: Only a user with the s3:BypassGovernanceRetention permission will be
 able to delete this file or its bucket until the retention period has expired.`,
```

```
    {
      type: "confirm",
    },
  );

/**
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
const setRetentionPeriodFileEnabledAction = (scenarios, client) =>
  new scenarios.ScenarioAction(
    "setRetentionPeriodFileEnabledAction",
    async (state) => {
      const retentionDate = new Date();
      retentionDate.setDate(retentionDate.getDate() + 1);
      await client.send(
        new PutObjectRetentionCommand({
          Bucket: state.lockEnabledBucketName,
          Key: "file1.txt",
          Retention: {
            Mode: ObjectLockRetentionMode.GOVERNANCE,
            RetainUntilDate: retentionDate,
          },
        }),
      );
      console.log(
        `Set retention for file1.txt in ${state.lockEnabledBucketName} until
 ${retentionDate.toISOString().split("T")[0]}.`,
      );
    },
    { skipWhen: (state) => !state.confirmSetRetentionPeriodFileEnabled },
  );

/**
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
const confirmSetLegalHoldFileRetention = (scenarios) =>
  new scenarios.ScenarioInput(
    "confirmSetLegalHoldFileRetention",
    (state) =>
      `Would you like to add a legal hold to file0.txt in
 ${state.retentionBucketName}?`,
    {
```

```
      type: "confirm",
    },
  );

/**
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
const setLegalHoldFileRetentionAction = (scenarios, client) =>
  new scenarios.ScenarioAction(
    "setLegalHoldFileRetentionAction",
    async (state) => {
      await client.send(
        new PutObjectLegalHoldCommand({
          Bucket: state.retentionBucketName,
          Key: "file0.txt",
          LegalHold: {
            Status: ObjectLockLegalHoldStatus.ON,
          },
        }),
      );
      console.log(
        `Modified legal hold for file0.txt in ${state.retentionBucketName}.`,
      );
    },
    { skipWhen: (state) => !state.confirmSetLegalHoldFileRetention },
  );

/**
 * @param {Scenarios} scenarios
 */
const confirmSetRetentionPeriodFileRetention = (scenarios) =>
  new scenarios.ScenarioInput(
    "confirmSetRetentionPeriodFileRetention",
    (state) =>
      `Would you like to add a 1 day Governance retention period to file1.txt in
 ${state.retentionBucketName}?
Reminder: Only a user with the s3:BypassGovernanceRetention permission will be
 able to delete this file or its bucket until the retention period has expired.`,
    {
      type: "confirm",
    },
  );
```

```
/**
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
const setRetentionPeriodFileRetentionAction = (scenarios, client) =>
  new scenarios.ScenarioAction(
    "setRetentionPeriodFileRetentionAction",
    async (state) => {
      const retentionDate = new Date();
      retentionDate.setDate(retentionDate.getDate() + 1);
      await client.send(
        new PutObjectRetentionCommand({
          Bucket: state.retentionBucketName,
          Key: "file1.txt",
          Retention: {
            Mode: ObjectLockRetentionMode.GOVERNANCE,
            RetainUntilDate: retentionDate,
          },
          BypassGovernanceRetention: true,
        }),
      );
      console.log(
        `Set retention for file1.txt in ${state.retentionBucketName} until
 ${retentionDate.toISOString().split("T")[0]}.`,
      );
    },
    { skipWhen: (state) => !state.confirmSetRetentionPeriodFileRetention },
  );

export {
  getBucketPrefix,
  createBuckets,
  confirmCreateBuckets,
  createBucketsAction,
  populateBuckets,
  confirmPopulateBuckets,
  populateBucketsAction,
  updateRetention,
  confirmUpdateRetention,
  updateRetentionAction,
  updateLockPolicy,
  confirmUpdateLockPolicy,
  updateLockPolicyAction,
  confirmSetLegalHoldFileEnabled,
```

```
  setLegalHoldFileEnabledAction,
  confirmSetRetentionPeriodFileEnabled,
  setRetentionPeriodFileEnabledAction,
  confirmSetLegalHoldFileRetention,
  setLegalHoldFileRetentionAction,
  confirmSetRetentionPeriodFileRetention,
  setRetentionPeriodFileRetentionAction,
};
```

View and delete files in the buckets (repl.steps.js).

```
import {
  ChecksumAlgorithm,
  DeleteObjectCommand,
  GetObjectLegalHoldCommand,
  GetObjectLockConfigurationCommand,
  GetObjectRetentionCommand,
  ListObjectVersionsCommand,
  PutObjectCommand,
} from "@aws-sdk/client-s3";

/**
 * @typedef {import("@aws-doc-sdk-examples/lib/scenario/index.js")} Scenarios
 */

/**
 * @typedef {import("@aws-sdk/client-s3").S3Client} S3Client
 */

const choices = {
  EXIT: 0,
  LIST_ALL_FILES: 1,
  DELETE_FILE: 2,
  DELETE_FILE_WITH_RETENTION: 3,
  OVERWRITE_FILE: 4,
  VIEW_RETENTION_SETTINGS: 5,
  VIEW_LEGAL_HOLD_SETTINGS: 6,
};

/**
 * @param {Scenarios} scenarios
 */
```

```
const replInput = (scenarios) =>
  new scenarios.ScenarioInput(
    "replChoice",
    "Explore the S3 locking features by selecting one of the following choices",
    {
      type: "select",
      choices: [
        { name: "List all files in buckets", value: choices.LIST_ALL_FILES },
        { name: "Attempt to delete a file.", value: choices.DELETE_FILE },
        {
          name: "Attempt to delete a file with retention period bypass.",
          value: choices.DELETE_FILE_WITH_RETENTION,
        },
        { name: "Attempt to overwrite a file.", value: choices.OVERWRITE_FILE },
        {
          name: "View the object and bucket retention settings for a file.",
          value: choices.VIEW_RETENTION_SETTINGS,
        },
        {
          name: "View the legal hold settings for a file.",
          value: choices.VIEW_LEGAL_HOLD_SETTINGS,
        },
        { name: "Finish the workflow.", value: choices.EXIT },
      ],
    },
  );

/**
 * @param {S3Client} client
 * @param {string[]} buckets
 */
const getAllFiles = async (client, buckets) => {
  /** @type {{bucket: string, key: string, version: string}[]} */
  const files = [];
  for (const bucket of buckets) {
    const objectsResponse = await client.send(
      new ListObjectVersionsCommand({ Bucket: bucket }),
    );
    for (const version of objectsResponse.Versions || []) {
      const { Key, VersionId } = version;
      files.push({ bucket, key: Key, version: VersionId });
    }
  }
```

```
  return files;
};

/**
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
const replAction = (scenarios, client) =>
  new scenarios.ScenarioAction(
    "replAction",
    async (state) => {
      const files = await getAllFiles(client, [
        state.noLockBucketName,
        state.lockEnabledBucketName,
        state.retentionBucketName,
      ]);

      const fileInput = new scenarios.ScenarioInput(
        "selectedFile",
        "Select a file:",
        {
          type: "select",
          choices: files.map((file, index) => ({
            name: `${index + 1}: ${file.bucket}: ${file.key} (version: ${
              file.version
            })`,
            value: index,
          })),
        },
      );

      const { replChoice } = state;

      switch (replChoice) {
        case choices.LIST_ALL_FILES: {
          const files = await getAllFiles(client, [
            state.noLockBucketName,
            state.lockEnabledBucketName,
            state.retentionBucketName,
          ]);
          state.replOutput = files
            .map(
              (file) =>
                `${file.bucket}: ${file.key} (version: ${file.version})`,
```

```
            )
            .join("\n");
          break;
        }
        case choices.DELETE_FILE: {
          /** @type {number} */
          const fileToDelete = await fileInput.handle(state);
          const selectedFile = files[fileToDelete];
          try {
            await client.send(
              new DeleteObjectCommand({
                Bucket: selectedFile.bucket,
                Key: selectedFile.key,
                VersionId: selectedFile.version,
              }),
            );
            state.replOutput = `Deleted ${selectedFile.key} in
${selectedFile.bucket}.`;
          } catch (err) {
            state.replOutput = `Unable to delete object ${selectedFile.key} in
bucket ${selectedFile.bucket}: ${err.message}`;
          }
          break;
        }
        case choices.DELETE_FILE_WITH_RETENTION: {
          /** @type {number} */
          const fileToDelete = await fileInput.handle(state);
          const selectedFile = files[fileToDelete];
          try {
            await client.send(
              new DeleteObjectCommand({
                Bucket: selectedFile.bucket,
                Key: selectedFile.key,
                VersionId: selectedFile.version,
                BypassGovernanceRetention: true,
              }),
            );
            state.replOutput = `Deleted ${selectedFile.key} in
${selectedFile.bucket}.`;
          } catch (err) {
            state.replOutput = `Unable to delete object ${selectedFile.key} in
bucket ${selectedFile.bucket}: ${err.message}`;
          }
          break;
```

```
        }
        case choices.OVERWRITE_FILE: {
          /** @type {number} */
          const fileToOverwrite = await fileInput.handle(state);
          const selectedFile = files[fileToOverwrite];
          try {
            await client.send(
              new PutObjectCommand({
                Bucket: selectedFile.bucket,
                Key: selectedFile.key,
                Body: "New content",
                ChecksumAlgorithm: ChecksumAlgorithm.SHA256,
              }),
            );
            state.replOutput = `Overwrote ${selectedFile.key} in
 ${selectedFile.bucket}.`;
          } catch (err) {
            state.replOutput = `Unable to overwrite object ${selectedFile.key} in
 bucket ${selectedFile.bucket}: ${err.message}`;
          }
          break;
        }
        case choices.VIEW_RETENTION_SETTINGS: {
          /** @type {number} */
          const fileToView = await fileInput.handle(state);
          const selectedFile = files[fileToView];
          try {
            const retention = await client.send(
              new GetObjectRetentionCommand({
                Bucket: selectedFile.bucket,
                Key: selectedFile.key,
                VersionId: selectedFile.version,
              }),
            );
            const bucketConfig = await client.send(
              new GetObjectLockConfigurationCommand({
                Bucket: selectedFile.bucket,
              }),
            );
            state.replOutput = `Object retention for ${selectedFile.key}
 in ${selectedFile.bucket}: ${retention.Retention?.Mode} until
 ${retention.Retention?.RetainUntilDate?.toISOString()}.
Bucket object lock config for ${selectedFile.bucket} in ${selectedFile.bucket}:
Enabled: ${bucketConfig.ObjectLockConfiguration?.ObjectLockEnabled}
```

```
Rule:
 ${JSON.stringify(bucketConfig.ObjectLockConfiguration?.Rule?.DefaultRetention)}`;
          } catch (err) {
            state.replOutput = `Unable to fetch object lock retention:
 '${err.message}'`;
          }
          break;
        }
        case choices.VIEW_LEGAL_HOLD_SETTINGS: {
          /** @type {number} */
          const fileToView = await fileInput.handle(state);
          const selectedFile = files[fileToView];
          try {
            const legalHold = await client.send(
              new GetObjectLegalHoldCommand({
                Bucket: selectedFile.bucket,
                Key: selectedFile.key,
                VersionId: selectedFile.version,
              }),
            );
            state.replOutput = `Object legal hold for ${selectedFile.key} in
 ${selectedFile.bucket}: Status: ${legalHold.LegalHold?.Status}`;
          } catch (err) {
            state.replOutput = `Unable to fetch legal hold: '${err.message}'`;
          }
          break;
        }
        default:
          throw new Error(`Invalid replChoice: ${replChoice}`);
      }
    },
    {
      whileConfig: {
        whileFn: ({ replChoice }) => replChoice !== choices.EXIT,
        input: replInput(scenarios),
        output: new scenarios.ScenarioOutput(
          "REPL output",
          (state) => state.replOutput,
          { preformatted: true },
        ),
      },
    },
  );
```

```
export { replInput, replAction, choices };
```

Destroy all created resources (clean.steps.js).

```
import {
  DeleteObjectCommand,
  DeleteBucketCommand,
  ListObjectVersionsCommand,
  GetObjectLegalHoldCommand,
  GetObjectRetentionCommand,
  PutObjectLegalHoldCommand,
} from "@aws-sdk/client-s3";

/**
 * @typedef {import("@aws-doc-sdk-examples/lib/scenario/index.js")} Scenarios
 */

/**
 * @typedef {import("@aws-sdk/client-s3").S3Client} S3Client
 */

/**
 * @param {Scenarios} scenarios
 */
const confirmCleanup = (scenarios) =>
  new scenarios.ScenarioInput("confirmCleanup", "Clean up resources?", {
    type: "confirm",
  });

/**
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
const cleanupAction = (scenarios, client) =>
  new scenarios.ScenarioAction("cleanupAction", async (state) => {
    const { noLockBucketName, lockEnabledBucketName, retentionBucketName } =
      state;

    const buckets = [
      noLockBucketName,
      lockEnabledBucketName,
      retentionBucketName,
```

```
    ];

    for (const bucket of buckets) {
      /** @type {import("@aws-sdk/client-s3").ListObjectVersionsCommandOutput} */
      let objectsResponse;

      try {
        objectsResponse = await client.send(
          new ListObjectVersionsCommand({
            Bucket: bucket,
          }),
        );
      } catch (e) {
        if (e instanceof Error && e.name === "NoSuchBucket") {
          console.log("Object's bucket has already been deleted.");
          continue;
        }
        throw e;
      }

      for (const version of objectsResponse.Versions || []) {
        const { Key, VersionId } = version;

        try {
          const legalHold = await client.send(
            new GetObjectLegalHoldCommand({
              Bucket: bucket,
              Key,
              VersionId,
            }),
          );

          if (legalHold.LegalHold?.Status === "ON") {
            await client.send(
              new PutObjectLegalHoldCommand({
                Bucket: bucket,
                Key,
                VersionId,
                LegalHold: {
                  Status: "OFF",
                },
              }),
            );
          }
```

```
        } catch (err) {
          console.log(
            `Unable to fetch legal hold for ${Key} in ${bucket}:
'${err.message}'`,
          );
        }

        try {
          const retention = await client.send(
            new GetObjectRetentionCommand({
              Bucket: bucket,
              Key,
              VersionId,
            }),
          );

          if (retention.Retention?.Mode === "GOVERNANCE") {
            await client.send(
              new DeleteObjectCommand({
                Bucket: bucket,
                Key,
                VersionId,
                BypassGovernanceRetention: true,
              }),
            );
          }
        } catch (err) {
          console.log(
            `Unable to fetch object lock retention for ${Key} in ${bucket}:
'${err.message}'`,
          );
        }

        await client.send(
          new DeleteObjectCommand({
            Bucket: bucket,
            Key,
            VersionId,
          }),
        );
      }

      await client.send(new DeleteBucketCommand({ Bucket: bucket }));
      console.log(`Delete for ${bucket} complete.`);
```

```
    }
  });

export { confirmCleanup, cleanupAction };
```

- For API details, see the following topics in *AWS SDK for JavaScript API Reference*.
  - GetObjectLegalHold
  - GetObjectLockConfiguration
  - GetObjectRetention
  - PutObjectLegalHold
  - PutObjectLockConfiguration
  - PutObjectRetention

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Make Amazon S3 conditional requests using an AWS SDK

The following code examples show how to add preconditions to Amazon S3 requests.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Run an interactive scenario demonstrating Amazon S3 conditional request features.

```
using Amazon.S3;
using Microsoft.Extensions.Configuration;
using Microsoft.Extensions.DependencyInjection;
using Microsoft.Extensions.Hosting;
```

```
using Microsoft.Extensions.Logging;
using Microsoft.Extensions.Logging.Console;
using Microsoft.Extensions.Logging.Debug;

namespace S3ConditionalRequestsScenario;

public static class S3ConditionalRequestsScenario
{
    /*
    Before running this .NET code example, set up your development environment,
 including your credentials.

    This example demonstrates the use of conditional requests for S3 operations.
    You can use conditional requests to add preconditions to S3 read requests to
 return or copy
    an object based on its Entity tag (ETag), or last modified date.
    You can use a conditional write requests to prevent overwrites by ensuring
    there is no existing object with the same key.
   */

    public static S3ActionsWrapper _s3ActionsWrapper = null!;
    public static IConfiguration _configuration = null!;
    public static string _resourcePrefix = null!;
    public static string _sourceBucketName = null!;
    public static string _destinationBucketName = null!;
    public static string _sampleObjectKey = null!;
    public static string _sampleObjectEtag = null!;
    public static bool _interactive = true;


    public static async Task Main(string[] args)
    {
        // Set up dependency injection for the Amazon service.
        using var host = Host.CreateDefaultBuilder(args)
            .ConfigureLogging(logging =>
                logging.AddFilter("System", LogLevel.Debug)
                    .AddFilter<DebugLoggerProvider>("Microsoft",
 LogLevel.Information)
                    .AddFilter<ConsoleLoggerProvider>("Microsoft",
 LogLevel.Trace))
            .ConfigureServices((_, services) =>
                services.AddAWSService<IAmazonS3>()
                    .AddTransient<S3ActionsWrapper>()
            )
```

```
            .Build();

        _configuration = new ConfigurationBuilder()
            .SetBasePath(Directory.GetCurrentDirectory())
            .AddJsonFile("settings.json") // Load settings from .json file.
            .AddJsonFile("settings.local.json",
                true) // Optionally, load local settings.
            .Build();

        ServicesSetup(host);

        try
        {
            Console.WriteLine(new string('-', 80));
            Console.WriteLine("Welcome to the Amazon Simple Storage Service (S3)
 Conditional Requests Feature Scenario.");
            Console.WriteLine(new string('-', 80));
            ConfigurationSetup();
            _sampleObjectEtag = await Setup(_sourceBucketName,
 _destinationBucketName, _sampleObjectKey);

            await DisplayDemoChoices(_sourceBucketName, _destinationBucketName,
 _sampleObjectKey, _sampleObjectEtag, 0);

            Console.WriteLine(new string('-', 80));
            Console.WriteLine("Cleaning up resources.");
            Console.WriteLine(new string('-', 80));
            await Cleanup(true);

            Console.WriteLine(new string('-', 80));
            Console.WriteLine("Amazon S3 Conditional Requests Feature Scenario is
 complete.");
            Console.WriteLine(new string('-', 80));
        }
        catch (Exception ex)
        {
            Console.WriteLine(new string('-', 80));
            Console.WriteLine($"There was a problem: {ex.Message}");
            await CleanupScenario(_sourceBucketName, _destinationBucketName);
            Console.WriteLine(new string('-', 80));
        }
    }

    /// <summary>
```

```
    /// Populate the services for use within the console application.
    /// </summary>
    /// <param name="host">The services host.</param>
    private static void ServicesSetup(IHost host)
    {
        _s3ActionsWrapper = host.Services.GetRequiredService<S3ActionsWrapper>();
    }

    /// <summary>
    /// Any setup operations needed.
    /// </summary>
    public static void ConfigurationSetup()
    {
        _resourcePrefix = _configuration["resourcePrefix"] ?? "dotnet-example";

        _sourceBucketName = _resourcePrefix + "-source";
        _destinationBucketName = _resourcePrefix + "-dest";
        _sampleObjectKey = _resourcePrefix + "-sample-object.txt";
    }

    /// <summary>
    /// Sets up the scenario by creating a source and destination bucket, and
 uploading a test file to the source bucket.
    /// </summary>
    /// <param name="sourceBucket">The name of the source bucket.</param>
    /// <param name="destBucket">The name of the destination bucket.</param>
    /// <param name="objectKey">The name of the test file to add to the source
 bucket.</param>
    /// <returns>The ETag of the uploaded test file.</returns>
    public static async Task<string> Setup(string sourceBucket, string
 destBucket, string objectKey)
    {
        Console.WriteLine(
            "\nFor this scenario, we will use the AWS SDK for .NET to create
 several S3\n" +
            "buckets and files to demonstrate working with S3 conditional
 requests.\n" +
            "This example demonstrates the use of conditional requests for S3
 operations.\r\n" +
            "You can use conditional requests to add preconditions to S3 read
 requests to return or copy\r\n" +
            "an object based on its Entity tag (ETag), or last modified date. \r
\n" +
```

```
            "You can use a conditional write requests to prevent overwrites by
 ensuring \r\n" +
            "there is no existing object with the same key. \r\n\r\n" +
            "This example will allow you to perform conditional reads\r\n" +
            "and writes that will succeed or fail based on your selected options.
\r\n\r\n" +
            "Sample buckets and a sample object will be created as part of the
 example.");

        Console.WriteLine(new string('-', 80));
        Console.WriteLine("Press Enter when you are ready to start.");
        if (_interactive)
            Console.ReadLine();

        await _s3ActionsWrapper.CreateBucketWithName(sourceBucket);
        await _s3ActionsWrapper.CreateBucketWithName(destBucket);

        var eTag = await _s3ActionsWrapper.PutObjectConditional(objectKey,
 sourceBucket,
            "Test file content.");

        return eTag;
    }

    /// <summary>
    /// Cleans up the scenario by deleting the source and destination buckets.
    /// </summary>
    /// <param name="sourceBucket">The name of the source bucket.</param>
    /// <param name="destBucket">The name of the destination bucket.</param>
    public static async Task CleanupScenario(string sourceBucket, string
 destBucket)
    {
        await _s3ActionsWrapper.CleanupBucketByName(sourceBucket);
        await _s3ActionsWrapper.CleanupBucketByName(destBucket);
    }

    /// <summary>
    /// Displays a list of the objects in the test buckets.
    /// </summary>
    /// <param name="sourceBucket">The name of the source bucket.</param>
    /// <param name="destBucket">The name of the destination bucket.</param>
    public static async Task DisplayBuckets(string sourceBucket, string
 destBucket)
    {
```

```
        await _s3ActionsWrapper.ListBucketContentsByName(sourceBucket);
        await _s3ActionsWrapper.ListBucketContentsByName(destBucket);
    }

    /// <summary>
    /// Displays the menu of conditional request options for the user.
    /// </summary>
    /// <param name="sourceBucket">The name of the source bucket.</param>
    /// <param name="destBucket">The name of the destination bucket.</param>
    /// <param name="objectKey">The key of the test object in the source
 bucket.</param>
    /// <param name="etag">The ETag of the test object in the source bucket.</
param>
    public static async Task DisplayDemoChoices(string sourceBucket, string
 destBucket, string objectKey, string etag, int defaultChoice)
    {
        var actions = new[]
        {
            "Print a list of bucket items.",
            "Perform a conditional read.",
            "Perform a conditional copy.",
            "Perform a conditional write.",
            "Clean up and exit."
        };

        var conditions = new[]
        {
            "If-Match: using the object's ETag. This condition should succeed.",
            "If-None-Match: using the object's ETag. This condition should
 fail.",
            "If-Modified-Since: using yesterday's date. This condition should
 succeed.",
            "If-Unmodified-Since: using yesterday's date. This condition should
 fail."
        };

        var conditionTypes = new[]
        {
            S3ConditionType.IfMatch,
            S3ConditionType.IfNoneMatch,
            S3ConditionType.IfModifiedSince,
            S3ConditionType.IfUnmodifiedSince,
        };
```

```
        var yesterdayDate = DateTime.UtcNow.AddDays(-1);

        int choice;
        while ((choice = GetChoiceResponse("\nExplore the S3 conditional request
 features by selecting one of the following choices:", actions, defaultChoice)) !
= 4)
        {
            switch (choice)
            {
                case 0:
                    Console.WriteLine("Listing the objects and buckets.");
                    await DisplayBuckets(sourceBucket, destBucket);
                    break;
                case 1:
                    int conditionTypeIndex = GetChoiceResponse("Perform a
 conditional read:", conditions, 1);
                    if (conditionTypeIndex == 0 || conditionTypeIndex == 1)
                    {
                        await _s3ActionsWrapper.GetObjectConditional(objectKey,
 sourceBucket, conditionTypes[conditionTypeIndex], null, _sampleObjectEtag);
                    }
                    else if (conditionTypeIndex == 2 || conditionTypeIndex == 3)
                    {
                        await _s3ActionsWrapper.GetObjectConditional(objectKey,
 sourceBucket, conditionTypes[conditionTypeIndex], yesterdayDate);
                    }
                    break;
                case 2:
                    int copyConditionTypeIndex = GetChoiceResponse("Perform a
 conditional copy:", conditions, 1);
                    string destKey = GetStringResponse("Enter an object key:",
 "sampleObjectKey");
                    if (copyConditionTypeIndex == 0 || copyConditionTypeIndex ==
 1)
                    {
                        await _s3ActionsWrapper.CopyObjectConditional(objectKey,
 destKey, sourceBucket, destBucket, conditionTypes[copyConditionTypeIndex], null,
 etag);
                    }
                    else if (copyConditionTypeIndex == 2 ||
 copyConditionTypeIndex == 3)
                    {
```

```
                        await _s3ActionsWrapper.CopyObjectConditional(objectKey,
destKey, sourceBucket, destBucket, conditionTypes[copyConditionTypeIndex],
yesterdayDate);
                    }
                    break;
                case 3:
                    Console.WriteLine("Perform a conditional write using
IfNoneMatch condition on the object key.");
                    Console.WriteLine("If the key is a duplicate, the write will
fail.");
                    string newObjectKey = GetStringResponse("Enter an object
key:", "newObjectKey");
                    await _s3ActionsWrapper.PutObjectConditional(newObjectKey,
sourceBucket, "Conditional write example data.");
                    break;
            }

            if (!_interactive)
            {
                break;
            }
        }

        Console.WriteLine("Proceeding to cleanup.");
    }

    // <summary>
    /// Clean up the resources from the scenario.
    /// </summary>
    /// <param name="interactive">True to run as interactive.</param>
    /// <returns>True if successful.</returns>
    public static async Task<bool> Cleanup(bool interactive)
    {
        Console.WriteLine(new string('-', 80));

        if (!interactive || GetYesNoResponse("Do you want to clean up all files
and buckets? (y/n) "))
        {
            await _s3ActionsWrapper.CleanUpBucketByName(_sourceBucketName);
            await _s3ActionsWrapper.CleanUpBucketByName(_destinationBucketName);

        }
        else
        {
```

```
            Console.WriteLine(
                "Ok, we'll leave the resources intact.\n" +
                "Don't forget to delete them when you're done with them or you
 might incur unexpected charges."
            );
        }

        Console.WriteLine(new string('-', 80));
        return true;
    }

    /// <summary>
    /// Helper method to get a yes or no response from the user.
    /// </summary>
    /// <param name="question">The question string to print on the console.</
param>
    /// <returns>True if the user responds with a yes.</returns>
    private static bool GetYesNoResponse(string question)
    {
        Console.WriteLine(question);
        var ynResponse = Console.ReadLine();
        var response = ynResponse != null && ynResponse.Equals("y",
 StringComparison.InvariantCultureIgnoreCase);
        return response;
    }

    /// <summary>
    /// Helper method to get a choice response from the user.
    /// </summary>
    /// <param name="question">The question string to print on the console.</
param>
    /// <param name="choices">The choices to print on the console.</param>
    /// <returns>The index of the selected choice</returns>
    private static int GetChoiceResponse(string? question, string[] choices, int
 defaultChoice)
    {
        if (question != null)
        {
            Console.WriteLine(question);

            for (int i = 0; i < choices.Length; i++)
            {
                Console.WriteLine($"\t{i + 1}. {choices[i]}");
            }
```

```
        }

        if (!_interactive)
            return defaultChoice;

        var choiceNumber = 0;
        while (choiceNumber < 1 || choiceNumber > choices.Length)
        {
            var choice = Console.ReadLine();
            Int32.TryParse(choice, out choiceNumber);
        }

        return choiceNumber - 1;
    }

    /// <summary>
    /// Get a string response from the user.
    /// </summary>
    /// <param name="question">The question to print.</param>
    /// <param name="defaultAnswer">A default answer to use when not
 interactive.</param>
    /// <returns>The string response.</returns>
    public static string GetStringResponse(string? question, string
 defaultAnswer)
    {
        string? answer = "";
        if (_interactive)
        {
            do
            {
                Console.WriteLine(question);
                answer = Console.ReadLine();
            } while (string.IsNullOrWhiteSpace(answer));
        }
        else
        {
            answer = defaultAnswer;
        }

        return answer;
    }
}
```

A wrapper class for S3 functions.

```
using System.Net;
using Amazon.S3;
using Amazon.S3.Model;
using Microsoft.Extensions.Logging;

namespace S3ConditionalRequestsScenario;

/// <summary>
/// Encapsulate the Amazon S3 operations.
/// </summary>
public class S3ActionsWrapper
{
    private readonly IAmazonS3 _amazonS3;
    private readonly ILogger<S3ActionsWrapper> _logger;

    /// <summary>
    /// Constructor for the S3ActionsWrapper.
    /// </summary>
    /// <param name="amazonS3">The injected S3 client.</param>
    /// <param name="logger">The class logger.</param>
    public S3ActionsWrapper(IAmazonS3 amazonS3, ILogger<S3ActionsWrapper> logger)
    {
        _amazonS3 = amazonS3;
        _logger = logger;
    }

    /// <summary>
    /// Retrieves an object from Amazon S3 with a conditional request.
    /// </summary>
    /// <param name="objectKey">The key of the object to retrieve.</param>
    /// <param name="sourceBucket">The source bucket of the object.</param>
    /// <param name="conditionType">The type of condition: 'IfMatch',
 'IfNoneMatch', 'IfModifiedSince', 'IfUnmodifiedSince'.</param>
    /// <param name="conditionDateValue">The value to use for the condition for
 dates.</param>
    /// <param name="etagConditionalValue">The value to use for the condition for
 etags.</param>
    /// <returns>True if the conditional read is successful, False otherwise.</
returns>
    public async Task<bool> GetObjectConditional(string objectKey, string
 sourceBucket,
```

```
        S3ConditionType conditionType, DateTime? conditionDateValue = null,
 string? etagConditionalValue = null)
    {
        try
        {
            var getObjectRequest = new GetObjectRequest
            {
                BucketName = sourceBucket,
                Key = objectKey
            };

            switch (conditionType)
            {
                case S3ConditionType.IfMatch:
                    getObjectRequest.EtagToMatch = etagConditionalValue;
                    break;
                case S3ConditionType.IfNoneMatch:
                    getObjectRequest.EtagToNotMatch = etagConditionalValue;
                    break;
                case S3ConditionType.IfModifiedSince:
                    getObjectRequest.ModifiedSinceDateUtc =
 conditionDateValue.GetValueOrDefault();
                    break;
                case S3ConditionType.IfUnmodifiedSince:
                    getObjectRequest.UnmodifiedSinceDateUtc =
 conditionDateValue.GetValueOrDefault();
                    break;
                default:
                    throw new ArgumentOutOfRangeException(nameof(conditionType),
 conditionType, null);
            }

            var response = await _amazonS3.GetObjectAsync(getObjectRequest);
            var sampleBytes = new byte[20];
            await response.ResponseStream.ReadAsync(sampleBytes, 0, 20);
            _logger.LogInformation($"Conditional read
 successful. Here are the first 20 bytes of the object:
\n{System.Text.Encoding.UTF8.GetString(sampleBytes)}");
            return true;
        }
        catch (AmazonS3Exception e)
        {
            if (e.ErrorCode == "PreconditionFailed")
            {
```

```
                _logger.LogError("Conditional read failed: Precondition failed");
            }
            else if (e.ErrorCode == "NotModified")
            {
                _logger.LogError("Conditional read failed: Object not modified");
            }
            else
            {
                _logger.LogError($"Unexpected error: {e.ErrorCode}");
                throw;
            }
            return false;
        }
    }

    /// <summary>
    /// Uploads an object to Amazon S3 with a conditional request. Prevents
 overwrite using an IfNoneMatch condition for the object key.
    /// </summary>
    /// <param name="objectKey">The key of the object to upload.</param>
    /// <param name="bucket">The source bucket of the object.</param>
    /// <param name="content">The content to upload as a string.</param>
    /// <returns>The ETag if the conditional write is successful, empty
 otherwise.</returns>
    public async Task<string> PutObjectConditional(string objectKey, string
 bucket, string content)
    {
        try
        {
            var putObjectRequest = new PutObjectRequest
            {
                BucketName = bucket,
                Key = objectKey,
                ContentBody = content,
                IfNoneMatch = "*"
            };

            var putResult = await _amazonS3.PutObjectAsync(putObjectRequest);
            _logger.LogInformation($"Conditional write successful for key
 {objectKey} in bucket {bucket}.");
            return putResult.ETag;
        }
        catch (AmazonS3Exception e)
        {
```

```
            if (e.ErrorCode == "PreconditionFailed")
            {
                _logger.LogError("Conditional write failed: Precondition
 failed");
            }
            else
            {
                _logger.LogError($"Unexpected error: {e.ErrorCode}");
                throw;
            }
            return string.Empty;
        }
    }

    /// <summary>
    /// Copies an object from one Amazon S3 bucket to another with a conditional
 request.
    /// </summary>
    /// <param name="sourceKey">The key of the source object to copy.</param>
    /// <param name="destKey">The key of the destination object.</param>
    /// <param name="sourceBucket">The source bucket of the object.</param>
    /// <param name="destBucket">The destination bucket of the object.</param>
    /// <param name="conditionType">The type of condition to apply, e.g.
 'CopySourceIfMatch', 'CopySourceIfNoneMatch', 'CopySourceIfModifiedSince',
 'CopySourceIfUnmodifiedSince'.</param>
    /// <param name="conditionDateValue">The value to use for the condition for
 dates.</param>
    /// <param name="etagConditionalValue">The value to use for the condition for
 etags.</param>
    /// <returns>True if the conditional copy is successful, False otherwise.</
returns>
    public async Task<bool> CopyObjectConditional(string sourceKey, string
 destKey, string sourceBucket, string destBucket,
        S3ConditionType conditionType, DateTime? conditionDateValue = null,
 string? etagConditionalValue = null)
    {
        try
        {
            var copyObjectRequest = new CopyObjectRequest
            {
                DestinationBucket = destBucket,
                DestinationKey = destKey,
                SourceBucket = sourceBucket,
                SourceKey = sourceKey
```

```
            };

            switch (conditionType)
            {
                case S3ConditionType.IfMatch:
                    copyObjectRequest.ETagToMatch = etagConditionalValue;
                    break;
                case S3ConditionType.IfNoneMatch:
                    copyObjectRequest.ETagToNotMatch = etagConditionalValue;
                    break;
                case S3ConditionType.IfModifiedSince:
                    copyObjectRequest.ModifiedSinceDateUtc =
conditionDateValue.GetValueOrDefault();
                    break;
                case S3ConditionType.IfUnmodifiedSince:
                    copyObjectRequest.UnmodifiedSinceDateUtc =
conditionDateValue.GetValueOrDefault();
                    break;
                default:
                    throw new ArgumentOutOfRangeException(nameof(conditionType),
conditionType, null);
            }

            await _amazonS3.CopyObjectAsync(copyObjectRequest);
            _logger.LogInformation($"Conditional copy successful for key
{destKey} in bucket {destBucket}.");
            return true;
        }
        catch (AmazonS3Exception e)
        {
            if (e.ErrorCode == "PreconditionFailed")
            {
                _logger.LogError("Conditional copy failed: Precondition failed");
            }
            else if (e.ErrorCode == "304")
            {
                _logger.LogError("Conditional copy failed: Object not modified");
            }
            else
            {
                _logger.LogError($"Unexpected error: {e.ErrorCode}");
                throw;
            }
            return false;
```

```
        }
    }

    /// <summary>
    /// Create a new Amazon S3 bucket with a specified name and check that the
bucket is ready.
    /// </summary>
    /// <param name="bucketName">The name of the bucket to create.</param>
    /// <returns>True if successful.</returns>
    public async Task<bool> CreateBucketWithName(string bucketName)
    {
        Console.WriteLine($"\tCreating bucket {bucketName}.");
        try
        {
            var request = new PutBucketRequest
            {
                BucketName = bucketName,
                UseClientRegion = true
            };

            await _amazonS3.PutBucketAsync(request);
            var bucketReady = false;
            var retries = 5;
            while (!bucketReady && retries > 0)
            {
                Thread.Sleep(5000);
                bucketReady = await
Amazon.S3.Util.AmazonS3Util.DoesS3BucketExistV2Async(_amazonS3, bucketName);
                retries--;
            }

            return bucketReady;
        }
        catch (BucketAlreadyExistsException ex)
        {
            Console.WriteLine($"Bucket already exists: '{ex.Message}'");
            return true;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"Error creating bucket: '{ex.Message}'");
            return false;
        }
    }
```

```
    /// <summary>
    /// Cleans up objects and deletes the bucket by name.
    /// </summary>
    /// <param name="bucketName">The name of the bucket.</param>
    /// <returns>Async task.</returns>
    public async Task CleanupBucketByName(string bucketName)
    {
        try
        {
            var listObjectsResponse = await _amazonS3.ListObjectsV2Async(new
ListObjectsV2Request { BucketName = bucketName });
            foreach (var obj in listObjectsResponse.S3Objects)
            {
                await _amazonS3.DeleteObjectAsync(new DeleteObjectRequest
{ BucketName = bucketName, Key = obj.Key });
            }
            await _amazonS3.DeleteBucketAsync(new DeleteBucketRequest
{ BucketName = bucketName });
            Console.WriteLine($"Cleaned up bucket: {bucketName}.");
        }
        catch (AmazonS3Exception e)
        {
            if (e.ErrorCode == "NoSuchBucket")
            {
                Console.WriteLine($"Bucket {bucketName} does not exist, skipping
cleanup.");
            }
            else
            {
                Console.WriteLine($"Error deleting bucket: {e.ErrorCode}");
                throw;
            }
        }
    }

    /// <summary>
    /// List the contents of the bucket with their ETag.
    /// </summary>
    /// <param name="bucketName">The name of the bucket.</param>
    /// <returns>Async task.</returns>
    public async Task<List<S3Object>> ListBucketContentsByName(string bucketName)
    {
        var results = new List<S3Object>();
```

```
        try
        {
            Console.WriteLine($"\t Items in bucket {bucketName}");
            var listObjectsResponse = await _amazonS3.ListObjectsV2Async(new
ListObjectsV2Request { BucketName = bucketName });
            if (listObjectsResponse.S3Objects.Count == 0)
            {
                Console.WriteLine("\t\tNo objects found.");
            }
            else
            {
                foreach (var obj in listObjectsResponse.S3Objects)
                {
                    Console.WriteLine($"\t\t object: {obj.Key} ETag {obj.ETag}");
                }
            }
            results = listObjectsResponse.S3Objects;

        }
        catch (AmazonS3Exception e)
        {
            if (e.ErrorCode == "NoSuchBucket")
            {
                _logger.LogError($"Bucket {bucketName} does not exist.");
            }
            else
            {
                _logger.LogError($"Error listing bucket and objects:
{e.ErrorCode}");
                throw;
            }
        }

        return results;
    }

    /// <summary>
    /// Delete an object from a specific bucket.
    /// </summary>
    /// <param name="bucketName">The Amazon S3 bucket to use.</param>
    /// <param name="objectKey">The key of the object to delete.</param>
    /// <returns>True if successful.</returns>
    public async Task<bool> DeleteObjectFromBucket(string bucketName, string
objectKey)
```

```
    {
        try
        {
            var request = new DeleteObjectRequest()
            {
                BucketName = bucketName,
                Key = objectKey
            };
            await _amazonS3.DeleteObjectAsync(request);
            Console.WriteLine($"Deleted {objectKey} in {bucketName}.");
            return true;
        }
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"\tUnable to delete object {objectKey} in bucket
{bucketName}: " + ex.Message);
            return false;
        }
    }

    /// <summary>
    /// Delete a specific bucket by deleting the objects and then the bucket
itself.
    /// </summary>
    /// <param name="bucketName">The Amazon S3 bucket to use.</param>
    /// <param name="objectKey">The key of the object to delete.</param>
    /// <param name="versionId">Optional versionId.</param>
    /// <returns>True if successful.</returns>
    public async Task<bool> CleanUpBucketByName(string bucketName)
    {
        try
        {
            var allFiles = await ListBucketContentsByName(bucketName);

            foreach (var fileInfo in allFiles)
            {
                await DeleteObjectFromBucket(fileInfo.BucketName, fileInfo.Key);
            }

            var request = new DeleteBucketRequest() { BucketName = bucketName, };
            var response = await _amazonS3.DeleteBucketAsync(request);
            Console.WriteLine($"\tDelete for {bucketName} complete.");
            return response.HttpStatusCode == HttpStatusCode.OK;
        }
```

```
        catch (AmazonS3Exception ex)
        {
            Console.WriteLine($"\tUnable to delete bucket {bucketName}: " +
 ex.Message);
            return false;
        }

    }

}
```

- For API details, see the following topics in *AWS SDK for .NET API Reference*.
  - CopyObject
  - GetObject
  - PutObject

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Entrypoint for the workflow (index.js). This orchestrates all of the steps. Visit GitHub to see the implementation details for Scenario, ScenarioInput, ScenarioOutput, and ScenarioAction.

```
import * as Scenarios from "@aws-doc-sdk-examples/lib/scenario/index.js";
import {
  exitOnFalse,
  loadState,
  saveState,
} from "@aws-doc-sdk-examples/lib/scenario/steps-common.js";

import { welcome, welcomeContinue } from "./welcome.steps.js";
import {
  confirmCreateBuckets,
```

```
  confirmPopulateBuckets,
  createBuckets,
  createBucketsAction,
  getBucketPrefix,
  populateBuckets,
  populateBucketsAction,
} from "./setup.steps.js";

/**
 * @param {Scenarios} scenarios
 * @param {Record<string, any>} initialState
 */
export const getWorkflowStages = (scenarios, initialState = {}) => {
  const client = new S3Client({});

  return {
    deploy: new scenarios.Scenario(
      "S3 Conditional Requests - Deploy",
      [
        welcome(scenarios),
        welcomeContinue(scenarios),
        exitOnFalse(scenarios, "welcomeContinue"),
        getBucketPrefix(scenarios),
        createBuckets(scenarios),
        confirmCreateBuckets(scenarios),
        exitOnFalse(scenarios, "confirmCreateBuckets"),
        createBucketsAction(scenarios, client),
        populateBuckets(scenarios),
        confirmPopulateBuckets(scenarios),
        exitOnFalse(scenarios, "confirmPopulateBuckets"),
        populateBucketsAction(scenarios, client),
        saveState,
      ],
      initialState,
    ),
    demo: new scenarios.Scenario(
      "S3 Conditional Requests - Demo",
      [loadState, welcome(scenarios), replAction(scenarios, client)],
      initialState,
    ),
    clean: new scenarios.Scenario(
      "S3 Conditional Requests - Destroy",
      [
        loadState,
```

```
        confirmCleanup(scenarios),
        exitOnFalse(scenarios, "confirmCleanup"),
        cleanupAction(scenarios, client),
      ],
      initialState,
    ),
  };
};

// Call function if run directly
import { fileURLToPath } from "node:url";
import { S3Client } from "@aws-sdk/client-s3";
import { cleanupAction, confirmCleanup } from "./clean.steps.js";
import { replAction } from "./repl.steps.js";

if (process.argv[1] === fileURLToPath(import.meta.url)) {
  const objectLockingScenarios = getWorkflowStages(Scenarios);
  Scenarios.parseScenarioArgs(objectLockingScenarios, {
    name: "Amazon S3 object locking workflow",
    description:
      "Work with Amazon Simple Storage Service (Amazon S3) object locking
 features.",
    synopsis:
      "node index.js --scenario <deploy | demo | clean> [-h|--help] [-y|--yes] [-
v|--verbose]",
  });
}
```

Output welcome messages to the console (welcome.steps.js).

```
/**
 * @typedef {import("@aws-doc-sdk-examples/lib/scenario/index.js")} Scenarios
 */

/**
 * @param {Scenarios} scenarios
 */
const welcome = (scenarios) =>
  new scenarios.ScenarioOutput(
    "welcome",
    "This example demonstrates the use of conditional requests for S3
 operations." +
```

```
      " You can use conditional requests to add preconditions to S3 read requests
 to return " +
      "or copy an object based on its Entity tag (ETag), or last modified
 date.You can use " +
      "a conditional write requests to prevent overwrites by ensuring there is no
 existing " +
      "object with the same key.\n" +
      "This example will enable you to perform conditional reads and writes that
 will succeed " +
      "or fail based on your selected options.\n" +
      "Sample buckets and a sample object will be created as part of the example.
\n" +
      "Some steps require a key name prefix to be defined by the user. Before you
 begin, you can " +
      "optionally edit this prefix in ./object_name.json. If you do so, please
 reload the scenario before you begin.",
    { header: true },
  );

/**
 * @param {Scenarios} scenarios
 */
const welcomeContinue = (scenarios) =>
  new scenarios.ScenarioInput(
    "welcomeContinue",
    "Press Enter when you are ready to start.",
    { type: "confirm" },
  );

export { welcome, welcomeContinue };
```

Deploy buckets and objects (setup.steps.js).

```
import {
  ChecksumAlgorithm,
  CreateBucketCommand,
  PutObjectCommand,
  BucketAlreadyExists,
  BucketAlreadyOwnedByYou,
  S3ServiceException,
  waitUntilBucketExists,
} from "@aws-sdk/client-s3";
```

```
/**
 * @typedef {import("@aws-doc-sdk-examples/lib/scenario/index.js")} Scenarios
 */

/**
 * @typedef {import("@aws-sdk/client-s3").S3Client} S3Client
 */

/**
 * @param {Scenarios} scenarios
 */
const getBucketPrefix = (scenarios) =>
  new scenarios.ScenarioInput(
    "bucketPrefix",
    "Provide a prefix that will be used for bucket creation.",
    { type: "input", default: "amzn-s3-demo-bucket" },
  );
/**
 * @param {Scenarios} scenarios
 */
const createBuckets = (scenarios) =>
  new scenarios.ScenarioOutput(
    "createBuckets",
    (state) => `The following buckets will be created:
         ${state.bucketPrefix}-source-bucket.
         ${state.bucketPrefix}-destination-bucket.`,
    { preformatted: true },
  );

/**
 * @param {Scenarios} scenarios
 */
const confirmCreateBuckets = (scenarios) =>
  new scenarios.ScenarioInput("confirmCreateBuckets", "Create the buckets?", {
    type: "confirm",
  });

/**
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
const createBucketsAction = (scenarios, client) =>
  new scenarios.ScenarioAction("createBucketsAction", async (state) => {
```

```
    const sourceBucketName = `${state.bucketPrefix}-source-bucket`;
    const destinationBucketName = `${state.bucketPrefix}-destination-bucket`;

    try {
      await client.send(
        new CreateBucketCommand({
          Bucket: sourceBucketName,
        }),
      );
      await waitUntilBucketExists({ client }, { Bucket: sourceBucketName });
      await client.send(
        new CreateBucketCommand({
          Bucket: destinationBucketName,
        }),
      );
      await waitUntilBucketExists(
        { client },
        { Bucket: destinationBucketName },
      );

      state.sourceBucketName = sourceBucketName;
      state.destinationBucketName = destinationBucketName;
    } catch (caught) {
      if (
        caught instanceof BucketAlreadyExists ||
        caught instanceof BucketAlreadyOwnedByYou
      ) {
        console.error(`${caught.name}: ${caught.message}`);
        state.earlyExit = true;
      } else {
        throw caught;
      }
    }
  });

/**
 * @param {Scenarios} scenarios
 */
const populateBuckets = (scenarios) =>
  new scenarios.ScenarioOutput(
    "populateBuckets",
    (state) => `The following test files will be created:
         file01.txt in ${state.bucketPrefix}-source-bucket.`,
    { preformatted: true },
```

```
  );

/**
 * @param {Scenarios} scenarios
 */
const confirmPopulateBuckets = (scenarios) =>
  new scenarios.ScenarioInput(
    "confirmPopulateBuckets",
    "Populate the buckets?",
    { type: "confirm" },
  );

/**
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
const populateBucketsAction = (scenarios, client) =>
  new scenarios.ScenarioAction("populateBucketsAction", async (state) => {
    try {
      await client.send(
        new PutObjectCommand({
          Bucket: state.sourceBucketName,
          Key: "file01.txt",
          Body: "Content",
          ChecksumAlgorithm: ChecksumAlgorithm.SHA256,
        }),
      );
    } catch (caught) {
      if (caught instanceof S3ServiceException) {
        console.error(
          `Error from S3 while uploading object.  ${caught.name}:
 ${caught.message}`,
        );
      } else {
        throw caught;
      }
    }
  });

export {
  confirmCreateBuckets,
  confirmPopulateBuckets,
  createBuckets,
  createBucketsAction,
```

```
  getBucketPrefix,
  populateBuckets,
  populateBucketsAction,
};
```

Get, copy, and put objects using S3 conditional requests (repl.steps.js).

```
import path from "node:path";
import { fileURLToPath } from "node:url";
import { dirname } from "node:path";

import {
  ListObjectVersionsCommand,
  GetObjectCommand,
  CopyObjectCommand,
  PutObjectCommand,
} from "@aws-sdk/client-s3";
import data from "./object_name.json" assert { type: "json" };
import { readFile } from "node:fs/promises";
import {
  ScenarioInput,
  Scenario,
  ScenarioAction,
  ScenarioOutput,
} from "../../../libs/scenario/index.js";

/**
 * @typedef {import("@aws-doc-sdk-examples/lib/scenario/index.js")} Scenarios
 */

/**
 * @typedef {import("@aws-sdk/client-s3").S3Client} S3Client
 */

const choices = {
  EXIT: 0,
  LIST_ALL_FILES: 1,
  CONDITIONAL_READ: 2,
  CONDITIONAL_COPY: 3,
  CONDITIONAL_WRITE: 4,
};
```

```
/**
 * @param {Scenarios} scenarios
 */
const replInput = (scenarios) =>
  new ScenarioInput(
    "replChoice",
    "Explore the S3 conditional request features by selecting one of the
 following choices",
    {
      type: "select",
      choices: [
        { name: "Print list of bucket items.", value: choices.LIST_ALL_FILES },
        {
          name: "Perform a conditional read.",
          value: choices.CONDITIONAL_READ,
        },
        {
          name: "Perform a conditional copy. These examples use the key name
 prefix defined in ./object_name.json.",
          value: choices.CONDITIONAL_COPY,
        },
        {
          name: "Perform a conditional write. This example use the sample file ./
text02.txt.",
          value: choices.CONDITIONAL_WRITE,
        },
        { name: "Finish the workflow.", value: choices.EXIT },
      ],
    },
  );

/**
 * @param {S3Client} client
 * @param {string[]} buckets
 */
const getAllFiles = async (client, buckets) => {
  /** @type {{bucket: string, key: string, version: string}[]} */
  const files = [];
  for (const bucket of buckets) {
    const objectsResponse = await client.send(
      new ListObjectVersionsCommand({ Bucket: bucket }),
    );
    for (const version of objectsResponse.Versions || []) {
```

```
      const { Key } = version;
      files.push({ bucket, key: Key });
    }
  }
  return files;
};

/**
 * @param {S3Client} client
 * @param {string[]} buckets
 * @param {string} key
 */
const getEtag = async (client, bucket, key) => {
  const objectsResponse = await client.send(
    new GetObjectCommand({
      Bucket: bucket,
      Key: key,
    }),
  );
  return objectsResponse.ETag;
};

/**
 * @param {S3Client} client
 * @param {string[]} buckets
 */

/**
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
export const replAction = (scenarios, client) =>
  new ScenarioAction(
    "replAction",
    async (state) => {
      const files = await getAllFiles(client, [
        state.sourceBucketName,
        state.destinationBucketName,
      ]);

      const fileInput = new scenarios.ScenarioInput(
        "selectedFile",
        "Select a file to use:",
        {
```

```
          type: "select",
          choices: files.map((file, index) => ({
            name: `${index + 1}: ${file.bucket}: ${file.key} (Etag: ${
              file.version
            })`,
            value: index,
          })),
        },
      );
      const condReadOptions = new scenarios.ScenarioInput(
        "selectOption",
        "Which conditional read action would you like to take?",
        {
          type: "select",
          choices: [
            "If-Match: using the object's ETag. This condition should succeed.",
            "If-None-Match: using the object's ETag. This condition should
fail.",
            "If-Modified-Since: using yesterday's date. This condition should
succeed.",
            "If-Unmodified-Since: using yesterday's date. This condition should
fail.",
          ],
        },
      );
      const condCopyOptions = new scenarios.ScenarioInput(
        "selectOption",
        "Which conditional copy action would you like to take?",
        {
          type: "select",
          choices: [
            "If-Match: using the object's ETag. This condition should succeed.",
            "If-None-Match: using the object's ETag. This condition should
fail.",
            "If-Modified-Since: using yesterday's date. This condition should
succeed.",
            "If-Unmodified-Since: using yesterday's date. This condition should
fail.",
          ],
        },
      );
      const condWriteOptions = new scenarios.ScenarioInput(
        "selectOption",
        "Which conditional write action would you like to take?",
```

```
        {
          type: "select",
          choices: [
            "IfNoneMatch condition on the object key: If the key is a duplicate,
the write will fail.",
          ],
        },
      );

      const { replChoice } = state;

      switch (replChoice) {
        case choices.LIST_ALL_FILES: {
          const files = await getAllFiles(client, [
            state.sourceBucketName,
            state.destinationBucketName,
          ]);
          state.replOutput = files
            .map(
              (file) => `Items in bucket ${file.bucket}: object: ${file.key} `,
            )
            .join("\n");
          break;
        }
        case choices.CONDITIONAL_READ:
          {
            const selectedCondRead = await condReadOptions.handle(state);
            if (
              selectedCondRead ===
              "If-Match: using the object's ETag. This condition should succeed."
            ) {
              const bucket = state.sourceBucketName;
              const key = "file01.txt";
              const ETag = await getEtag(client, bucket, key);

              try {
                await client.send(
                  new GetObjectCommand({
                    Bucket: bucket,
                    Key: key,
                    IfMatch: ETag,
                  }),
                );
```

```
                state.replOutput = `${key} in bucket ${state.sourceBucketName}
read because ETag provided matches the object's ETag.`;
              } catch (err) {
                state.replOutput = `Unable to read object ${key} in bucket
${state.sourceBucketName}: ${err.message}`;
              }
              break;
            }
            if (
              selectedCondRead ===
              "If-None-Match: using the object's ETag. This condition should
fail."
            ) {
              const bucket = state.sourceBucketName;
              const key = "file01.txt";
              const ETag = await getEtag(client, bucket, key);

              try {
                await client.send(
                  new GetObjectCommand({
                    Bucket: bucket,
                    Key: key,
                    IfNoneMatch: ETag,
                  }),
                );
                state.replOutput = `${key} in ${state.sourceBucketName} was
returned.`;
              } catch (err) {
                state.replOutput = `${key} in ${state.sourceBucketName} was not
read: ${err.message}`;
              }
              break;
            }
            if (
              selectedCondRead ===
              "If-Modified-Since: using yesterday's date. This condition should
succeed."
            ) {
              const date = new Date();
              date.setDate(date.getDate() - 1);

              const bucket = state.sourceBucketName;
              const key = "file01.txt";
              try {
```

```
                await client.send(
                  new GetObjectCommand({
                    Bucket: bucket,
                    Key: key,
                    IfModifiedSince: date,
                  }),
                );
                state.replOutput = `${key} in bucket ${state.sourceBucketName}
read because it has been created or modified in the last 24 hours.`;
              } catch (err) {
                state.replOutput = `Unable to read object ${key} in bucket
${state.sourceBucketName}: ${err.message}`;
              }
              break;
            }
            if (
              selectedCondRead ===
              "If-Unmodified-Since: using yesterday's date. This condition should
fail."
            ) {
              const bucket = state.sourceBucketName;
              const key = "file01.txt";

              const date = new Date();
              date.setDate(date.getDate() - 1);
              try {
                await client.send(
                  new GetObjectCommand({
                    Bucket: bucket,
                    Key: key,
                    IfUnmodifiedSince: date,
                  }),
                );
                state.replOutput = `${key} in ${state.sourceBucketName} was
read.`;
              } catch (err) {
                state.replOutput = `${key} in ${state.sourceBucketName} was not
read: ${err.message}`;
              }
              break;
            }
          }
          break;
        case choices.CONDITIONAL_COPY: {
```

```
          const selectedCondCopy = await condCopyOptions.handle(state);
          if (
            selectedCondCopy ===
            "If-Match: using the object's ETag. This condition should succeed."
          ) {
            const bucket = state.sourceBucketName;
            const key = "file01.txt";
            const ETag = await getEtag(client, bucket, key);

            const copySource = `${bucket}/${key}`;
            // Optionally edit the default key name prefix of the copied object
in ./object_name.json.
            const name = data.name;
            const copiedKey = `${name}${key}`;
            try {
              await client.send(
                new CopyObjectCommand({
                  CopySource: copySource,
                  Bucket: state.destinationBucketName,
                  Key: copiedKey,
                  CopySourceIfMatch: ETag,
                }),
              );
              state.replOutput = `${key} copied as ${copiedKey} to bucket
${state.destinationBucketName} because ETag provided matches the object's
ETag.`;
            } catch (err) {
              state.replOutput = `Unable to copy object ${key} as ${copiedKey} to
bucket ${state.destinationBucketName}: ${err.message}`;
            }
            break;
          }
          if (
            selectedCondCopy ===
            "If-None-Match: using the object's ETag. This condition should fail."
          ) {
            const bucket = state.sourceBucketName;
            const key = "file01.txt";
            const ETag = await getEtag(client, bucket, key);
            const copySource = `${bucket}/${key}`;
            // Optionally edit the default key name prefix of the copied object
in ./object_name.json.
            const name = data.name;
            const copiedKey = `${name}${key}`;
```

```
            try {
              await client.send(
                new CopyObjectCommand({
                  CopySource: copySource,
                  Bucket: state.destinationBucketName,
                  Key: copiedKey,
                  CopySourceIfNoneMatch: ETag,
                }),
              );
              state.replOutput = `${copiedKey} copied to bucket
${state.destinationBucketName}`;
            } catch (err) {
              state.replOutput = `Unable to copy object as ${key} as as
${copiedKey} to bucket ${state.destinationBucketName}: ${err.message}`;
            }
            break;
          }
          if (
            selectedCondCopy ===
            "If-Modified-Since: using yesterday's date. This condition should
succeed."
          ) {
            const bucket = state.sourceBucketName;
            const key = "file01.txt";
            const copySource = `${bucket}/${key}`;
            // Optionally edit the default key name prefix of the copied object
in ./object_name.json.
            const name = data.name;
            const copiedKey = `${name}${key}`;

            const date = new Date();
            date.setDate(date.getDate() - 1);

            try {
              await client.send(
                new CopyObjectCommand({
                  CopySource: copySource,
                  Bucket: state.destinationBucketName,
                  Key: copiedKey,
                  CopySourceIfModifiedSince: date,
                }),
              );
```

```
              state.replOutput = `${key} copied as ${copiedKey} to bucket
${state.destinationBucketName} because it has been created or modified in the
last 24 hours.`;
            } catch (err) {
              state.replOutput = `Unable to copy object ${key} as ${copiedKey} to
bucket ${state.destinationBucketName} : ${err.message}`;
            }
            break;
          }
          if (
            selectedCondCopy ===
            "If-Unmodified-Since: using yesterday's date. This condition should
fail."
          ) {
            const bucket = state.sourceBucketName;
            const key = "file01.txt";
            const copySource = `${bucket}/${key}`;
            // Optionally edit the default key name prefix of the copied object
in ./object_name.json.
            const name = data.name;
            const copiedKey = `${name}${key}`;

            const date = new Date();
            date.setDate(date.getDate() - 1);

            try {
              await client.send(
                new CopyObjectCommand({
                  CopySource: copySource,
                  Bucket: state.destinationBucketName,
                  Key: copiedKey,
                  CopySourceIfUnmodifiedSince: date,
                }),
              );
              state.replOutput = `${copiedKey} copied to bucket
${state.destinationBucketName} because it has not been created or modified in
the last 24 hours.`;
            } catch (err) {
              state.replOutput = `Unable to copy object ${key} to bucket
${state.destinationBucketName}: ${err.message}`;
            }
          }
          break;
        }
```

```
        case choices.CONDITIONAL_WRITE:
          {
            const selectedCondWrite = await condWriteOptions.handle(state);
            if (
              selectedCondWrite ===
              "IfNoneMatch condition on the object key: If the key is a
duplicate, the write will fail."
            ) {
              // Optionally edit the default key name prefix of the copied object
in ./object_name.json.
              const key = "text02.txt";
              const __filename = fileURLToPath(import.meta.url);
              const __dirname = dirname(__filename);
              const filePath = path.join(__dirname, "text02.txt");
              try {
                await client.send(
                  new PutObjectCommand({
                    Bucket: `${state.destinationBucketName}`,
                    Key: `${key}`,
                    Body: await readFile(filePath),
                    IfNoneMatch: "*",
                  }),
                );
                state.replOutput = `${key} uploaded to bucket
${state.destinationBucketName} because the key is not a duplicate.`;
              } catch (err) {
                state.replOutput = `Unable to upload object to bucket
${state.destinationBucketName}:${err.message}`;
              }
              break;
            }
          }
          break;

        default:
          throw new Error(`Invalid replChoice: ${replChoice}`);
      }
    },
    {
      whileConfig: {
        whileFn: ({ replChoice }) => replChoice !== choices.EXIT,
        input: replInput(scenarios),
        output: new ScenarioOutput("REPL output", (state) => state.replOutput, {
          preformatted: true,
```

```
        }),
      },
    },
  );

export { replInput, choices };
```

Destroy all created resources (clean.steps.js).

```
import {
  DeleteObjectCommand,
  DeleteBucketCommand,
  ListObjectVersionsCommand,
} from "@aws-sdk/client-s3";

/**
 * @typedef {import("@aws-doc-sdk-examples/lib/scenario/index.js")} Scenarios
 */

/**
 * @typedef {import("@aws-sdk/client-s3").S3Client} S3Client
 */

/**
 * @param {Scenarios} scenarios
 */
const confirmCleanup = (scenarios) =>
  new scenarios.ScenarioInput("confirmCleanup", "Clean up resources?", {
    type: "confirm",
  });

/**
 * @param {Scenarios} scenarios
 * @param {S3Client} client
 */
const cleanupAction = (scenarios, client) =>
  new scenarios.ScenarioAction("cleanupAction", async (state) => {
    const { sourceBucketName, destinationBucketName } = state;
    const buckets = [sourceBucketName, destinationBucketName].filter((b) => b);

    for (const bucket of buckets) {
      try {
```

```
        let objectsResponse;
        objectsResponse = await client.send(
          new ListObjectVersionsCommand({
            Bucket: bucket,
          }),
        );
        for (const version of objectsResponse.Versions || []) {
          const { Key, VersionId } = version;
          try {
            await client.send(
              new DeleteObjectCommand({
                Bucket: bucket,
                Key,
                VersionId,
              }),
            );
          } catch (err) {
            console.log(`An error occurred: ${err.message} `);
          }
        }
      } catch (e) {
        if (e instanceof Error && e.name === "NoSuchBucket") {
          console.log("Objects and buckets have already been deleted.");
          continue;
        }
        throw e;
      }

      await client.send(new DeleteBucketCommand({ Bucket: bucket }));
      console.log(`Delete for ${bucket} complete.`);
    }
  });

export { confirmCleanup, cleanupAction };
```

- For API details, see the following topics in *AWS SDK for JavaScript API Reference*.
  - CopyObject
  - GetObject
  - PutObject

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Run an interactive scenario demonstrating Amazon S3 conditional requests.

```
"""
Purpose

Shows how to use AWS SDK for Python (Boto3) to get started using conditional
 requests for
Amazon Simple Storage Service (Amazon S3).

"""

import logging
import random
import sys
import datetime

import boto3
from botocore.exceptions import ClientError

from s3_conditional_requests import S3ConditionalRequests

# Add relative path to include demo_tools in this code example without need for
 setup.
sys.path.append("../../../..")
import demo_tools.question as q  # noqa

# Constants
FILE_CONTENT = "This is a test file for S3 conditional requests."
RANDOM_SUFFIX = str(random.randint(100, 999))

logger = logging.getLogger(__name__)
```

```
class ConditionalRequestsScenario:
    """Runs a scenario that shows how to use S3 Conditional Requests."""

    def __init__(self, conditional_requests, s3_client):
        """
        :param conditional_requests: An object that wraps S3 conditional request
 actions.
        :param s3_client: A Boto3 S3 client for setup and cleanup operations.
        """
        self.conditional_requests = conditional_requests
        self.s3_client = s3_client

    def setup_scenario(self, source_bucket: str, dest_bucket: str, object_key:
 str):
        """
        Sets up the scenario by creating a source and destination bucket.
        Prompts the user to provide a bucket name prefix.

        :param source_bucket: The name of the source bucket.
        :param dest_bucket: The name of the destination bucket.
        :param object_key: The name of a test file to add to the source bucket.
        """

        # Create the buckets.
        try:
            self.s3_client.create_bucket(Bucket=source_bucket)
            self.s3_client.create_bucket(Bucket=dest_bucket)
            print(
                f"Created source bucket: {source_bucket} and destination bucket:
 {dest_bucket}"
            )
        except ClientError as e:
            error_code = e.response["Error"]["Code"]
            logger.error(f"Error creating buckets: {error_code}")
            raise

        # Upload test file into the source bucket.
        try:
            print(f"Uploading file {object_key} to bucket {source_bucket}")
            response = self.s3_client.put_object(
                Bucket=source_bucket, Key=object_key, Body=FILE_CONTENT
            )
            object_etag = response["ETag"]
            return object_etag
```

```
        except Exception as e:
            logger.error(
                f"Failed to upload file {object_key} to bucket {source_bucket}:
{e}"
            )


    def cleanup_scenario(self, source_bucket: str, dest_bucket: str):
        """
        Cleans up the scenario by deleting the source and destination buckets.

        :param source_bucket: The name of the source bucket.
        :param dest_bucket: The name of the destination bucket.
        """
        self.cleanup_bucket(source_bucket)
        self.cleanup_bucket(dest_bucket)

    def cleanup_bucket(self, bucket_name: str):
        """
        Cleans up the bucket by deleting all objects and then the bucket itself.

        :param bucket_name: The name of the bucket.
        """
        try:
            # Get list of all objects in the bucket.
            list_response = self.s3_client.list_objects_v2(Bucket=bucket_name)
            objs = list_response.get("Contents", [])
            for obj in objs:
                key = obj["Key"]
                self.s3_client.delete_object(Bucket=bucket_name, Key=key)
            self.s3_client.delete_bucket(Bucket=bucket_name)
            print(f"Cleaned up bucket: {bucket_name}.")
        except ClientError as e:
            error_code = e.response["Error"]["Code"]
            if error_code == "NoSuchBucket":
                logger.info(f"Bucket {bucket_name} does not exist, skipping
cleanup.")
            else:
                logger.error(f"Error deleting bucket: {error_code}")
                raise


    def display_buckets(self, source_bucket: str, dest_bucket: str):
```

```
        """
        Display a list of the objects in the test buckets.

        :param source_bucket: The name of the source bucket.
        :param dest_bucket: The name of the destination bucket.
        """
        self.list_bucket_contents(source_bucket)
        self.list_bucket_contents(dest_bucket)

    def list_bucket_contents(self, bucket_name):
        """
        Display a list of the objects in the bucket.

        :param bucket_name: The name of the bucket.
        """
        try:
            # Get list of all objects in the bucket.
            print(f"\t Items in bucket {bucket_name}")
            list_response = self.s3_client.list_objects_v2(Bucket=bucket_name)
            objs = list_response.get("Contents", [])
            if not objs:
                print("\t\tNo objects found.")
            for obj in objs:
                key = obj["Key"]
                print(f"\t\t object: {key} ETag {obj['ETag']}")
            return objs
        except ClientError as e:
            error_code = e.response["Error"]["Code"]
            if error_code == "NoSuchBucket":
                logger.info(f"Bucket {bucket_name} does not exist.")
            else:
                logger.error(f"Error listing bucket and objects: {error_code}")
                raise


    def display_menu(
        self, source_bucket: str, dest_bucket: str, object_key: str, etag: str
    ):
        """
        Displays the menu of conditional request options for the user.

        :param source_bucket: The name of the source bucket.
        :param dest_bucket: The name of the destination bucket.
        :param object_key: The key of the test object in the source bucket.
```

```
        :param etag: The etag of the test object in the source bucket.
        """

        actions = [
            "Print list of bucket items.",
            "Perform a conditional read.",
            "Perform a conditional copy.",
            "Perform a conditional write.",
            "Clean up and exit.",
        ]

        conditions = [
            "If-Match: using the object's ETag. This condition should succeed.",
            "If-None-Match: using the object's ETag. This condition should
fail.",
            "If-Modified-Since: using yesterday's date. This condition should
succeed.",
            "If-Unmodified-Since: using yesterday's date. This condition should
fail.",
        ]

        condition_types = [
            "IfMatch",
            "IfNoneMatch",
            "IfModifiedSince",
            "IfUnmodifiedSince",
        ]
        copy_condition_types = [
            "CopySourceIfMatch",
            "CopySourceIfNoneMatch",
            "CopySourceIfModifiedSince",
            "CopySourceIfUnmodifiedSince",
        ]

        yesterday_date = datetime.datetime.utcnow() - datetime.timedelta(days=1)

        choice = 0
        while choice != 4:
            print("-" * 88)
            print("Choose an action to explore some example conditional
requests.")
            choice = q.choose("Which action would you like to take? ", actions)
            if choice == 0:
                print("Listing the objects and buckets.")
```

```
                self.display_buckets(source_bucket, dest_bucket)
            elif choice == 1:
                print("Perform a conditional read.")
                condition_type = q.choose("Enter the condition type : ",
conditions)
                if condition_type == 0 or condition_type == 1:
                    self.conditional_requests.get_object_conditional(
                        object_key, source_bucket,
condition_types[condition_type], etag
                    )
                elif condition_type == 2 or condition_type == 3:
                    self.conditional_requests.get_object_conditional(
                        object_key,
                        source_bucket,
                        condition_types[condition_type],
                        yesterday_date,
                    )
            elif choice == 2:
                print("Perform a conditional copy.")
                condition_type = q.choose("Enter the condition type : ",
conditions)
                dest_key = q.ask("Enter an object key: ", q.non_empty)
                if condition_type == 0 or condition_type == 1:
                    self.conditional_requests.copy_object_conditional(
                        object_key,
                        dest_key,
                        source_bucket,
                        dest_bucket,
                        copy_condition_types[condition_type],
                        etag,
                    )
                elif condition_type == 2 or condition_type == 3:
                    self.conditional_requests.copy_object_conditional(
                        object_key,
                        dest_key,
                        copy_condition_types[condition_type],
                        yesterday_date,
                    )
            elif choice == 3:
                print(
                    "Perform a conditional write using IfNoneMatch condition on
the object key."
                )
                print("If the key is a duplicate, the write will fail.")
```

```
                object_key = q.ask("Enter an object key: ", q.non_empty)
                self.conditional_requests.put_object_conditional(
                    object_key, source_bucket, b"Conditional write example data."
                )
            elif choice == 4:
                print("Proceeding to cleanup.")


    def run_scenario(self):
        """
        Runs the interactive scenario.
        """
        print("-" * 88)
        print("Welcome to the Amazon S3 conditional requests example.")
        print("-" * 88)

        print(
            f"""\
        This example demonstrates the use of conditional requests for S3
operations.
        You can use conditional requests to add preconditions to S3 read requests
to return or copy
        an object based on its Entity tag (ETag), or last modified date.
        You can use a conditional write requests to prevent overwrites by
ensuring
        there is no existing object with the same key.

        This example will allow you to perform conditional reads
        and writes that will succeed or fail based on your selected options.

        Sample buckets and a sample object will be created as part of the
example.
        """
        )

        bucket_prefix = q.ask("Enter a bucket name prefix: ", q.non_empty)
        source_bucket_name = f"{bucket_prefix}-source-{RANDOM_SUFFIX}"
        dest_bucket_name = f"{bucket_prefix}-dest-{RANDOM_SUFFIX}"
        object_key = "test-upload-file.txt"

        try:
            etag = self.setup_scenario(source_bucket_name, dest_bucket_name,
object_key)
```

```
            self.display_menu(source_bucket_name, dest_bucket_name, object_key,
 etag)
        finally:
            self.cleanup_scenario(source_bucket_name, dest_bucket_name)

        print("-" * 88)
        print("Thanks for watching.")
        print("-" * 88)


if __name__ == "__main__":
    scenario = ConditionalRequestsScenario(
        S3ConditionalRequests.from_client(), boto3.client("s3")
    )
    scenario.run_scenario()
```

A wrapper class that defines the conditional request operations.

```


import boto3
import logging

from botocore.exceptions import ClientError

# Configure logging
logger = logging.getLogger(__name__)


class S3ConditionalRequests:
    """Encapsulates S3 conditional request operations."""

    def __init__(self, s3_client):
        self.s3 = s3_client

    @classmethod
    def from_client(cls):
        """
        Instantiates this class from a Boto3 client.
        """
        s3_client = boto3.client("s3")
        return cls(s3_client)
```

```
    def get_object_conditional(
        self,
        object_key: str,
        source_bucket: str,
        condition_type: str,
        condition_value: str,
    ):
        """
        Retrieves an object from Amazon S3 with a conditional request.

        :param object_key: The key of the object to retrieve.
        :param source_bucket: The source bucket of the object.
        :param condition_type: The type of condition: 'IfMatch', 'IfNoneMatch',
'IfModifiedSince', 'IfUnmodifiedSince'.
        :param condition_value: The value to use for the condition.
        """
        try:
            response = self.s3.get_object(
                Bucket=source_bucket,
                Key=object_key,
                **{condition_type: condition_value},
            )
            sample_bytes = response["Body"].read(20)
            print(
                f"\tConditional read successful. Here are the first 20 bytes of
the object:\n"
            )
            print(f"\t{sample_bytes}")
        except ClientError as e:
            error_code = e.response["Error"]["Code"]
            if error_code == "PreconditionFailed":
                print("\tConditional read failed: Precondition failed")
            elif error_code == "304":  # Not modified error code.
                print("\tConditional read failed: Object not modified")
            else:
                logger.error(f"Unexpected error: {error_code}")
                raise



    def put_object_conditional(self, object_key: str, source_bucket: str, data:
bytes):
```

```
        """
        Uploads an object to Amazon S3 with a conditional request. Prevents
overwrite
        using an IfNoneMatch condition for the object key.

        :param object_key: The key of the object to upload.
        :param source_bucket: The source bucket of the object.
        :param data: The data to upload.
        """
        try:
            self.s3.put_object(
                Bucket=source_bucket, Key=object_key, Body=data, IfNoneMatch="*"
            )
            print(
                f"\tConditional write successful for key {object_key} in bucket
{source_bucket}."
            )
        except ClientError as e:
            error_code = e.response["Error"]["Code"]
            if error_code == "PreconditionFailed":
                print("\tConditional write failed: Precondition failed")
            else:
                logger.error(f"Unexpected error: {error_code}")
                raise


    def copy_object_conditional(
        self,
        source_key: str,
        dest_key: str,
        source_bucket: str,
        dest_bucket: str,
        condition_type: str,
        condition_value: str,
    ):
        """
        Copies an object from one Amazon S3 bucket to another with a conditional
request.

        :param source_key: The key of the source object to copy.
        :param dest_key: The key of the destination object.
        :param source_bucket: The source bucket of the object.
        :param dest_bucket: The destination bucket of the object.
        :param condition_type: The type of condition to apply, e.g.
```

```
        'CopySourceIfMatch', 'CopySourceIfNoneMatch',
'CopySourceIfModifiedSince', 'CopySourceIfUnmodifiedSince'.
        :param condition_value: The value to use for the condition.
        """
        try:
            self.s3.copy_object(
                Bucket=dest_bucket,
                Key=dest_key,
                CopySource={"Bucket": source_bucket, "Key": source_key},
                **{condition_type: condition_value},
            )
            print(
                f"\tConditional copy successful for key {dest_key} in bucket
{dest_bucket}."
            )
        except ClientError as e:
            error_code = e.response["Error"]["Code"]
            if error_code == "PreconditionFailed":
                print("\tConditional copy failed: Precondition failed")
            elif error_code == "304":  # Not modified error code.
                print("\tConditional copy failed: Object not modified")
            else:
                logger.error(f"Unexpected error: {error_code}")
                raise
```

- For API details, see the following topics in *AWS SDK for Python (Boto3) API Reference*.
  - CopyObject
  - GetObject
  - PutObject

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Manage access control lists (ACLs) for Amazon S3 buckets using an AWS SDK

The following code example shows how to manage access control lists (ACLs) for Amazon S3 buckets.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
using System;
using System.Collections.Generic;
using System.Threading.Tasks;
using Amazon.S3;
using Amazon.S3.Model;

/// <summary>
/// This example shows how to manage Amazon Simple Storage Service
/// (Amazon S3) access control lists (ACLs) to control Amazon S3 bucket
/// access.
/// </summary>
public class ManageACLs
{
    public static async Task Main()
    {
        string bucketName = "amzn-s3-demo-bucket1";
        string newBucketName = "amzn-s3-demo-bucket2";
        string keyName = "sample-object.txt";
        string emailAddress = "someone@example.com";

        // If the AWS Region where your bucket is located is different from
        // the Region defined for the default user, pass the Amazon S3
bucket's
        // name to the client constructor. It should look like this:
        // RegionEndpoint bucketRegion = RegionEndpoint.USEast1;
        IAmazonS3 client = new AmazonS3Client();

        await TestBucketObjectACLsAsync(client, bucketName, newBucketName,
keyName, emailAddress);
    }

    /// <summary>
```

```
        /// Creates a new Amazon S3 bucket with a canned ACL, then retrieves the
ACL
        /// information and then adds a new ACL to one of the objects in the
        /// Amazon S3 bucket.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used to
call
        /// methods to create a bucket, get an ACL, and add a different ACL to
        /// one of the objects.</param>
        /// <param name="bucketName">A string representing the original Amazon S3
        /// bucket name.</param>
        /// <param name="newBucketName">A string representing the name of the
        /// new bucket that will be created.</param>
        /// <param name="keyName">A string representing the key name of an Amazon
S3
        /// object for which we will change the ACL.</param>
        /// <param name="emailAddress">A string representing the email address
        /// belonging to the person to whom access to the Amazon S3 bucket will
be
        /// granted.</param>
        public static async Task TestBucketObjectACLsAsync(
            IAmazonS3 client,
            string bucketName,
            string newBucketName,
            string keyName,
            string emailAddress)
        {
            try
            {
                // Create a new Amazon S3 bucket and specify canned ACL.
                var success = await CreateBucketWithCannedACLAsync(client,
newBucketName);

                // Get the ACL on a bucket.
                await GetBucketACLAsync(client, bucketName);

                // Add (replace) the ACL on an object in a bucket.
                await AddACLToExistingObjectAsync(client, bucketName, keyName,
emailAddress);
            }
            catch (AmazonS3Exception amazonS3Exception)
            {
                Console.WriteLine($"Exception: {amazonS3Exception.Message}");
            }
```

```
        }

        /// <summary>
        /// Creates a new Amazon S3 bucket with a canned ACL attached.
        /// </summary>
        /// <param name="client">The initialized client object used to call
        /// PutBucketAsync.</param>
        /// <param name="newBucketName">A string representing the name of the
        /// new Amazon S3 bucket.</param>
        /// <returns>Returns a boolean value indicating success or failure.</
returns>
        public static async Task<bool> CreateBucketWithCannedACLAsync(IAmazonS3
 client, string newBucketName)
        {
            var request = new PutBucketRequest()
            {
                BucketName = newBucketName,
                BucketRegion = S3Region.EUWest1,

                // Add a canned ACL.
                CannedACL = S3CannedACL.LogDeliveryWrite,
            };

            var response = await client.PutBucketAsync(request);
            return response.HttpStatusCode == System.Net.HttpStatusCode.OK;
        }


        /// <summary>
        /// Retrieves the ACL associated with the Amazon S3 bucket name in the
        /// bucketName parameter.
        /// </summary>
        /// <param name="client">The initialized client object used to call
        /// PutBucketAsync.</param>
        /// <param name="bucketName">The Amazon S3 bucket for which we want to
 get the
        /// ACL list.</param>
        /// <returns>Returns an S3AccessControlList returned from the call to
        /// GetACLAsync.</returns>
        public static async Task<S3AccessControlList> GetBucketACLAsync(IAmazonS3
 client, string bucketName)
        {
            GetACLResponse response = await client.GetACLAsync(new GetACLRequest
            {
```

```
                BucketName = bucketName,
            });

            return response.AccessControlList;
        }



        /// <summary>
        /// Adds a new ACL to an existing object in the Amazon S3 bucket.
        /// </summary>
        /// <param name="client">The initialized client object used to call
        /// PutBucketAsync.</param>
        /// <param name="bucketName">A string representing the name of the Amazon
 S3
        /// bucket containing the object to which we want to apply a new ACL.</
param>
        /// <param name="keyName">A string representing the name of the object
        /// to which we want to apply the new ACL.</param>
        /// <param name="emailAddress">The email address of the person to whom
        /// we will be applying to whom access will be granted.</param>
        public static async Task AddACLToExistingObjectAsync(IAmazonS3 client,
 string bucketName, string keyName, string emailAddress)
        {
            // Retrieve the ACL for an object.
            GetACLResponse aclResponse = await client.GetACLAsync(new
 GetACLRequest
            {
                BucketName = bucketName,
                Key = keyName,
            });

            S3AccessControlList acl = aclResponse.AccessControlList;

            // Retrieve the owner.
            Owner owner = acl.Owner;

            // Clear existing grants.
            acl.Grants.Clear();

            // Add a grant to reset the owner's full permission
            // (the previous clear statement removed all permissions).
            var fullControlGrant = new S3Grant
            {
```

```
                Grantee = new S3Grantee { CanonicalUser = acl.Owner.Id },
            };
            acl.AddGrant(fullControlGrant.Grantee, S3Permission.FULL_CONTROL);

            // Specify email to identify grantee for granting permissions.
            var grantUsingEmail = new S3Grant
            {
                Grantee = new S3Grantee { EmailAddress = emailAddress },
                Permission = S3Permission.WRITE_ACP,
            };

            // Specify log delivery group as grantee.
            var grantLogDeliveryGroup = new S3Grant
            {
                Grantee = new S3Grantee { URI = "http://acs.amazonaws.com/groups/
s3/LogDelivery" },
                Permission = S3Permission.WRITE,
            };

            // Create a new ACL.
            var newAcl = new S3AccessControlList
            {
                Grants = new List<S3Grant> { grantUsingEmail,
 grantLogDeliveryGroup },
                Owner = owner,
            };

            // Set the new ACL. We're throwing away the response here.
            _ = await client.PutACLAsync(new PutACLRequest
            {
                BucketName = bucketName,
                Key = keyName,
                AccessControlList = newAcl,
            });
        }

    }
```

- For API details, see the following topics in *AWS SDK for .NET API Reference*.
  - GetBucketAcl
  - GetObjectAcl

- PutBucketAcl
- PutObjectAcl

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Manage large Amazon SQS messages using Amazon S3 with an AWS SDK

The following code example shows how to use the Amazon SQS Extended Client Library to work with large Amazon SQS messages.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import com.amazon.sqs.javamessaging.AmazonSQSExtendedClient;
import com.amazon.sqs.javamessaging.ExtendedClientConfiguration;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import org.joda.time.DateTime;
import org.joda.time.format.DateTimeFormat;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.BucketLifecycleConfiguration;
import software.amazon.awssdk.services.s3.model.CreateBucketRequest;
import software.amazon.awssdk.services.s3.model.DeleteBucketRequest;
import software.amazon.awssdk.services.s3.model.DeleteObjectRequest;
import software.amazon.awssdk.services.s3.model.ExpirationStatus;
import software.amazon.awssdk.services.s3.model.LifecycleExpiration;
import software.amazon.awssdk.services.s3.model.LifecycleRule;
import software.amazon.awssdk.services.s3.model.LifecycleRuleFilter;
import software.amazon.awssdk.services.s3.model.ListObjectVersionsRequest;
import software.amazon.awssdk.services.s3.model.ListObjectVersionsResponse;
import software.amazon.awssdk.services.s3.model.ListObjectsV2Request;
```

```
import software.amazon.awssdk.services.s3.model.ListObjectsV2Response;
import
 software.amazon.awssdk.services.s3.model.PutBucketLifecycleConfigurationRequest;
import software.amazon.awssdk.services.sqs.SqsClient;
import software.amazon.awssdk.services.sqs.model.CreateQueueRequest;
import software.amazon.awssdk.services.sqs.model.CreateQueueResponse;
import software.amazon.awssdk.services.sqs.model.DeleteMessageRequest;
import software.amazon.awssdk.services.sqs.model.DeleteQueueRequest;
import software.amazon.awssdk.services.sqs.model.Message;
import software.amazon.awssdk.services.sqs.model.ReceiveMessageRequest;
import software.amazon.awssdk.services.sqs.model.ReceiveMessageResponse;
import software.amazon.awssdk.services.sqs.model.SendMessageRequest;

import java.util.Arrays;
import java.util.List;
import java.util.UUID;

/**
 * Example of using Amazon SQS Extended Client Library for Java 2.x.
 */
public class SqsExtendedClientExample {
    private static final Logger logger =
 LoggerFactory.getLogger(SqsExtendedClientExample.class);

    private String s3BucketName;
    private String queueUrl;
    private final String queueName;
    private final S3Client s3Client;
    private final SqsClient sqsExtendedClient;
    private final int messageSize;

    /**
     * Constructor with default clients and message size.
     */
    public SqsExtendedClientExample() {
        this(S3Client.create(), 300000);
    }

    /**
     * Constructor with custom S3 client and message size.
     *
     * @param s3Client The S3 client to use
     * @param messageSize The size of the test message to create
     */
```

```
    public SqsExtendedClientExample(S3Client s3Client, int messageSize) {
        this.s3Client = s3Client;
        this.messageSize = messageSize;

        // Generate a unique bucket name.
        this.s3BucketName = UUID.randomUUID() + "-" +
                DateTimeFormat.forPattern("yyMMdd-hhmmss").print(new DateTime());

        // Generate a unique queue name.
        this.queueName = "MyQueue-" + UUID.randomUUID();

        // Configure the SQS extended client.
        final ExtendedClientConfiguration extendedClientConfig = new
 ExtendedClientConfiguration()
                .withPayloadSupportEnabled(s3Client, s3BucketName);

        this.sqsExtendedClient = new
 AmazonSQSExtendedClient(SqsClient.builder().build(), extendedClientConfig);
    }

    public static void main(String[] args) {
        SqsExtendedClientExample example = new SqsExtendedClientExample();
        try {
            example.setup();
            example.sendAndReceiveMessage();
        } finally {
            example.cleanup();
        }
    }

    /**
     * Send a large message and receive it back.
     *
     * @return The received message
     */
    public Message sendAndReceiveMessage() {
        try {
            // Create a large message.
            char[] chars = new char[messageSize];
            Arrays.fill(chars, 'x');
            String largeMessage = new String(chars);

            // Send the message.
```

```
            final SendMessageRequest sendMessageRequest =
SendMessageRequest.builder()
                    .queueUrl(queueUrl)
                    .messageBody(largeMessage)
                    .build();

            sqsExtendedClient.sendMessage(sendMessageRequest);
            logger.info("Sent message of size: {}", largeMessage.length());

            // Receive and return the message.
            final ReceiveMessageResponse receiveMessageResponse =
sqsExtendedClient.receiveMessage(
                    ReceiveMessageRequest.builder().queueUrl(queueUrl).build());

            List<Message> messages = receiveMessageResponse.messages();
            if (messages.isEmpty()) {
                throw new RuntimeException("No messages received");
            }

            Message message = messages.getFirst();
            logger.info("\nMessage received.");
            logger.info("  ID: {}", message.messageId());
            logger.info("  Receipt handle: {}", message.receiptHandle());
            logger.info("  Message body size: {}", message.body().length());
            logger.info("  Message body (first 5 characters): {}",
message.body().substring(0, 5));

            return message;
        } catch (RuntimeException e) {
            logger.error("Error during message processing: {}", e.getMessage(),
e);
            throw e;
        }
    }
```

- For more information, see AWS SDK for Java 2.x Developer Guide.
- For API details, see the following topics in *AWS SDK for Java 2.x API Reference*.
  - CreateBucket
  - PutBucketLifecycleConfiguration
  - ReceiveMessage

- SendMessage

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Manage versioned Amazon S3 objects in batches with a Lambda function using an AWS SDK

The following code example shows how to manage versioned S3 objects in batches with a Lambda function.

Python

SDK for Python (Boto3)

Shows how to manipulate Amazon Simple Storage Service (Amazon S3) versioned objects in batches by creating jobs that call AWS Lambda functions to perform processing. This example creates a version-enabled bucket, uploads the stanzas from the poem *You Are Old, Father William* by Lewis Carroll, and uses Amazon S3 batch jobs to twist the poem in various ways.

Learn how to:

- Create Lambda functions that operate on versioned objects.
- Create a manifest of objects to update.
- Create batch jobs that invoke Lambda functions to update objects.
- Delete Lambda functions.
- Empty and delete a versioned bucket.

This example is best viewed on GitHub. For complete source code and instructions on how to set up and run, see the full example on GitHub.

Services used in this example

- Amazon S3

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Parse Amazon S3 URIs using an AWS SDK

The following code example shows how to parse Amazon S3 URIs to extract important components like the bucket name and object key.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Parse an Amazon S3 URI by using the S3Uri class.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.S3Uri;
import software.amazon.awssdk.services.s3.S3Utilities;

import java.net.URI;
import java.util.List;
import java.util.Map;

    /**
     *
     * @param s3Client    - An S3Client through which you acquire an S3Uri
 instance.
     * @param s3ObjectUrl - A complex URL (String) that is used to demonstrate
 S3Uri
     *                    capabilities.
     */
    public static void parseS3UriExample(S3Client s3Client, String s3ObjectUrl) {
        logger.info(s3ObjectUrl);
```

```
        // Console output:
        // 'https://s3.us-west-1.amazonaws.com/myBucket/resources/doc.txt?
versionId=abc123&partNumber=77&partNumber=88'.

        // Create an S3Utilities object using the configuration of the s3Client.
        S3Utilities s3Utilities = s3Client.utilities();

        // From a String URL create a URI object to pass to the parseUri()
 method.
        URI uri = URI.create(s3ObjectUrl);
        S3Uri s3Uri = s3Utilities.parseUri(uri);

        // If the URI contains no value for the Region, bucket or key, the SDK
 returns
        // an empty Optional.
        // The SDK returns decoded URI values.

        Region region = s3Uri.region().orElse(null);
        log("region", region);
        // Console output: 'region: us-west-1'.

        String bucket = s3Uri.bucket().orElse(null);
        log("bucket", bucket);
        // Console output: 'bucket: myBucket'.

        String key = s3Uri.key().orElse(null);
        log("key", key);
        // Console output: 'key: resources/doc.txt'.

        Boolean isPathStyle = s3Uri.isPathStyle();
        log("isPathStyle", isPathStyle);
        // Console output: 'isPathStyle: true'.

        // If the URI contains no query parameters, the SDK returns an empty map.
        Map<String, List<String>> queryParams = s3Uri.rawQueryParameters();
        log("rawQueryParameters", queryParams);
        // Console output: 'rawQueryParameters: {versionId=[abc123],
 partNumber=[77,
        // 88]}'.

        // Retrieve the first or all values for a query parameter as shown in the
        // following code.
        String versionId =
 s3Uri.firstMatchingRawQueryParameter("versionId").orElse(null);
```

```
        log("firstMatchingRawQueryParameter-versionId", versionId);
        // Console output: 'firstMatchingRawQueryParameter-versionId: abc123'.

        String partNumber =
 s3Uri.firstMatchingRawQueryParameter("partNumber").orElse(null);
        log("firstMatchingRawQueryParameter-partNumber", partNumber);
        // Console output: 'firstMatchingRawQueryParameter-partNumber: 77'.

        List<String> partNumbers =
 s3Uri.firstMatchingRawQueryParameters("partNumber");
        log("firstMatchingRawQueryParameter", partNumbers);
        // Console output: 'firstMatchingRawQueryParameter: [77, 88]'.

        /*
         * Object keys and query parameters with reserved or unsafe characters,
 must be
         * URL-encoded.
         * For example replace whitespace " " with "%20".
         * Valid:
         * "https://s3.us-west-1.amazonaws.com/myBucket/object%20key?query=
%5Bbrackets%5D"
         * Invalid:
         * "https://s3.us-west-1.amazonaws.com/myBucket/object key?
query=[brackets]"
         *
         * Virtual-hosted-style URIs with bucket names that contain a dot, ".",
 the dot
         * must not be URL-encoded.
         * Valid: "https://my.Bucket.s3.us-west-1.amazonaws.com/key"
         * Invalid: "https://my%2EBucket.s3.us-west-1.amazonaws.com/key"
         */
    }

    private static void log(String s3UriElement, Object element) {
        if (element == null) {
            logger.info("{}: {}", s3UriElement, "null");
        } else {
            logger.info("{}: {}", s3UriElement, element);
        }
    }
```

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Perform a multipart copy of an Amazon S3 object using an AWS SDK

The following code example shows how to perform a multipart copy of an Amazon S3 object.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
using System;
using System.Collections.Generic;
using System.Threading.Tasks;
using Amazon.S3;
using Amazon.S3.Model;

/// <summary>
/// This example shows how to perform a multi-part copy from one Amazon
/// Simple Storage Service (Amazon S3) bucket to another.
/// </summary>
public class MPUapiCopyObj
{
    private const string SourceBucket = "amzn-s3-demo-bucket1";
    private const string TargetBucket = "amzn-s3-demo-bucket2";
    private const string SourceObjectKey = "example.mov";
    private const string TargetObjectKey = "copied_video_file.mov";

    /// <summary>
    /// This method starts the multi-part upload.
    /// </summary>
    public static async Task Main()
    {
        var s3Client = new AmazonS3Client();
        Console.WriteLine("Copying object...");
```

```
            await MPUCopyObjectAsync(s3Client);
        }

        /// <summary>
        /// This method uses the passed client object to perform a multipart
        /// copy operation.
        /// </summary>
        /// <param name="client">An Amazon S3 client object that will be used
        /// to perform the copy.</param>
        public static async Task MPUCopyObjectAsync(AmazonS3Client client)
        {
            // Create a list to store the copy part responses.
            var copyResponses = new List<CopyPartResponse>();

            // Setup information required to initiate the multipart upload.
            var initiateRequest = new InitiateMultipartUploadRequest
            {
                BucketName = TargetBucket,
                Key = TargetObjectKey,
            };

            // Initiate the upload.
            InitiateMultipartUploadResponse initResponse =
                await client.InitiateMultipartUploadAsync(initiateRequest);

            // Save the upload ID.
            string uploadId = initResponse.UploadId;

            try
            {
                // Get the size of the object.
                var metadataRequest = new GetObjectMetadataRequest
                {
                    BucketName = SourceBucket,
                    Key = SourceObjectKey,
                };

                GetObjectMetadataResponse metadataResponse =
                    await client.GetObjectMetadataAsync(metadataRequest);
                var objectSize = metadataResponse.ContentLength; // Length in
bytes.

                // Copy the parts.
                var partSize = 5 * (long)Math.Pow(2, 20); // Part size is 5 MB.
```

```
                long bytePosition = 0;
                for (int i = 1; bytePosition < objectSize; i++)
                {
                    var copyRequest = new CopyPartRequest
                    {
                        DestinationBucket = TargetBucket,
                        DestinationKey = TargetObjectKey,
                        SourceBucket = SourceBucket,
                        SourceKey = SourceObjectKey,
                        UploadId = uploadId,
                        FirstByte = bytePosition,
                        LastByte = bytePosition + partSize - 1 >= objectSize ?
objectSize - 1 : bytePosition + partSize - 1,
                        PartNumber = i,
                    };

                    copyResponses.Add(await client.CopyPartAsync(copyRequest));

                    bytePosition += partSize;
                }

                // Set up to complete the copy.
                var completeRequest = new CompleteMultipartUploadRequest
                {
                    BucketName = TargetBucket,
                    Key = TargetObjectKey,
                    UploadId = initResponse.UploadId,
                };
                completeRequest.AddPartETags(copyResponses);

                // Complete the copy.
                CompleteMultipartUploadResponse completeUploadResponse =
                    await client.CompleteMultipartUploadAsync(completeRequest);
            }
            catch (AmazonS3Exception e)
            {
                Console.WriteLine($"Error encountered on server.
Message:'{e.Message}' when writing an object");
            }
            catch (Exception e)
            {
                Console.WriteLine($"Unknown encountered on server.
Message:'{e.Message}' when writing an object");
```

```
            }
        }
    }
```

- For API details, see the following topics in *AWS SDK for .NET API Reference*.
  - CompleteMultipartUpload
  - CreateMultipartUpload
  - GetObjectMetadata
  - UploadPartCopy

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Receive and process Amazon S3 event notifications by using an AWS SDK

The following code example shows how to work with S3 event notifications in an object-oriented way.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

This example show how to process S3 notification event by using Amazon SQS.

```
    /**
     * This method receives S3 event notifications by using an SqsAsyncClient.
     * After the client receives the messages it deserializes the JSON payload
and logs them. It uses
     * the S3EventNotification class (part of the S3 event notification API for
Java) to deserialize
     * the JSON payload and access the messages in an object-oriented way.
```

```
     *
     * @param queueUrl The URL of the AWS SQS queue that receives the S3 event
 notifications.
     * @see <a href="https://sdk.amazonaws.com/java/api/latest/software/amazon/
awssdk/eventnotifications/s3/model/package-summary.html">S3EventNotification
 API</a>.
     * <p>
     * To use S3 event notification serialization/deserialization to objects, add
 the following
     * dependency to your Maven pom.xml file.
     * <dependency>
     * <groupId>software.amazon.awssdk</groupId>
     * <artifactId>s3-event-notifications</artifactId>
     * <version><LATEST></version>
     * </dependency>
     * <p>
     * The S3 event notification API became available with version 2.25.11 of the
 Java SDK.
     * <p>
     * This example shows the use of the API with AWS SQS, but it can be used to
 process S3 event notifications
     * in AWS SNS or AWS Lambda as well.
     * <p>
     * Note: The S3EventNotification class does not work with messages routed
 through AWS EventBridge.
     */
    static void processS3Events(String bucketName, String queueUrl, String
 queueArn) {
        try {
            // Configure the bucket to send Object Created and Object Tagging
 notifications to an existing SQS queue.
            s3Client.putBucketNotificationConfiguration(b -> b
                    .notificationConfiguration(ncb -> ncb
                            .queueConfigurations(qcb -> qcb
                                    .events(Event.S3_OBJECT_CREATED,
 Event.S3_OBJECT_TAGGING)
                                    .queueArn(queueArn)))
                            .bucket(bucketName)
            ).join();

            triggerS3EventNotifications(bucketName);
            // Wait for event notifications to propagate.
            Thread.sleep(Duration.ofSeconds(5).toMillis());
```

```
            boolean didReceiveMessages = true;
            while (didReceiveMessages) {
                // Display the number of messages that are available in the
queue.
                sqsClient.getQueueAttributes(b -> b
                                .queueUrl(queueUrl)

.attributeNames(QueueAttributeName.APPROXIMATE_NUMBER_OF_MESSAGES)
                        ).thenAccept(attributeResponse ->
                                logger.info("Approximate number of messages in
the queue: {}",

attributeResponse.attributes().get(QueueAttributeName.APPROXIMATE_NUMBER_OF_MESSAGES)))
                        .join();

                // Receive the messages.
                ReceiveMessageResponse response = sqsClient.receiveMessage(b -> b
                        .queueUrl(queueUrl)
                ).get();
                logger.info("Count of received messages: {}",
response.messages().size());
                didReceiveMessages = !response.messages().isEmpty();

                // Create a collection to hold the received message for deletion
                // after we log the messages.
                HashSet<DeleteMessageBatchRequestEntry> messagesToDelete = new
HashSet<>();
                // Process each message.
                response.messages().forEach(message -> {
                    logger.info("Message id: {}", message.messageId());
                    // Deserialize JSON message body to a S3EventNotification
object
                    // to access messages in an object-oriented way.
                    S3EventNotification event =
S3EventNotification.fromJson(message.body());

                    // Log the S3 event notification record details.
                    if (event.getRecords() != null) {
                        event.getRecords().forEach(record -> {
                            String eventName = record.getEventName();
                            String key = record.getS3().getObject().getKey();
                            logger.info(record.toString());
                            logger.info("Event name is {} and key is {}",
eventName, key);
```

```
                        });
                    }
                    // Add logged messages to collection for batch deletion.
                    messagesToDelete.add(DeleteMessageBatchRequestEntry.builder()
                            .id(message.messageId())
                            .receiptHandle(message.receiptHandle())
                            .build());
                });
                // Delete messages.
                if (!messagesToDelete.isEmpty()) {

sqsClient.deleteMessageBatch(DeleteMessageBatchRequest.builder()
                            .queueUrl(queueUrl)
                            .entries(messagesToDelete)
                            .build()
                    ).join();
                }
            } // End of while block.
        } catch (InterruptedException | ExecutionException e) {
            throw new RuntimeException(e);
        }
    }
```

- For API details, see the following topics in *AWS SDK for Java 2.x API Reference*.
  - DeleteMessageBatch
  - GetQueueAttributes
  - PutBucketNotificationConfiguration
  - ReceiveMessage

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Save EXIF and other image information using an AWS SDK

The following code example shows how to:

- Get EXIF information from a a JPG, JPEG, or PNG file.

- Upload the image file to an Amazon S3 bucket.
- Use Amazon Rekognition to identify the three top attributes (labels) in the file.
- Add the EXIF and label information to an Amazon DynamoDB table in the Region.

Rust

SDK for Rust

Get EXIF information from a JPG, JPEG, or PNG file, upload the image file to an Amazon S3 bucket, use Amazon Rekognition to identify the three top attributes (*labels* in Amazon Rekognition) in the file, and add the EXIF and label information to a Amazon DynamoDB table in the Region.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

Services used in this example

- DynamoDB
- Amazon Rekognition
- Amazon S3

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Send S3 event notifications to Amazon EventBridge using an AWS SDK

The following code example shows how to enable a bucket to send S3 event notifications to EventBridge and route notifications to an Amazon SNS topic and Amazon SQS queue.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
   /** This method configures a bucket to send events to AWS EventBridge and
creates a rule
    * to route the S3 object created events to a topic and a queue.
    *
    * @param bucketName Name of existing bucket
    * @param topicArn ARN of existing topic to receive S3 event notifications
    * @param queueArn ARN of existing queue to receive S3 event notifications
    *
    *  An AWS CloudFormation stack sets up the bucket, queue, topic before the
method runs.
    */
   public static String setBucketNotificationToEventBridge(String bucketName,
String topicArn, String queueArn) {
       try {
           // Enable bucket to emit S3 Event notifications to EventBridge.
           s3Client.putBucketNotificationConfiguration(b -> b
                   .bucket(bucketName)
                   .notificationConfiguration(b1 -> b1
                           .eventBridgeConfiguration(
                                   SdkBuilder::build)
                   ).build()).join();

           // Create an EventBridge rule to route Object Created notifications.
           PutRuleRequest putRuleRequest = PutRuleRequest.builder()
                   .name(RULE_NAME)
                   .eventPattern("""
                           {
                             "source": ["aws.s3"],
                             "detail-type": ["Object Created"],
                             "detail": {
                               "bucket": {
                                 "name": ["%s"]
                               }
                             }
                           }
                           """.formatted(bucketName))
                   .build();

           // Add the rule to the default event bus.
           PutRuleResponse putRuleResponse =
eventBridgeClient.putRule(putRuleRequest)
                   .whenComplete((r, t) -> {
                       if (t != null) {
```

```
                            logger.error("Error creating event bus rule: " +
t.getMessage(), t);
                            throw new RuntimeException(t.getCause().getMessage(),
t);
                        }
                        logger.info("Event bus rule creation request sent
successfully. ARN is: {}", r.ruleArn());
                    }).join();

            // Add the existing SNS topic and SQS queue as targets to the rule.
            eventBridgeClient.putTargets(b -> b
                    .eventBusName("default")
                    .rule(RULE_NAME)
                    .targets(List.of (
                            Target.builder()
                                    .arn(queueArn)
                                    .id("Queue")
                                    .build(),
                            Target.builder()
                                    .arn(topicArn)
                                    .id("Topic")
                                    .build())
                            )
                    ).join();
            return putRuleResponse.ruleArn();
        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
        return null;
    }
```

- For API details, see the following topics in *AWS SDK for Java 2.x API Reference*.
  - PutBucketNotificationConfiguration
  - PutRule
  - PutTargets

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Track an Amazon S3 object upload or download using an AWS SDK

The following code example shows how to track an Amazon S3 object upload or download.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Track the progress of a file upload.

```
   public void trackUploadFile(S3TransferManager transferManager, String
bucketName,
                            String key, URI filePathURI) {
       UploadFileRequest uploadFileRequest = UploadFileRequest.builder()
               .putObjectRequest(b -> b.bucket(bucketName).key(key))
               .addTransferListener(LoggingTransferListener.create())  // Add
listener.
               .source(Paths.get(filePathURI))
               .build();

       FileUpload fileUpload = transferManager.uploadFile(uploadFileRequest);

       fileUpload.completionFuture().join();
       /*
           The SDK provides a LoggingTransferListener implementation of the
TransferListener interface.
           You can also implement the interface to provide your own logic.

           Configure log4J2 with settings such as the following.
               <Configuration status="WARN">
                   <Appenders>
                       <Console name="AlignedConsoleAppender"
target="SYSTEM_OUT">
                           <PatternLayout pattern="%m%n"/>
                       </Console>
                   </Appenders>
```

```
                    <Loggers>
                        <logger
name="software.amazon.awssdk.transfer.s3.progress.LoggingTransferListener"
level="INFO" additivity="false">
                            <AppenderRef ref="AlignedConsoleAppender"/>
                        </logger>
                    </Loggers>
                </Configuration>

            Log4J2 logs the progress. The following is example output for a 21.3
MB file upload.
                Transfer initiated...
                |                    | 0.0%
                |====                | 21.1%
                |============        | 60.5%
                |====================| 100.0%
                Transfer complete!
        */
    }
```

Track the progress of a file download.

```
    public void trackDownloadFile(S3TransferManager transferManager, String
bucketName,
                             String key, String downloadedFileWithPath) {
        DownloadFileRequest downloadFileRequest = DownloadFileRequest.builder()
                .getObjectRequest(b -> b.bucket(bucketName).key(key))
                .addTransferListener(LoggingTransferListener.create())  // Add
listener.
                .destination(Paths.get(downloadedFileWithPath))
                .build();

        FileDownload downloadFile =
transferManager.downloadFile(downloadFileRequest);

        CompletedFileDownload downloadResult =
downloadFile.completionFuture().join();
        /*
            The SDK provides a LoggingTransferListener implementation of the
TransferListener interface.
            You can also implement the interface to provide your own logic.
```

```
            Configure log4J2 with settings such as the following.
                <Configuration status="WARN">
                    <Appenders>
                        <Console name="AlignedConsoleAppender"
target="SYSTEM_OUT">
                            <PatternLayout pattern="%m%n"/>
                        </Console>
                    </Appenders>

                    <Loggers>
                        <logger
name="software.amazon.awssdk.transfer.s3.progress.LoggingTransferListener"
level="INFO" additivity="false">
                            <AppenderRef ref="AlignedConsoleAppender"/>
                        </logger>
                    </Loggers>
                </Configuration>

            Log4J2 logs the progress. The following is example output for a 21.3
MB file download.
                Transfer initiated...
                |=======             | 39.4%
                |===============     | 78.8%
                |====================| 100.0%
                Transfer complete!
        */
    }
```

- For API details, see the following topics in *AWS SDK for Java 2.x API Reference*.
  - GetObject
  - PutObject

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Transform data for your application with S3 Object Lambda

The following code example shows how to transform data for your application with S3 Object Lambda.

.NET

SDK for .NET

Shows how to add custom code to standard S3 GET requests to modify the requested object retrieved from S3 so that the object suit the needs of the requesting client or application.

For complete source code and instructions on how to set up and run, see the full example on GitHub.

Services used in this example

- Lambda
- Amazon S3

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Example approaches for unit and integration testing with an AWS SDK

The following code example shows how to examples for best-practice techniques when writing unit and integration tests using an AWS SDK.

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Cargo.toml for testing examples.

```
[package]
name = "testing-examples"
version = "0.1.0"
authors = [
  "John Disanti <jdisanti@amazon.com>",
```

```
  "Doug Schwartz <dougsch@amazon.com>",
]
edition = "2021"

[dependencies]
async-trait = "0.1.51"
aws-config = { version = "1.0.1", features = ["behavior-version-latest"] }
aws-credential-types = { version = "1.0.1", features = [ "hardcoded-
credentials", ] }
aws-sdk-s3 = { version = "1.4.0" }
aws-smithy-types = { version = "1.0.1" }
aws-smithy-runtime = { version = "1.0.1", features = ["test-util"] }
aws-smithy-runtime-api = { version = "1.0.1", features = ["test-util"] }
aws-types = { version = "1.0.1" }
clap = { version = "4.4", features = ["derive"] }
http = "0.2.9"
mockall = "0.11.4"
serde_json = "1"
tokio = { version = "1.20.1", features = ["full"] }
tracing-subscriber = { version = "0.3.15", features = ["env-filter"] }

[[bin]]
name = "main"
path = "src/main.rs"
```

Unit testing example using automock and a service wrapper.

```
use aws_sdk_s3 as s3;
#[allow(unused_imports)]
use mockall::automock;

use s3::operation::list_objects_v2::{ListObjectsV2Error, ListObjectsV2Output};

#[cfg(test)]
pub use MockS3Impl as S3;
#[cfg(not(test))]
pub use S3Impl as S3;

#[allow(dead_code)]
pub struct S3Impl {
    inner: s3::Client,
```

```
}

#[cfg_attr(test, automock)]
impl S3Impl {
    #[allow(dead_code)]
    pub fn new(inner: s3::Client) -> Self {
        Self { inner }
    }

    #[allow(dead_code)]
    pub async fn list_objects(
        &self,
        bucket: &str,
        prefix: &str,
        continuation_token: Option<String>,
    ) -> Result<ListObjectsV2Output, s3::error::SdkError<ListObjectsV2Error>> {
        self.inner
            .list_objects_v2()
            .bucket(bucket)
            .prefix(prefix)
            .set_continuation_token(continuation_token)
            .send()
            .await
    }
}

#[allow(dead_code)]
pub async fn determine_prefix_file_size(
    // Now we take a reference to our trait object instead of the S3 client
    // s3_list: ListObjectsService,
    s3_list: S3,
    bucket: &str,
    prefix: &str,
) -> Result<usize, s3::Error> {
    let mut next_token: Option<String> = None;
    let mut total_size_bytes = 0;
    loop {
        let result = s3_list
            .list_objects(bucket, prefix, next_token.take())
            .await?;

        // Add up the file sizes we got back
        for object in result.contents() {
            total_size_bytes += object.size().unwrap_or(0) as usize;
```

```
        }

        // Handle pagination, and break the loop if there are no more pages
        next_token = result.next_continuation_token.clone();
        if next_token.is_none() {
            break;
        }
    }
    Ok(total_size_bytes)
}

#[cfg(test)]
mod test {
    use super::*;
    use mockall::predicate::eq;

    #[tokio::test]
    async fn test_single_page() {
        let mut mock = MockS3Impl::default();
        mock.expect_list_objects()
            .with(eq("test-bucket"), eq("test-prefix"), eq(None))
            .return_once(|_, _, _| {
                Ok(ListObjectsV2Output::builder()
                    .set_contents(Some(vec![
                        // Mock content for ListObjectsV2 response
                        s3::types::Object::builder().size(5).build(),
                        s3::types::Object::builder().size(2).build(),
                    ]))
                    .build())
            });

        // Run the code we want to test with it
        let size = determine_prefix_file_size(mock, "test-bucket", "test-prefix")
            .await
            .unwrap();

        // Verify we got the correct total size back
        assert_eq!(7, size);
    }

    #[tokio::test]
    async fn test_multiple_pages() {
        // Create the Mock instance with two pages of objects now
        let mut mock = MockS3Impl::default();
```

```
        mock.expect_list_objects()
            .with(eq("test-bucket"), eq("test-prefix"), eq(None))
            .return_once(|_, _, _| {
                Ok(ListObjectsV2Output::builder()
                    .set_contents(Some(vec![
                        // Mock content for ListObjectsV2 response
                        s3::types::Object::builder().size(5).build(),
                        s3::types::Object::builder().size(2).build(),
                    ]))
                    .set_next_continuation_token(Some("next".to_string()))
                    .build())
            });
        mock.expect_list_objects()
            .with(
                eq("test-bucket"),
                eq("test-prefix"),
                eq(Some("next".to_string())),
            )
            .return_once(|_, _, _| {
                Ok(ListObjectsV2Output::builder()
                    .set_contents(Some(vec![
                        // Mock content for ListObjectsV2 response
                        s3::types::Object::builder().size(3).build(),
                        s3::types::Object::builder().size(9).build(),
                    ]))
                    .build())
            });

        // Run the code we want to test with it
        let size = determine_prefix_file_size(mock, "test-bucket", "test-prefix")
            .await
            .unwrap();

        assert_eq!(19, size);
    }
}
```

Integration testing example using StaticReplayClient.

```
use aws_sdk_s3 as s3;
```

```
#[allow(dead_code)]
pub async fn determine_prefix_file_size(
    // Now we take a reference to our trait object instead of the S3 client
    // s3_list: ListObjectsService,
    s3: s3::Client,
    bucket: &str,
    prefix: &str,
) -> Result<usize, s3::Error> {
    let mut next_token: Option<String> = None;
    let mut total_size_bytes = 0;
    loop {
        let result = s3
            .list_objects_v2()
            .prefix(prefix)
            .bucket(bucket)
            .set_continuation_token(next_token.take())
            .send()
            .await?;

        // Add up the file sizes we got back
        for object in result.contents() {
            total_size_bytes += object.size().unwrap_or(0) as usize;
        }

        // Handle pagination, and break the loop if there are no more pages
        next_token = result.next_continuation_token.clone();
        if next_token.is_none() {
            break;
        }
    }
    Ok(total_size_bytes)
}

#[allow(dead_code)]
fn make_s3_test_credentials() -> s3::config::Credentials {
    s3::config::Credentials::new(
        "ATESTCLIENT",
        "astestsecretkey",
        Some("atestsessiontoken".to_string()),
        None,
        "",
    )
}
```

```
#[cfg(test)]
mod test {
    use super::*;
    use aws_config::BehaviorVersion;
    use aws_sdk_s3 as s3;
    use aws_smithy_runtime::client::http::test_util::{ReplayEvent,
 StaticReplayClient};
    use aws_smithy_types::body::SdkBody;

    #[tokio::test]
    async fn test_single_page() {
        let page_1 = ReplayEvent::new(
                http::Request::builder()
                    .method("GET")
                    .uri("https://test-bucket.s3.us-east-1.amazonaws.com/?list-
type=2&prefix=test-prefix")
                    .body(SdkBody::empty())
                    .unwrap(),
                http::Response::builder()
                    .status(200)
                    .body(SdkBody::from(include_str!("./testing/
response_1.xml")))
                    .unwrap(),
            );
        let replay_client = StaticReplayClient::new(vec![page_1]);
        let client: s3::Client = s3::Client::from_conf(
            s3::Config::builder()
                .behavior_version(BehaviorVersion::latest())
                .credentials_provider(make_s3_test_credentials())
                .region(s3::config::Region::new("us-east-1"))
                .http_client(replay_client.clone())
                .build(),
        );

        // Run the code we want to test with it
        let size = determine_prefix_file_size(client, "test-bucket", "test-
prefix")
            .await
            .unwrap();

        // Verify we got the correct total size back
        assert_eq!(7, size);
        replay_client.assert_requests_match(&[]);
    }
```

```
    #[tokio::test]
    async fn test_multiple_pages() {
        let page_1 = ReplayEvent::new(
                http::Request::builder()
                    .method("GET")
                    .uri("https://test-bucket.s3.us-east-1.amazonaws.com/?list-
type=2&prefix=test-prefix")
                    .body(SdkBody::empty())
                    .unwrap(),
                http::Response::builder()
                    .status(200)
                    .body(SdkBody::from(include_str!("./testing/
response_multi_1.xml")))
                    .unwrap(),
            );
        let page_2 = ReplayEvent::new(
                http::Request::builder()
                    .method("GET")
                    .uri("https://test-bucket.s3.us-east-1.amazonaws.com/?list-
type=2&prefix=test-prefix&continuation-token=next")
                    .body(SdkBody::empty())
                    .unwrap(),
                http::Response::builder()
                    .status(200)
                    .body(SdkBody::from(include_str!("./testing/
response_multi_2.xml")))
                    .unwrap(),
            );
        let replay_client = StaticReplayClient::new(vec![page_1, page_2]);
        let client: s3::Client = s3::Client::from_conf(
            s3::Config::builder()
                .behavior_version(BehaviorVersion::latest())
                .credentials_provider(make_s3_test_credentials())
                .region(s3::config::Region::new("us-east-1"))
                .http_client(replay_client.clone())
                .build(),
        );

        // Run the code we want to test with it
        let size = determine_prefix_file_size(client, "test-bucket", "test-
prefix")
            .await
            .unwrap();
```

```
        assert_eq!(19, size);

        replay_client.assert_requests_match(&[]);
    }
}
```

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Recursively upload a local directory to an Amazon Simple Storage Service (Amazon S3) bucket

The following code example shows how to upload a local directory recursively to an Amazon Simple Storage Service (Amazon S3) bucket.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Use an S3TransferManager to upload a local directory. View the complete file and test.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.services.s3.model.ObjectIdentifier;
import software.amazon.awssdk.transfer.s3.S3TransferManager;
import software.amazon.awssdk.transfer.s3.model.CompletedDirectoryUpload;
import software.amazon.awssdk.transfer.s3.model.DirectoryUpload;
import software.amazon.awssdk.transfer.s3.model.UploadDirectoryRequest;

import java.net.URI;
import java.net.URISyntaxException;
```

```
import java.net.URL;
import java.nio.file.Paths;
import java.util.UUID;

    public Integer uploadDirectory(S3TransferManager transferManager,
            URI sourceDirectory, String bucketName) {
        DirectoryUpload directoryUpload =
 transferManager.uploadDirectory(UploadDirectoryRequest.builder()
                .source(Paths.get(sourceDirectory))
                .bucket(bucketName)
                .build());

        CompletedDirectoryUpload completedDirectoryUpload =
 directoryUpload.completionFuture().join();
        completedDirectoryUpload.failedTransfers()
                .forEach(fail -> logger.warn("Object [{}] failed to transfer",
 fail.toString()));
        return completedDirectoryUpload.failedTransfers().size();
    }
```

- For API details, see UploadDirectory in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Upload or download large files to and from Amazon S3 using an AWS SDK

The following code examples show how to upload or download large files to and from Amazon S3.

For more information, see Uploading an object using multipart upload.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Call functions that transfer files to and from an S3 bucket using the Amazon S3 TransferUtility.

```
global using System.Text;
global using Amazon.S3;
global using Amazon.S3.Model;
global using Amazon.S3.Transfer;
global using TransferUtilityBasics;



// This Amazon S3 client uses the default user credentials
// defined for this computer.
using Microsoft.Extensions.Configuration;

IAmazonS3 client = new AmazonS3Client();
var transferUtil = new TransferUtility(client);
IConfiguration _configuration;

_configuration = new ConfigurationBuilder()
    .SetBasePath(Directory.GetCurrentDirectory())
    .AddJsonFile("settings.json") // Load test settings from JSON file.
    .AddJsonFile("settings.local.json",
        true) // Optionally load local settings.
    .Build();

// Edit the values in settings.json to use an S3 bucket and files that
// exist on your AWS account and on the local computer where you
// run this scenario.
var bucketName = _configuration["BucketName"];
var localPath =
 $"{Environment.GetFolderPath(Environment.SpecialFolder.ApplicationData)}\
\TransferFolder";

DisplayInstructions();

PressEnter();

Console.WriteLine();

// Upload a single file to an S3 bucket.
DisplayTitle("Upload a single file");
```

```
var fileToUpload = _configuration["FileToUpload"];
Console.WriteLine($"Uploading {fileToUpload} to the S3 bucket, {bucketName}.");

var success = await TransferMethods.UploadSingleFileAsync(transferUtil,
 bucketName, fileToUpload, localPath);
if (success)
{
    Console.WriteLine($"Successfully uploaded the file, {fileToUpload} to
 {bucketName}.");
}

PressEnter();

// Upload a local directory to an S3 bucket.
DisplayTitle("Upload all files from a local directory");
Console.WriteLine("Upload all the files in a local folder to an S3 bucket.");
const string keyPrefix = "UploadFolder";
var uploadPath = $"{localPath}\\UploadFolder";

Console.WriteLine($"Uploading the files in {uploadPath} to {bucketName}");
DisplayTitle($"{uploadPath} files");
DisplayLocalFiles(uploadPath);
Console.WriteLine();

PressEnter();

success = await TransferMethods.UploadFullDirectoryAsync(transferUtil,
 bucketName, keyPrefix, uploadPath);
if (success)
{
    Console.WriteLine($"Successfully uploaded the files in {uploadPath} to
 {bucketName}.");
    Console.WriteLine($"{bucketName} currently contains the following files:");
    await DisplayBucketFiles(client, bucketName, keyPrefix);
    Console.WriteLine();
}

PressEnter();

// Download a single file from an S3 bucket.
DisplayTitle("Download a single file");
Console.WriteLine("Now we will download a single file from an S3 bucket.");

var keyName = _configuration["FileToDownload"];
```

```
Console.WriteLine($"Downloading {keyName} from {bucketName}.");

success = await TransferMethods.DownloadSingleFileAsync(transferUtil, bucketName,
 keyName, localPath);
if (success)
{
    Console.WriteLine("$Successfully downloaded the file, {keyName} from
 {bucketName}.");
}

PressEnter();

// Download the contents of a directory from an S3 bucket.
DisplayTitle("Download the contents of an S3 bucket");
var s3Path = _configuration["S3Path"];
var downloadPath = $"{localPath}\\{s3Path}";

Console.WriteLine($"Downloading the contents of {bucketName}\\{s3Path}");
Console.WriteLine($"{bucketName}\\{s3Path} contains the following files:");
await DisplayBucketFiles(client, bucketName, s3Path);
Console.WriteLine();

success = await TransferMethods.DownloadS3DirectoryAsync(transferUtil,
 bucketName, s3Path, downloadPath);
if (success)
{
    Console.WriteLine($"Downloaded the files in {bucketName} to
 {downloadPath}.");
    Console.WriteLine($"{downloadPath} now contains the following files:");
    DisplayLocalFiles(downloadPath);
}

Console.WriteLine("\nThe TransferUtility Basics application has completed.");
PressEnter();

// Displays the title for a section of the scenario.
static void DisplayTitle(string titleText)
{
    var sepBar = new string('-', Console.WindowWidth);

    Console.WriteLine(sepBar);
    Console.WriteLine(CenterText(titleText));
    Console.WriteLine(sepBar);
```

```
}

// Displays a description of the actions to be performed by the scenario.
static void DisplayInstructions()
{
    var sepBar = new string('-', Console.WindowWidth);

    DisplayTitle("Amazon S3 Transfer Utility Basics");
    Console.WriteLine("This program shows how to use the Amazon S3 Transfer
 Utility.");
    Console.WriteLine("It performs the following actions:");
    Console.WriteLine("\t1. Upload a single object to an S3 bucket.");
    Console.WriteLine("\t2. Upload an entire directory from the local computer to
 an\n\t  S3 bucket.");
    Console.WriteLine("\t3. Download a single object from an S3 bucket.");
    Console.WriteLine("\t4. Download the objects in an S3 bucket to a local
 directory.");
    Console.WriteLine($"\n{sepBar}");
}

// Pauses the scenario.
static void PressEnter()
{
    Console.WriteLine("Press <Enter> to continue.");
    _ = Console.ReadLine();
    Console.WriteLine("\n");
}

// Returns the string textToCenter, padded on the left with spaces
// that center the text on the console display.
static string CenterText(string textToCenter)
{
    var centeredText = new StringBuilder();
    var screenWidth = Console.WindowWidth;
    centeredText.Append(new string(' ', (int)(screenWidth -
 textToCenter.Length) / 2));
    centeredText.Append(textToCenter);
    return centeredText.ToString();
}

// Displays a list of file names included in the specified path.
static void DisplayLocalFiles(string localPath)
{
    var fileList = Directory.GetFiles(localPath);
```

```
    if (fileList.Length > 0)
    {
        foreach (var fileName in fileList)
        {
            Console.WriteLine(fileName);
        }
    }
}

// Displays a list of the files in the specified S3 bucket and prefix.
static async Task DisplayBucketFiles(IAmazonS3 client, string bucketName, string
 s3Path)
{
    ListObjectsV2Request request = new()
    {
        BucketName = bucketName,
        Prefix = s3Path,
        MaxKeys = 5,
    };

    var response = new ListObjectsV2Response();

    do
    {
        response = await client.ListObjectsV2Async(request);

        response.S3Objects
            .ForEach(obj => Console.WriteLine($"{obj.Key}"));

        // If the response is truncated, set the request ContinuationToken
        // from the NextContinuationToken property of the response.
        request.ContinuationToken = response.NextContinuationToken;
    } while (response.IsTruncated);
}
```

Upload a single file.

```
        /// <summary>
        /// Uploads a single file from the local computer to an S3 bucket.
        /// </summary>
```

```
        /// <param name="transferUtil">The transfer initialized TransferUtility
        /// object.</param>
        /// <param name="bucketName">The name of the S3 bucket where the file
        /// will be stored.</param>
        /// <param name="fileName">The name of the file to upload.</param>
        /// <param name="localPath">The local path where the file is stored.</
param>
        /// <returns>A boolean value indicating the success of the action.</
returns>
        public static async Task<bool> UploadSingleFileAsync(
            TransferUtility transferUtil,
            string bucketName,
            string fileName,
            string localPath)
        {
            if (File.Exists($"{localPath}\\{fileName}"))
            {
                try
                {
                    await transferUtil.UploadAsync(new
 TransferUtilityUploadRequest
                    {
                        BucketName = bucketName,
                        Key = fileName,
                        FilePath = $"{localPath}\\{fileName}",
                    });

                    return true;
                }
                catch (AmazonS3Exception s3Ex)
                {
                    Console.WriteLine($"Could not upload {fileName} from
 {localPath} because:");
                    Console.WriteLine(s3Ex.Message);
                    return false;
                }
            }
            else
            {
                Console.WriteLine($"{fileName} does not exist in {localPath}");
                return false;
            }
        }
```

Upload an entire local directory.

```
        /// <summary>
        /// Uploads all the files in a local directory to a directory in an S3
        /// bucket.
        /// </summary>
        /// <param name="transferUtil">The transfer initialized TransferUtility
        /// object.</param>
        /// <param name="bucketName">The name of the S3 bucket where the files
        /// will be stored.</param>
        /// <param name="keyPrefix">The key prefix is the S3 directory where
        /// the files will be stored.</param>
        /// <param name="localPath">The local directory that contains the files
        /// to be uploaded.</param>
        /// <returns>A Boolean value representing the success of the action.</
returns>
        public static async Task<bool> UploadFullDirectoryAsync(
            TransferUtility transferUtil,
            string bucketName,
            string keyPrefix,
            string localPath)
        {
            if (Directory.Exists(localPath))
            {
                try
                {
                    await transferUtil.UploadDirectoryAsync(new
 TransferUtilityUploadDirectoryRequest
                    {
                        BucketName = bucketName,
                        KeyPrefix = keyPrefix,
                        Directory = localPath,
                    });

                    return true;
                }
                catch (AmazonS3Exception s3Ex)
                {
                    Console.WriteLine($"Can't upload the contents of {localPath}
 because:");
```

```
                    Console.WriteLine(s3Ex?.Message);
                    return false;
                }
            }
            else
            {
                Console.WriteLine($"The directory {localPath} does not exist.");
                return false;
            }
        }
```

Download a single file.

```
        /// <summary>
        /// Download a single file from an S3 bucket to the local computer.
        /// </summary>
        /// <param name="transferUtil">The transfer initialized TransferUtility
        /// object.</param>
        /// <param name="bucketName">The name of the S3 bucket containing the
        /// file to download.</param>
        /// <param name="keyName">The name of the file to download.</param>
        /// <param name="localPath">The path on the local computer where the
        /// downloaded file will be saved.</param>
        /// <returns>A Boolean value indicating the results of the action.</
returns>
        public static async Task<bool> DownloadSingleFileAsync(
        TransferUtility transferUtil,
            string bucketName,
            string keyName,
            string localPath)
        {
            await transferUtil.DownloadAsync(new TransferUtilityDownloadRequest
            {
                BucketName = bucketName,
                Key = keyName,
                FilePath = $"{localPath}\\{keyName}",
            });

            return (File.Exists($"{localPath}\\{keyName}"));
        }
```

Download contents of an S3 bucket.

```
        /// <summary>
        /// Downloads the contents of a directory in an S3 bucket to a
        /// directory on the local computer.
        /// </summary>
        /// <param name="transferUtil">The transfer initialized TransferUtility
        /// object.</param>
        /// <param name="bucketName">The bucket containing the files to
 download.</param>
        /// <param name="s3Path">The S3 directory where the files are located.</
param>
        /// <param name="localPath">The local path to which the files will be
        /// saved.</param>
        /// <returns>A Boolean value representing the success of the action.</
returns>
        public static async Task<bool> DownloadS3DirectoryAsync(
            TransferUtility transferUtil,
            string bucketName,
            string s3Path,
            string localPath)
        {
            int fileCount = 0;

            // If the directory doesn't exist, it will be created.
            if (Directory.Exists(s3Path))
            {
                var files = Directory.GetFiles(localPath);
                fileCount = files.Length;
            }

            await transferUtil.DownloadDirectoryAsync(new
 TransferUtilityDownloadDirectoryRequest
            {
                BucketName = bucketName,
                LocalDirectory = localPath,
                S3Directory = s3Path,
            });
```

```
            if (Directory.Exists(localPath))
            {
                var files = Directory.GetFiles(localPath);
                if (files.Length > fileCount)
                {
                    return true;
                }

                // No change in the number of files. Assume
                // the download failed.
                return false;
            }

            // The local directory doesn't exist. No files
            // were downloaded.
            return false;
        }
```

Track the progress of an upload using the TransferUtility.

```
    using System;
    using System.Threading.Tasks;
    using Amazon.S3;
    using Amazon.S3.Transfer;

    /// <summary>
    /// This example shows how to track the progress of a multipart upload
    /// using the Amazon Simple Storage Service (Amazon S3) TransferUtility to
    /// upload to an Amazon S3 bucket.
    /// </summary>
    public class TrackMPUUsingHighLevelAPI
    {
        public static async Task Main()
        {
            string bucketName = "amzn-s3-demo-bucket";
            string keyName = "sample_pic.png";
            string path = "filepath/directory/";
            string filePath = $"{path}{keyName}";

            // If the AWS Region defined for your default user is different
            // from the Region where your Amazon S3 bucket is located,
```

```
            // pass the Region name to the Amazon S3 client object's constructor.
            // For example: RegionEndpoint.USWest2 or RegionEndpoint.USEast2.
            IAmazonS3 client = new AmazonS3Client();

            await TrackMPUAsync(client, bucketName, filePath, keyName);
        }

        /// <summary>
        /// Starts an Amazon S3 multipart upload and assigns an event handler to
        /// track the progress of the upload.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 client object used to
        /// perform the multipart upload.</param>
        /// <param name="bucketName">The name of the bucket to which to upload
        /// the file.</param>
        /// <param name="filePath">The path, including the file name of the
        /// file to be uploaded to the Amazon S3 bucket.</param>
        /// <param name="keyName">The file name to be used in the
        /// destination Amazon S3 bucket.</param>
        public static async Task TrackMPUAsync(
            IAmazonS3 client,
            string bucketName,
            string filePath,
            string keyName)
        {
            try
            {
                var fileTransferUtility = new TransferUtility(client);

                // Use TransferUtilityUploadRequest to configure options.
                // In this example we subscribe to an event.
                var uploadRequest =
                    new TransferUtilityUploadRequest
                    {
                        BucketName = bucketName,
                        FilePath = filePath,
                        Key = keyName,
                    };

                uploadRequest.UploadProgressEvent +=
                    new EventHandler<UploadProgressArgs>(
                        UploadRequest_UploadPartProgressEvent);

                await fileTransferUtility.UploadAsync(uploadRequest);
```

```
                Console.WriteLine("Upload completed");
            }
            catch (AmazonS3Exception ex)
            {
                Console.WriteLine($"Error:: {ex.Message}");
            }
        }

        /// <summary>
        /// Event handler to check the progress of the multipart upload.
        /// </summary>
        /// <param name="sender">The object that raised the event.</param>
        /// <param name="e">The object that contains multipart upload
        /// information.</param>
        public static void UploadRequest_UploadPartProgressEvent(object sender,
 UploadProgressArgs e)
        {
            // Process event.
            Console.WriteLine($"{e.TransferredBytes}/{e.TotalBytes}");
        }
    }
```

Upload an object with encryption.

```
    using System;
    using System.Collections.Generic;
    using System.IO;
    using System.Security.Cryptography;
    using System.Threading.Tasks;
    using Amazon.S3;
    using Amazon.S3.Model;

    /// <summary>
    /// Uses the Amazon Simple Storage Service (Amazon S3) low level API to
    /// perform a multipart upload to an Amazon S3 bucket.
    /// </summary>
    public class SSECLowLevelMPUcopyObject
    {
        public static async Task Main()
        {
            string existingBucketName = "amzn-s3-demo-bucket";
```

```
            string sourceKeyName = "sample_file.txt";
            string targetKeyName = "sample_file_copy.txt";
            string filePath = $"sample\\{targetKeyName}";

            // If the AWS Region defined for your default user is different
            // from the Region where your Amazon S3 bucket is located,
            // pass the Region name to the Amazon S3 client object's constructor.
            // For example: RegionEndpoint.USEast1.
            IAmazonS3 client = new AmazonS3Client();

            // Create the encryption key.
            var base64Key = CreateEncryptionKey();

            await CreateSampleObjUsingClientEncryptionKeyAsync(
                client,
                existingBucketName,
                sourceKeyName,
                filePath,
                base64Key);
        }

        /// <summary>
        /// Creates the encryption key to use with the multipart upload.
        /// </summary>
        /// <returns>A string containing the base64-encoded key for encrypting
        /// the multipart upload.</returns>
        public static string CreateEncryptionKey()
        {
            Aes aesEncryption = Aes.Create();
            aesEncryption.KeySize = 256;
            aesEncryption.GenerateKey();
            string base64Key = Convert.ToBase64String(aesEncryption.Key);
            return base64Key;
        }

        /// <summary>
        /// Creates and uploads an object using a multipart upload.
        /// </summary>
        /// <param name="client">The initialized Amazon S3 object used to
        /// initialize and perform the multipart upload.</param>
        /// <param name="existingBucketName">The name of the bucket to which
        /// the object will be uploaded.</param>
        /// <param name="sourceKeyName">The source object name.</param>
        /// <param name="filePath">The location of the source object.</param>
```

```
        /// <param name="base64Key">The encryption key to use with the upload.</
 param>
        public static async Task CreateSampleObjUsingClientEncryptionKeyAsync(
            IAmazonS3 client,
            string existingBucketName,
            string sourceKeyName,
            string filePath,
            string base64Key)
        {
            List<UploadPartResponse> uploadResponses = new
 List<UploadPartResponse>();

            InitiateMultipartUploadRequest initiateRequest = new
 InitiateMultipartUploadRequest
            {
                BucketName = existingBucketName,
                Key = sourceKeyName,
                ServerSideEncryptionCustomerMethod =
 ServerSideEncryptionCustomerMethod.AES256,
                ServerSideEncryptionCustomerProvidedKey = base64Key,
            };

            InitiateMultipartUploadResponse initResponse =
               await client.InitiateMultipartUploadAsync(initiateRequest);

            long contentLength = new FileInfo(filePath).Length;
            long partSize = 5 * (long)Math.Pow(2, 20); // 5 MB

            try
            {
                long filePosition = 0;
                for (int i = 1; filePosition < contentLength; i++)
                {
                    UploadPartRequest uploadRequest = new UploadPartRequest
                    {
                        BucketName = existingBucketName,
                        Key = sourceKeyName,
                        UploadId = initResponse.UploadId,
                        PartNumber = i,
                        PartSize = partSize,
                        FilePosition = filePosition,
                        FilePath = filePath,
                        ServerSideEncryptionCustomerMethod =
 ServerSideEncryptionCustomerMethod.AES256,
```

```
                        ServerSideEncryptionCustomerProvidedKey = base64Key,
                    };

                    // Upload part and add response to our list.
                    uploadResponses.Add(await
client.UploadPartAsync(uploadRequest));

                    filePosition += partSize;
                }

                CompleteMultipartUploadRequest completeRequest = new
CompleteMultipartUploadRequest
                {
                    BucketName = existingBucketName,
                    Key = sourceKeyName,
                    UploadId = initResponse.UploadId,
                };
                completeRequest.AddPartETags(uploadResponses);

                CompleteMultipartUploadResponse completeUploadResponse =
                    await client.CompleteMultipartUploadAsync(completeRequest);
            }
            catch (Exception exception)
            {
                Console.WriteLine($"Exception occurred: {exception.Message}");

                // If there was an error, abort the multipart upload.
                AbortMultipartUploadRequest abortMPURequest = new
AbortMultipartUploadRequest
                {
                    BucketName = existingBucketName,
                    Key = sourceKeyName,
                    UploadId = initResponse.UploadId,
                };

                await client.AbortMultipartUploadAsync(abortMPURequest);
            }
        }
    }
```

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create functions that use upload and download managers to break the data into parts and transfer them concurrently.

```
import (
 "bytes"
 "context"
 "errors"
 "fmt"
 "io"
 "log"
 "os"
 "time"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/feature/s3/manager"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/aws/aws-sdk-go-v2/service/s3/types"
 "github.com/aws/smithy-go"
)

// BucketBasics encapsulates the Amazon Simple Storage Service (Amazon S3)
 actions
// used in the examples.
// It contains S3Client, an Amazon S3 service client that is used to perform
 bucket
// and object actions.
type BucketBasics struct {
 S3Client *s3.Client
}
```

```
// UploadLargeObject uses an upload manager to upload data to an object in a
 bucket.
// The upload manager breaks large data into parts and uploads the parts
 concurrently.
func (basics BucketBasics) UploadLargeObject(ctx context.Context, bucketName
 string, objectKey string, largeObject []byte) error {
 largeBuffer := bytes.NewReader(largeObject)
 var partMiBs int64 = 10
 uploader := manager.NewUploader(basics.S3Client, func(u *manager.Uploader) {
  u.PartSize = partMiBs * 1024 * 1024
 })
 _, err := uploader.Upload(ctx, &s3.PutObjectInput{
  Bucket: aws.String(bucketName),
  Key:    aws.String(objectKey),
  Body:   largeBuffer,
 })
 if err != nil {
  var apiErr smithy.APIError
  if errors.As(err, &apiErr) && apiErr.ErrorCode() == "EntityTooLarge" {
   log.Printf("Error while uploading object to %s. The object is too large.\n"+
    "The maximum size for a multipart upload is 5TB.", bucketName)
  } else {
   log.Printf("Couldn't upload large object to %v:%v. Here's why: %v\n",
    bucketName, objectKey, err)
  }
 } else {
  err = s3.NewObjectExistsWaiter(basics.S3Client).Wait(
   ctx, &s3.HeadObjectInput{Bucket: aws.String(bucketName), Key:
 aws.String(objectKey)}, time.Minute)
  if err != nil {
   log.Printf("Failed attempt to wait for object %s to exist.\n", objectKey)
  }
 }

 return err
}



// DownloadLargeObject uses a download manager to download an object from a
 bucket.
// The download manager gets the data in parts and writes them to a buffer until
 all of
```

```
// the data has been downloaded.
func (basics BucketBasics) DownloadLargeObject(ctx context.Context, bucketName
 string, objectKey string) ([]byte, error) {
 var partMiBs int64 = 10
 downloader := manager.NewDownloader(basics.S3Client, func(d *manager.Downloader)
 {
  d.PartSize = partMiBs * 1024 * 1024
 })
 buffer := manager.NewWriteAtBuffer([]byte{})
 _, err := downloader.Download(ctx, buffer, &s3.GetObjectInput{
  Bucket: aws.String(bucketName),
  Key:    aws.String(objectKey),
 })
 if err != nil {
  log.Printf("Couldn't download large object from %v:%v. Here's why: %v\n",
   bucketName, objectKey, err)
 }
 return buffer.Bytes(), err
}
```

Run an interactive scenario that shows you how to use the upload and download managers in context.

```
import (
 "context"
 "crypto/rand"
 "log"
 "strings"

 "github.com/aws/aws-sdk-go-v2/aws"
 "github.com/aws/aws-sdk-go-v2/service/s3"
 "github.com/awsdocs/aws-doc-sdk-examples/gov2/demotools"
 "github.com/awsdocs/aws-doc-sdk-examples/gov2/s3/actions"
)

// RunLargeObjectScenario is an interactive example that shows you how to use
 Amazon
// Simple Storage Service (Amazon S3) to upload and download large objects.
//
// 1. Create a bucket.
```

```
// 3. Upload a large object to the bucket by using an upload manager.
// 5. Download a large object by using a download manager.
// 8. Delete all objects in the bucket.
// 9. Delete the bucket.
//
// This example creates an Amazon S3 service client from the specified sdkConfig
 so that
// you can replace it with a mocked or stubbed config for unit testing.
//
// It uses a questioner from the `demotools` package to get input during the
 example.
// This package can be found in the ..\..\demotools folder of this repo.
func RunLargeObjectScenario(ctx context.Context, sdkConfig aws.Config, questioner
 demotools.IQuestioner) {
 defer func() {
  if r := recover(); r != nil {
   log.Println("Something went wrong with the demo.")
   _, isMock := questioner.(*demotools.MockQuestioner)
   if isMock || questioner.AskBool("Do you want to see the full error message (y/
n)?", "y") {
    log.Println(r)
   }
  }
 }()

 log.Println(strings.Repeat("-", 88))
 log.Println("Welcome to the Amazon S3 large object demo.")
 log.Println(strings.Repeat("-", 88))

 s3Client := s3.NewFromConfig(sdkConfig)
 bucketBasics := actions.BucketBasics{S3Client: s3Client}

 bucketName := questioner.Ask("Let's create a bucket. Enter a name for your
 bucket:",
  demotools.NotEmpty{})
 bucketExists, err := bucketBasics.BucketExists(ctx, bucketName)
 if err != nil {
  panic(err)
 }
 if !bucketExists {
  err = bucketBasics.CreateBucket(ctx, bucketName, sdkConfig.Region)
  if err != nil {
   panic(err)
  } else {
```

```
  log.Println("Bucket created.")
 }
}
log.Println(strings.Repeat("-", 88))

mibs := 30
log.Printf("Let's create a slice of %v MiB of random bytes and upload it to your
bucket. ", mibs)
questioner.Ask("Press Enter when you're ready.")
largeBytes := make([]byte, 1024*1024*mibs)
_, _ = rand.Read(largeBytes)
largeKey := "doc-example-large"
log.Println("Uploading...")
err = bucketBasics.UploadLargeObject(ctx, bucketName, largeKey, largeBytes)
if err != nil {
 panic(err)
}
log.Printf("Uploaded %v MiB object as %v", mibs, largeKey)
log.Println(strings.Repeat("-", 88))

log.Printf("Let's download the %v MiB object.", mibs)
questioner.Ask("Press Enter when you're ready.")
log.Println("Downloading...")
largeDownload, err := bucketBasics.DownloadLargeObject(ctx, bucketName,
largeKey)
if err != nil {
 panic(err)
}
log.Printf("Downloaded %v bytes.", len(largeDownload))
log.Println(strings.Repeat("-", 88))

if questioner.AskBool("Do you want to delete your bucket and all of its "+
 "contents? (y/n)", "y") {
 log.Println("Deleting object.")
 err = bucketBasics.DeleteObjects(ctx, bucketName, []string{largeKey})
 if err != nil {
  panic(err)
 }
 log.Println("Deleting bucket.")
 err = bucketBasics.DeleteBucket(ctx, bucketName)
 if err != nil {
  panic(err)
 }
} else {
```

```
 log.Println("Okay. Don't forget to delete objects from your bucket to avoid
charges.")
}
log.Println(strings.Repeat("-", 88))

log.Println("Thanks for watching!")
log.Println(strings.Repeat("-", 88))
}
```

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Call functions that transfer files to and from an S3 bucket using the S3TransferManager.

```
    public Integer downloadObjectsToDirectory(S3TransferManager transferManager,
            URI destinationPathURI, String bucketName) {
        DirectoryDownload directoryDownload =
transferManager.downloadDirectory(DownloadDirectoryRequest.builder()
                .destination(Paths.get(destinationPathURI))
                .bucket(bucketName)
                .build());
        CompletedDirectoryDownload completedDirectoryDownload =
directoryDownload.completionFuture().join();

        completedDirectoryDownload.failedTransfers()
                .forEach(fail -> logger.warn("Object [{}] failed to transfer",
fail.toString()));
        return completedDirectoryDownload.failedTransfers().size();
    }
```

Upload an entire local directory.

```
   public Integer uploadDirectory(S3TransferManager transferManager,
           URI sourceDirectory, String bucketName) {
       DirectoryUpload directoryUpload =
transferManager.uploadDirectory(UploadDirectoryRequest.builder()
               .source(Paths.get(sourceDirectory))
               .bucket(bucketName)
               .build());

       CompletedDirectoryUpload completedDirectoryUpload =
directoryUpload.completionFuture().join();
       completedDirectoryUpload.failedTransfers()
               .forEach(fail -> logger.warn("Object [{}] failed to transfer",
fail.toString()));
       return completedDirectoryUpload.failedTransfers().size();
   }
```

Upload a single file.

```
   public String uploadFile(S3TransferManager transferManager, String
bucketName,
                            String key, URI filePathURI) {
       UploadFileRequest uploadFileRequest = UploadFileRequest.builder()
           .putObjectRequest(b -> b.bucket(bucketName).key(key))
           .source(Paths.get(filePathURI))
           .build();

       FileUpload fileUpload = transferManager.uploadFile(uploadFileRequest);

       CompletedFileUpload uploadResult = fileUpload.completionFuture().join();
       return uploadResult.response().eTag();
   }
```

The code examples use the following imports.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.core.exception.SdkException;
import software.amazon.awssdk.core.sync.RequestBody;
import software.amazon.awssdk.services.s3.S3AsyncClient;
```

```
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.CompletedMultipartUpload;
import software.amazon.awssdk.services.s3.model.CompletedPart;
import software.amazon.awssdk.services.s3.model.CreateMultipartUploadResponse;
import software.amazon.awssdk.services.s3.model.PutObjectResponse;
import software.amazon.awssdk.services.s3.model.UploadPartRequest;
import software.amazon.awssdk.services.s3.model.UploadPartResponse;
import software.amazon.awssdk.services.s3.waiters.S3Waiter;
import software.amazon.awssdk.transfer.s3.S3TransferManager;
import software.amazon.awssdk.transfer.s3.model.FileUpload;
import software.amazon.awssdk.transfer.s3.model.UploadFileRequest;

import java.io.IOException;
import java.io.RandomAccessFile;
import java.net.URISyntaxException;
import java.net.URL;
import java.nio.ByteBuffer;
import java.nio.file.Paths;
import java.util.ArrayList;
import java.util.List;
import java.util.Objects;
import java.util.UUID;
import java.util.concurrent.CompletableFuture;
```

Use the S3 Transfer Manager on top of the AWS CRT-based S3 client to transparently perform a multipart upload when the size of the content exceeds a threshold. The default threshold size is 8 MB.

```
    /**
     * Uploads a file to an Amazon S3 bucket using the S3TransferManager.
     *
     * @param filePath the file path of the file to be uploaded
     */
    public void multipartUploadWithTransferManager(String filePath) {
        S3TransferManager transferManager = S3TransferManager.create();
        UploadFileRequest uploadFileRequest = UploadFileRequest.builder()
            .putObjectRequest(b -> b
                .bucket(bucketName)
                .key(key))
            .source(Paths.get(filePath))
            .build();
        FileUpload fileUpload = transferManager.uploadFile(uploadFileRequest);
```

```
        fileUpload.completionFuture().join();
        transferManager.close();
    }
```

Use the S3Client API to perform a multipart upload.

```
    /**
     * Performs a multipart upload to Amazon S3 using the provided S3 client.
     *
     * @param filePath the path to the file to be uploaded
     */
    public void multipartUploadWithS3Client(String filePath) {

        // Initiate the multipart upload.
        CreateMultipartUploadResponse createMultipartUploadResponse =
s3Client.createMultipartUpload(b -> b
            .bucket(bucketName)
            .key(key));
        String uploadId = createMultipartUploadResponse.uploadId();

        // Upload the parts of the file.
        int partNumber = 1;
        List<CompletedPart> completedParts = new ArrayList<>();
        ByteBuffer bb = ByteBuffer.allocate(1024 * 1024 * 5); // 5 MB byte buffer

        try (RandomAccessFile file = new RandomAccessFile(filePath, "r")) {
            long fileSize = file.length();
            long position = 0;
            while (position < fileSize) {
                file.seek(position);
                long read = file.getChannel().read(bb);

                bb.flip(); // Swap position and limit before reading from the
buffer.
                UploadPartRequest uploadPartRequest = UploadPartRequest.builder()
                    .bucket(bucketName)
                    .key(key)
                    .uploadId(uploadId)
                    .partNumber(partNumber)
                    .build();

                UploadPartResponse partResponse = s3Client.uploadPart(
```

```
                    uploadPartRequest,
                    RequestBody.fromByteBuffer(bb));

                CompletedPart part = CompletedPart.builder()
                    .partNumber(partNumber)
                    .eTag(partResponse.eTag())
                    .build();
                completedParts.add(part);

                bb.clear();
                position += read;
                partNumber++;
            }
        } catch (IOException e) {
            logger.error(e.getMessage());
        }

        // Complete the multipart upload.
        s3Client.completeMultipartUpload(b -> b
            .bucket(bucketName)
            .key(key)
            .uploadId(uploadId)

.multipartUpload(CompletedMultipartUpload.builder().parts(completedParts).build()));
    }
```

Use the S3AsyncClient API with multipart support enabled to perform a multipart upload.

```
    /**
     * Uploads a file to an S3 bucket using the S3AsyncClient and enabling
multipart support.
     *
     * @param filePath the local file path of the file to be uploaded
     */
    public void multipartUploadWithS3AsyncClient(String filePath) {
        // Enable multipart support.
        S3AsyncClient s3AsyncClient = S3AsyncClient.builder()
            .multipartEnabled(true)
            .build();
```

```
        CompletableFuture<PutObjectResponse> response = s3AsyncClient.putObject(b
 -> b
                .bucket(bucketName)
                .key(key),
            Paths.get(filePath));

        response.join();
        logger.info("File uploaded in multiple 8 MiB parts using
 S3AsyncClient.");
    }
```

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Upload a large file.

```
import { S3Client } from "@aws-sdk/client-s3";
import { Upload } from "@aws-sdk/lib-storage";

import {
  ProgressBar,
  logger,
} from "@aws-doc-sdk-examples/lib/utils/util-log.js";

const twentyFiveMB = 25 * 1024 * 1024;

export const createString = (size = twentyFiveMB) => {
  return "x".repeat(size);
};

/**
 * Create a 25MB file and upload it in parts to the specified
 * Amazon S3 bucket.
 * @param {{ bucketName: string, key: string }}
```

```
 */
export const main = async ({ bucketName, key }) => {
  const str = createString();
  const buffer = Buffer.from(str, "utf8");
  const progressBar = new ProgressBar({
    description: `Uploading "${key}" to "${bucketName}"`,
    barLength: 30,
  });

  try {
    const upload = new Upload({
      client: new S3Client({}),
      params: {
        Bucket: bucketName,
        Key: key,
        Body: buffer,
      },
    });

    upload.on("httpUploadProgress", ({ loaded, total }) => {
      progressBar.update({ current: loaded, total });
    });

    await upload.done();
  } catch (caught) {
    if (caught instanceof Error && caught.name === "AbortError") {
      logger.error(`Multipart upload was aborted. ${caught.message}`);
    } else {
      throw caught;
    }
  }
};
```

Download a large file.

```
import { fileURLToPath } from "node:url";
import { GetObjectCommand, NoSuchKey, S3Client } from "@aws-sdk/client-s3";
import { createWriteStream, rmSync } from "node:fs";

const s3Client = new S3Client({});
const oneMB = 1024 * 1024;
```

```
export const getObjectRange = ({ bucket, key, start, end }) => {
  const command = new GetObjectCommand({
    Bucket: bucket,
    Key: key,
    Range: `bytes=${start}-${end}`,
  });

  return s3Client.send(command);
};

/**
 * @param {string | undefined} contentRange
 */
export const getRangeAndLength = (contentRange) => {
  const [range, length] = contentRange.split("/");
  const [start, end] = range.split("-");
  return {
    start: Number.parseInt(start),
    end: Number.parseInt(end),
    length: Number.parseInt(length),
  };
};

export const isComplete = ({ end, length }) => end === length - 1;

const downloadInChunks = async ({ bucket, key }) => {
  const writeStream = createWriteStream(
    fileURLToPath(new URL(`./${key}`, import.meta.url)),
  ).on("error", (err) => console.error(err));

  let rangeAndLength = { start: -1, end: -1, length: -1 };

  while (!isComplete(rangeAndLength)) {
    const { end } = rangeAndLength;
    const nextRange = { start: end + 1, end: end + oneMB };

    const { ContentRange, Body } = await getObjectRange({
      bucket,
      key,
      ...nextRange,
    });
    console.log(`Downloaded bytes ${nextRange.start} to ${nextRange.end}`);
```

```
    writeStream.write(await Body.transformToByteArray());
    rangeAndLength = getRangeAndLength(ContentRange);
  }
};

/**
 * Download a large object from and Amazon S3 bucket.
 *
 * When downloading a large file, you might want to break it down into
 * smaller pieces. Amazon S3 accepts a Range header to specify the start
 * and end of the byte range to be downloaded.
 *
 * @param {{ bucketName: string, key: string }}
 */
export const main = async ({ bucketName, key }) => {
  try {
    await downloadInChunks({
      bucket: bucketName,
      key: key,
    });
  } catch (caught) {
    if (caught instanceof NoSuchKey) {
      console.error(`Failed to download object. No such key "${key}".`);
      rmSync(key);
    }
  }
};
```

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create functions that transfer files using several of the available transfer manager settings. Use a callback class to write callback progress during file transfer.

```
import sys
import threading

import boto3
from boto3.s3.transfer import TransferConfig


MB = 1024 * 1024
s3 = boto3.resource("s3")


class TransferCallback:
    """
    Handle callbacks from the transfer manager.

    The transfer manager periodically calls the __call__ method throughout
    the upload and download process so that it can take action, such as
    displaying progress to the user and collecting data about the transfer.
    """

    def __init__(self, target_size):
        self._target_size = target_size
        self._total_transferred = 0
        self._lock = threading.Lock()
        self.thread_info = {}

    def __call__(self, bytes_transferred):
        """
        The callback method that is called by the transfer manager.

        Display progress during file transfer and collect per-thread transfer
        data. This method can be called by multiple threads, so shared instance
        data is protected by a thread lock.
        """
        thread = threading.current_thread()
        with self._lock:
            self._total_transferred += bytes_transferred
            if thread.ident not in self.thread_info.keys():
                self.thread_info[thread.ident] = bytes_transferred
            else:
                self.thread_info[thread.ident] += bytes_transferred

            target = self._target_size * MB
```

```
            sys.stdout.write(
                f"\r{self._total_transferred} of {target} transferred "
                f"({(self._total_transferred / target) * 100:.2f}%)."
            )
            sys.stdout.flush()


def upload_with_default_configuration(
    local_file_path, bucket_name, object_key, file_size_mb
):
    """
    Upload a file from a local folder to an Amazon S3 bucket, using the default
    configuration.
    """
    transfer_callback = TransferCallback(file_size_mb)
    s3.Bucket(bucket_name).upload_file(
        local_file_path, object_key, Callback=transfer_callback
    )
    return transfer_callback.thread_info


def upload_with_chunksize_and_meta(
    local_file_path, bucket_name, object_key, file_size_mb, metadata=None
):
    """
    Upload a file from a local folder to an Amazon S3 bucket, setting a
    multipart chunk size and adding metadata to the Amazon S3 object.

    The multipart chunk size controls the size of the chunks of data that are
    sent in the request. A smaller chunk size typically results in the transfer
    manager using more threads for the upload.

    The metadata is a set of key-value pairs that are stored with the object
    in Amazon S3.
    """
    transfer_callback = TransferCallback(file_size_mb)

    config = TransferConfig(multipart_chunksize=1 * MB)
    extra_args = {"Metadata": metadata} if metadata else None
    s3.Bucket(bucket_name).upload_file(
        local_file_path,
        object_key,
        Config=config,
        ExtraArgs=extra_args,
```

```
        Callback=transfer_callback,
    )
    return transfer_callback.thread_info


def upload_with_high_threshold(local_file_path, bucket_name, object_key,
 file_size_mb):
    """
    Upload a file from a local folder to an Amazon S3 bucket, setting a
    multipart threshold larger than the size of the file.

    Setting a multipart threshold larger than the size of the file results
    in the transfer manager sending the file as a standard upload instead of
    a multipart upload.
    """
    transfer_callback = TransferCallback(file_size_mb)
    config = TransferConfig(multipart_threshold=file_size_mb * 2 * MB)
    s3.Bucket(bucket_name).upload_file(
        local_file_path, object_key, Config=config, Callback=transfer_callback
    )
    return transfer_callback.thread_info


def upload_with_sse(
    local_file_path, bucket_name, object_key, file_size_mb, sse_key=None
):
    """
    Upload a file from a local folder to an Amazon S3 bucket, adding server-side
    encryption with customer-provided encryption keys to the object.

    When this kind of encryption is specified, Amazon S3 encrypts the object
    at rest and allows downloads only when the expected encryption key is
    provided in the download request.
    """
    transfer_callback = TransferCallback(file_size_mb)
    if sse_key:
        extra_args = {"SSECustomerAlgorithm": "AES256", "SSECustomerKey":
 sse_key}
    else:
        extra_args = None
    s3.Bucket(bucket_name).upload_file(
        local_file_path, object_key, ExtraArgs=extra_args,
 Callback=transfer_callback
    )
```

```
    return transfer_callback.thread_info


def download_with_default_configuration(
    bucket_name, object_key, download_file_path, file_size_mb
):
    """
    Download a file from an Amazon S3 bucket to a local folder, using the
    default configuration.
    """
    transfer_callback = TransferCallback(file_size_mb)
    s3.Bucket(bucket_name).Object(object_key).download_file(
        download_file_path, Callback=transfer_callback
    )
    return transfer_callback.thread_info


def download_with_single_thread(
    bucket_name, object_key, download_file_path, file_size_mb
):
    """
    Download a file from an Amazon S3 bucket to a local folder, using a
    single thread.
    """
    transfer_callback = TransferCallback(file_size_mb)
    config = TransferConfig(use_threads=False)
    s3.Bucket(bucket_name).Object(object_key).download_file(
        download_file_path, Config=config, Callback=transfer_callback
    )
    return transfer_callback.thread_info


def download_with_high_threshold(
    bucket_name, object_key, download_file_path, file_size_mb
):
    """
    Download a file from an Amazon S3 bucket to a local folder, setting a
    multipart threshold larger than the size of the file.

    Setting a multipart threshold larger than the size of the file results
    in the transfer manager sending the file as a standard download instead
    of a multipart download.
    """
    transfer_callback = TransferCallback(file_size_mb)
```

```
    config = TransferConfig(multipart_threshold=file_size_mb * 2 * MB)
    s3.Bucket(bucket_name).Object(object_key).download_file(
        download_file_path, Config=config, Callback=transfer_callback
    )
    return transfer_callback.thread_info


def download_with_sse(
    bucket_name, object_key, download_file_path, file_size_mb, sse_key
):
    """
    Download a file from an Amazon S3 bucket to a local folder, adding a
    customer-provided encryption key to the request.

    When this kind of encryption is specified, Amazon S3 encrypts the object
    at rest and allows downloads only when the expected encryption key is
    provided in the download request.
    """
    transfer_callback = TransferCallback(file_size_mb)

    if sse_key:
        extra_args = {"SSECustomerAlgorithm": "AES256", "SSECustomerKey":
 sse_key}
    else:
        extra_args = None
    s3.Bucket(bucket_name).Object(object_key).download_file(
        download_file_path, ExtraArgs=extra_args, Callback=transfer_callback
    )
    return transfer_callback.thread_info
```

Demonstrate the transfer manager functions and report results.

```
import hashlib
import os
import platform
import shutil
import time

import boto3
from boto3.s3.transfer import TransferConfig
```

```
from botocore.exceptions import ClientError
from botocore.exceptions import ParamValidationError
from botocore.exceptions import NoCredentialsError

import file_transfer

MB = 1024 * 1024
# These configuration attributes affect both uploads and downloads.
CONFIG_ATTRS = (
    "multipart_threshold",
    "multipart_chunksize",
    "max_concurrency",
    "use_threads",
)
# These configuration attributes affect only downloads.
DOWNLOAD_CONFIG_ATTRS = ("max_io_queue", "io_chunksize", "num_download_attempts")


class TransferDemoManager:
    """
    Manages the demonstration. Collects user input from a command line, reports
    transfer results, maintains a list of artifacts created during the
    demonstration, and cleans them up after the demonstration is completed.
    """

    def __init__(self):
        self._s3 = boto3.resource("s3")
        self._chore_list = []
        self._create_file_cmd = None
        self._size_multiplier = 0
        self.file_size_mb = 30
        self.demo_folder = None
        self.demo_bucket = None
        self._setup_platform_specific()
        self._terminal_width = shutil.get_terminal_size(fallback=(80, 80))[0]

    def collect_user_info(self):
        """
        Collect local folder and Amazon S3 bucket name from the user. These
        locations are used to store files during the demonstration.
        """
        while not self.demo_folder:
            self.demo_folder = input(
```

```
                "Which file folder do you want to use to store " "demonstration
files? "
            )
            if not os.path.isdir(self.demo_folder):
                print(f"{self.demo_folder} isn't a folder!")
                self.demo_folder = None

        while not self.demo_bucket:
            self.demo_bucket = input(
                "Which Amazon S3 bucket do you want to use to store "
                "demonstration files? "
            )
            try:
                self._s3.meta.client.head_bucket(Bucket=self.demo_bucket)
            except ParamValidationError as err:
                print(err)
                self.demo_bucket = None
            except ClientError as err:
                print(err)
                print(
                    f"Either {self.demo_bucket} doesn't exist or you don't "
                    f"have access to it."
                )
                self.demo_bucket = None

    def demo(
        self, question, upload_func, download_func, upload_args=None,
download_args=None
    ):
        """Run a demonstration.

        Ask the user if they want to run this specific demonstration.
        If they say yes, create a file on the local path, upload it
        using the specified upload function, then download it using the
        specified download function.
        """
        if download_args is None:
            download_args = {}
        if upload_args is None:
            upload_args = {}
        question = question.format(self.file_size_mb)
        answer = input(f"{question} (y/n)")
        if answer.lower() == "y":
```

```
            local_file_path, object_key, download_file_path =
self._create_demo_file()

            file_transfer.TransferConfig = self._config_wrapper(
                TransferConfig, CONFIG_ATTRS
            )
            self._report_transfer_params(
                "Uploading", local_file_path, object_key, **upload_args
            )
            start_time = time.perf_counter()
            thread_info = upload_func(
                local_file_path,
                self.demo_bucket,
                object_key,
                self.file_size_mb,
                **upload_args,
            )
            end_time = time.perf_counter()
            self._report_transfer_result(thread_info, end_time - start_time)

            file_transfer.TransferConfig = self._config_wrapper(
                TransferConfig, CONFIG_ATTRS + DOWNLOAD_CONFIG_ATTRS
            )
            self._report_transfer_params(
                "Downloading", object_key, download_file_path, **download_args
            )
            start_time = time.perf_counter()
            thread_info = download_func(
                self.demo_bucket,
                object_key,
                download_file_path,
                self.file_size_mb,
                **download_args,
            )
            end_time = time.perf_counter()
            self._report_transfer_result(thread_info, end_time - start_time)

    def last_name_set(self):
        """Get the name set used for the last demo."""
        return self._chore_list[-1]

    def cleanup(self):
        """
        Remove files from the demo folder, and uploaded objects from the
```

```
        Amazon S3 bucket.
        """
        print("-" * self._terminal_width)
        for local_file_path, s3_object_key, downloaded_file_path in
self._chore_list:
            print(f"Removing {local_file_path}")
            try:
                os.remove(local_file_path)
            except FileNotFoundError as err:
                print(err)

            print(f"Removing {downloaded_file_path}")
            try:
                os.remove(downloaded_file_path)
            except FileNotFoundError as err:
                print(err)

            if self.demo_bucket:
                print(f"Removing {self.demo_bucket}:{s3_object_key}")
                try:

self._s3.Bucket(self.demo_bucket).Object(s3_object_key).delete()
                except ClientError as err:
                    print(err)

    def _setup_platform_specific(self):
        """Set up platform-specific command used to create a large file."""
        if platform.system() == "Windows":
            self._create_file_cmd = "fsutil file createnew {} {}"
            self._size_multiplier = MB
        elif platform.system() == "Linux" or platform.system() == "Darwin":
            self._create_file_cmd = f"dd if=/dev/urandom of={{}} " f"bs={MB}
count={{}}"
            self._size_multiplier = 1
        else:
            raise EnvironmentError(
                f"Demo of platform {platform.system()} isn't supported."
            )

    def _create_demo_file(self):
        """
        Create a file in the demo folder specified by the user. Store the local
        path, object name, and download path for later cleanup.
```

```
        Only the local file is created by this method. The Amazon S3 object and
        download file are created later during the demonstration.

        Returns:
        A tuple that contains the local file path, object name, and download
        file path.
        """
        file_name_template = "TestFile{}-{}.demo"
        local_suffix = "local"
        object_suffix = "s3object"
        download_suffix = "downloaded"
        file_tag = len(self._chore_list) + 1

        local_file_path = os.path.join(
            self.demo_folder, file_name_template.format(file_tag, local_suffix)
        )

        s3_object_key = file_name_template.format(file_tag, object_suffix)

        downloaded_file_path = os.path.join(
            self.demo_folder, file_name_template.format(file_tag,
download_suffix)
        )

        filled_cmd = self._create_file_cmd.format(
            local_file_path, self.file_size_mb * self._size_multiplier
        )

        print(
            f"Creating file of size {self.file_size_mb} MB "
            f"in {self.demo_folder} by running:"
        )
        print(f"{'':4}{filled_cmd}")
        os.system(filled_cmd)

        chore = (local_file_path, s3_object_key, downloaded_file_path)
        self._chore_list.append(chore)
        return chore

    def _report_transfer_params(self, verb, source_name, dest_name, **kwargs):
        """Report configuration and extra arguments used for a file transfer."""
        print("-" * self._terminal_width)
        print(f"{verb} {source_name} ({self.file_size_mb} MB) to {dest_name}")
        if kwargs:
```

```
            print("With extra args:")
            for arg, value in kwargs.items():
                print(f'{"":4}{arg:<20}: {value}')

    @staticmethod
    def ask_user(question):
        """
        Ask the user a yes or no question.

        Returns:
        True when the user answers 'y' or 'Y'; otherwise, False.
        """
        answer = input(f"{question} (y/n) ")
        return answer.lower() == "y"

    @staticmethod
    def _config_wrapper(func, config_attrs):
        def wrapper(*args, **kwargs):
            config = func(*args, **kwargs)
            print("With configuration:")
            for attr in config_attrs:
                print(f'{"":4}{attr:<20}: {getattr(config, attr)}')
            return config

        return wrapper

    @staticmethod
    def _report_transfer_result(thread_info, elapsed):
        """Report the result of a transfer, including per-thread data."""
        print(f"\nUsed {len(thread_info)} threads.")
        for ident, byte_count in thread_info.items():
            print(f"{'':4}Thread {ident} copied {byte_count} bytes.")
        print(f"Your transfer took {elapsed:.2f} seconds.")


def main():
    """
    Run the demonstration script for s3_file_transfer.
    """
    demo_manager = TransferDemoManager()
    demo_manager.collect_user_info()

    # Upload and download with default configuration. Because the file is 30 MB
    # and the default multipart_threshold is 8 MB, both upload and download are
```

```
    # multipart transfers.
    demo_manager.demo(
        "Do you want to upload and download a {} MB file "
        "using the default configuration?",
        file_transfer.upload_with_default_configuration,
        file_transfer.download_with_default_configuration,
    )

    # Upload and download with multipart_threshold set higher than the size of
    # the file. This causes the transfer manager to use standard transfers
    # instead of multipart transfers.
    demo_manager.demo(
        "Do you want to upload and download a {} MB file "
        "as a standard (not multipart) transfer?",
        file_transfer.upload_with_high_threshold,
        file_transfer.download_with_high_threshold,
    )

    # Upload with specific chunk size and additional metadata.
    # Download with a single thread.
    demo_manager.demo(
        "Do you want to upload a {} MB file with a smaller chunk size and "
        "then download the same file using a single thread?",
        file_transfer.upload_with_chunksize_and_meta,
        file_transfer.download_with_single_thread,
        upload_args={
            "metadata": {
                "upload_type": "chunky",
                "favorite_color": "aqua",
                "size": "medium",
            }
        },
    )

    # Upload using server-side encryption with customer-provided
    # encryption keys.
    # Generate a 256-bit key from a passphrase.
    sse_key = hashlib.sha256("demo_passphrase".encode("utf-8")).digest()
    demo_manager.demo(
        "Do you want to upload and download a {} MB file using "
        "server-side encryption?",
        file_transfer.upload_with_sse,
        file_transfer.download_with_sse,
        upload_args={"sse_key": sse_key},
```

```
        download_args={"sse_key": sse_key},
    )

    # Download without specifying an encryption key to show that the
    # encryption key must be included to download an encrypted object.
    if demo_manager.ask_user(
        "Do you want to try to download the encrypted "
        "object without sending the required key?"
    ):
        try:
            _, object_key, download_file_path = demo_manager.last_name_set()
            file_transfer.download_with_default_configuration(
                demo_manager.demo_bucket,
                object_key,
                download_file_path,
                demo_manager.file_size_mb,
            )
        except ClientError as err:
            print(
                "Got expected error when trying to download an encrypted "
                "object without specifying encryption info:"
            )
            print(f"{'':4}{err}")

    # Remove all created and downloaded files, remove all objects from
    # S3 storage.
    if demo_manager.ask_user(
        "Demonstration complete. Do you want to remove local files " "and S3
 objects?"
    ):
        demo_manager.cleanup()


if __name__ == "__main__":
    try:
        main()
    except NoCredentialsError as error:
        print(error)
        print(
            "To run this example, you must have valid credentials in "
            "a shared credential file or set in environment variables."
        )
```

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
use std::fs::File;
use std::io::prelude::*;
use std::path::Path;

use aws_config::meta::region::RegionProviderChain;
use aws_sdk_s3::error::DisplayErrorContext;
use aws_sdk_s3::operation::{
    create_multipart_upload::CreateMultipartUploadOutput,
 get_object::GetObjectOutput,
};
use aws_sdk_s3::types::{CompletedMultipartUpload, CompletedPart};
use aws_sdk_s3::{config::Region, Client as S3Client};
use aws_smithy_types::byte_stream::{ByteStream, Length};
use rand::distributions::Alphanumeric;
use rand::{thread_rng, Rng};
use s3_code_examples::error::S3ExampleError;
use std::process;
use uuid::Uuid;

//In bytes, minimum chunk size of 5MB. Increase CHUNK_SIZE to send larger chunks.
const CHUNK_SIZE: u64 = 1024 * 1024 * 5;
const MAX_CHUNKS: u64 = 10000;

#[tokio::main]
pub async fn main() {
    if let Err(err) = run_example().await {
        eprintln!("Error: {}", DisplayErrorContext(err));
        process::exit(1);
    }
}
```

```
async fn run_example() -> Result<(), S3ExampleError> {
    let shared_config = aws_config::load_from_env().await;
    let client = S3Client::new(&shared_config);

    let bucket_name = format!("amzn-s3-demo-bucket-{}", Uuid::new_v4());
    let region_provider = RegionProviderChain::first_try(Region::new("us-
west-2"));
    let region = region_provider.region().await.unwrap();
    s3_code_examples::create_bucket(&client, &bucket_name, &region).await?;

    let key = "sample.txt".to_string();
    // Create a multipart upload. Use UploadPart and CompleteMultipartUpload to
    // upload the file.
    let multipart_upload_res: CreateMultipartUploadOutput = client
        .create_multipart_upload()
        .bucket(&bucket_name)
        .key(&key)
        .send()
        .await?;

    let upload_id = multipart_upload_res.upload_id().ok_or(S3ExampleError::new(
        "Missing upload_id after CreateMultipartUpload",
    ))?;

    //Create a file of random characters for the upload.
    let mut file = File::create(&key).expect("Could not create sample file.");
    // Loop until the file is 5 chunks.
    while file.metadata().unwrap().len() <= CHUNK_SIZE * 4 {
        let rand_string: String = thread_rng()
            .sample_iter(&Alphanumeric)
            .take(256)
            .map(char::from)
            .collect();
        let return_string: String = "\n".to_string();
        file.write_all(rand_string.as_ref())
            .expect("Error writing to file.");
        file.write_all(return_string.as_ref())
            .expect("Error writing to file.");
    }

    let path = Path::new(&key);
    let file_size = tokio::fs::metadata(path)
        .await
        .expect("it exists I swear")
```

```
        .len();

    let mut chunk_count = (file_size / CHUNK_SIZE) + 1;
    let mut size_of_last_chunk = file_size % CHUNK_SIZE;
    if size_of_last_chunk == 0 {
        size_of_last_chunk = CHUNK_SIZE;
        chunk_count -= 1;
    }

    if file_size == 0 {
        return Err(S3ExampleError::new("Bad file size."));
    }
    if chunk_count > MAX_CHUNKS {
        return Err(S3ExampleError::new(
            "Too many chunks! Try increasing your chunk size.",
        ));
    }

    let mut upload_parts: Vec<aws_sdk_s3::types::CompletedPart> = Vec::new();

    for chunk_index in 0..chunk_count {
        let this_chunk = if chunk_count - 1 == chunk_index {
            size_of_last_chunk
        } else {
            CHUNK_SIZE
        };
        let stream = ByteStream::read_from()
            .path(path)
            .offset(chunk_index * CHUNK_SIZE)
            .length(Length::Exact(this_chunk))
            .build()
            .await
            .unwrap();

        // Chunk index needs to start at 0, but part numbers start at 1.
        let part_number = (chunk_index as i32) + 1;
        let upload_part_res = client
            .upload_part()
            .key(&key)
            .bucket(&bucket_name)
            .upload_id(upload_id)
            .body(stream)
            .part_number(part_number)
            .send()
```

```
            .await?;

        upload_parts.push(
            CompletedPart::builder()
                .e_tag(upload_part_res.e_tag.unwrap_or_default())
                .part_number(part_number)
                .build(),
        );
    }

    // upload_parts: Vec<aws_sdk_s3::types::CompletedPart>
    let completed_multipart_upload: CompletedMultipartUpload =
 CompletedMultipartUpload::builder()
        .set_parts(Some(upload_parts))
        .build();

    let _complete_multipart_upload_res = client
        .complete_multipart_upload()
        .bucket(&bucket_name)
        .key(&key)
        .multipart_upload(completed_multipart_upload)
        .upload_id(upload_id)
        .send()
        .await?;

    let data: GetObjectOutput =
        s3_code_examples::download_object(&client, &bucket_name, &key).await?;
    let data_length: u64 = data
        .content_length()
        .unwrap_or_default()
        .try_into()
        .unwrap();
    if file.metadata().unwrap().len() == data_length {
        println!("Data lengths match.");
    } else {
        println!("The data was not the same size!");
    }

    s3_code_examples::clear_bucket(&client, &bucket_name)
        .await
        .expect("Error emptying bucket.");
    s3_code_examples::delete_bucket(&client, &bucket_name)
        .await
        .expect("Error deleting bucket.");
```

```
    Ok(())
}
```

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Upload a stream of unknown size to an Amazon S3 object using an AWS SDK

The following code examples show how to upload a stream of unknown size to an Amazon S3 object.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Use the AWS CRT-based S3 Client.

```
import com.example.s3.util.AsyncExampleUtils;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.core.async.AsyncRequestBody;
import software.amazon.awssdk.core.exception.SdkException;
import software.amazon.awssdk.services.s3.S3AsyncClient;
import software.amazon.awssdk.services.s3.model.PutObjectResponse;

import java.io.ByteArrayInputStream;
import java.io.InputStream;
import java.util.UUID;
import java.util.concurrent.CompletableFuture;
import java.util.concurrent.ExecutorService;
import java.util.concurrent.Executors;
```

```
public class PutObjectFromStreamAsync {
    private static final Logger logger =
 LoggerFactory.getLogger(PutObjectFromStreamAsync.class);

    public static void main(String[] args) {
        String bucketName = "amzn-s3-demo-bucket-" + UUID.randomUUID(); // Change
 bucket name.
        String key = UUID.randomUUID().toString();

        AsyncExampleUtils.createBucket(bucketName);
        try {
            PutObjectFromStreamAsync example = new PutObjectFromStreamAsync();
            S3AsyncClient s3AsyncClientCrt = S3AsyncClient.crtCreate();
            PutObjectResponse putObjectResponse =
 example.putObjectFromStreamCrt(s3AsyncClientCrt, bucketName, key);
            logger.info("Object {} etag: {}", key, putObjectResponse.eTag());
            logger.info("Object {} uploaded to bucket {}.", key, bucketName);
        } catch (SdkException e) {
            logger.error(e.getMessage(), e);
        } finally {
            AsyncExampleUtils.deleteObject(bucketName, key);
            AsyncExampleUtils.deleteBucket(bucketName);
        }
    }

    /**
     * @param s33CrtAsyncClient - To upload content from a stream of unknown
 size, use can the AWS CRT-based S3 client.
     * @param bucketName - The name of the bucket.
     * @param key - The name of the object.
     * @return software.amazon.awssdk.services.s3.model.PutObjectResponse -
 Returns metadata pertaining to the put object operation.
     */
    public PutObjectResponse putObjectFromStreamCrt(S3AsyncClient
 s33CrtAsyncClient, String bucketName, String key) {

        // AsyncExampleUtils.randomString() returns a random string up to 100
 characters.
        String randomString = AsyncExampleUtils.randomString();
        logger.info("random string to upload: {}: length={}", randomString,
 randomString.length());
        InputStream inputStream = new
 ByteArrayInputStream(randomString.getBytes());
```

```
        // Executor required to handle reading from the InputStream on a separate
 thread so the main upload is not blocked.
        ExecutorService executor = Executors.newSingleThreadExecutor();
        // Specify `null` for the content length when you don't know the content
 length.
        AsyncRequestBody body = AsyncRequestBody.fromInputStream(inputStream,
 null, executor);

        CompletableFuture<PutObjectResponse> responseFuture =
                s33CrtAsyncClient.putObject(r -> r.bucket(bucketName).key(key),
 body);

        PutObjectResponse response = responseFuture.join(); // Wait for the
 response.
        logger.info("Object {} uploaded to bucket {}.", key, bucketName);
        executor.shutdown();
        return response;
    }
}
```

Use the standard asynchronous S3 client with multipart upload enabled.

```
import com.example.s3.util.AsyncExampleUtils;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.core.async.AsyncRequestBody;
import software.amazon.awssdk.core.exception.SdkException;
import software.amazon.awssdk.services.s3.S3AsyncClient;
import software.amazon.awssdk.services.s3.model.PutObjectResponse;

import java.io.ByteArrayInputStream;
import java.io.InputStream;
import java.util.UUID;
import java.util.concurrent.CompletableFuture;
import java.util.concurrent.ExecutorService;
import java.util.concurrent.Executors;

public class PutObjectFromStreamAsyncMp {
    private static final Logger logger =
 LoggerFactory.getLogger(PutObjectFromStreamAsyncMp.class);
```

```
   public static void main(String[] args) {
       String bucketName = "amzn-s3-demo-bucket-" + UUID.randomUUID(); // Change
bucket name.
       String key = UUID.randomUUID().toString();

       AsyncExampleUtils.createBucket(bucketName);
       try {
           PutObjectFromStreamAsyncMp example = new
PutObjectFromStreamAsyncMp();
           S3AsyncClient s3AsyncClientMp =
S3AsyncClient.builder().multipartEnabled(true).build();
           PutObjectResponse putObjectResponse =
example.putObjectFromStreamMp(s3AsyncClientMp, bucketName, key);
           logger.info("Object {} etag: {}", key, putObjectResponse.eTag());
           logger.info("Object {} uploaded to bucket {}.", key, bucketName);
       } catch (SdkException e) {
           logger.error(e.getMessage(), e);
       } finally {
           AsyncExampleUtils.deleteObject(bucketName, key);
           AsyncExampleUtils.deleteBucket(bucketName);
       }
   }

   /**
    * @param s3AsyncClientMp - To upload content from a stream of unknown size,
use can the S3 asynchronous client with multipart enabled.
    * @param bucketName - The name of the bucket.
    * @param key - The name of the object.
    * @return software.amazon.awssdk.services.s3.model.PutObjectResponse -
Returns metadata pertaining to the put object operation.
    */
   public PutObjectResponse putObjectFromStreamMp(S3AsyncClient s3AsyncClientMp,
String bucketName, String key) {

       // AsyncExampleUtils.randomString() returns a random string up to 100
characters.
       String randomString = AsyncExampleUtils.randomString();
       logger.info("random string to upload: {}: length={}", randomString,
randomString.length());
       InputStream inputStream = new
ByteArrayInputStream(randomString.getBytes());
```

```
        // Executor required to handle reading from the InputStream on a separate
 thread so the main upload is not blocked.
        ExecutorService executor = Executors.newSingleThreadExecutor();
        // Specify `null` for the content length when you don't know the content
 length.
        AsyncRequestBody body = AsyncRequestBody.fromInputStream(inputStream,
 null, executor);

        CompletableFuture<PutObjectResponse> responseFuture =
                s3AsyncClientMp.putObject(r -> r.bucket(bucketName).key(key),
 body);

        PutObjectResponse response = responseFuture.join(); // Wait for the
 response.
        logger.info("Object {} uploaded to bucket {}.", key, bucketName);
        executor.shutdown();
        return response;
    }
}
```

Use the Amazon S3 Transfer Manager.

```
import com.example.s3.util.AsyncExampleUtils;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.core.async.AsyncRequestBody;
import software.amazon.awssdk.core.exception.SdkException;
import software.amazon.awssdk.transfer.s3.S3TransferManager;
import software.amazon.awssdk.transfer.s3.model.CompletedUpload;
import software.amazon.awssdk.transfer.s3.model.Upload;

import java.io.ByteArrayInputStream;
import java.io.InputStream;
import java.util.UUID;
import java.util.concurrent.ExecutorService;
import java.util.concurrent.Executors;

public class UploadStream {
    private static final Logger logger =
 LoggerFactory.getLogger(UploadStream.class);
```

```
    public static void main(String[] args) {
        String bucketName = "amzn-s3-demo-bucket" + UUID.randomUUID();
        String key = UUID.randomUUID().toString();

        AsyncExampleUtils.createBucket(bucketName);
        try {
            UploadStream example = new UploadStream();
            CompletedUpload completedUpload =
example.uploadStream(S3TransferManager.create(), bucketName, key);
            logger.info("Object {} etag: {}", key,
completedUpload.response().eTag());
            logger.info("Object {} uploaded to bucket {}.", key, bucketName);
        } catch (SdkException e) {
            logger.error(e.getMessage(), e);
        } finally {
            AsyncExampleUtils.deleteObject(bucketName, key);
            AsyncExampleUtils.deleteBucket(bucketName);
        }
    }

    /**
     * @param transferManager - To upload content from a stream of unknown size,
you can use the S3TransferManager based on the AWS CRT-based S3 client.
     * @param bucketName - The name of the bucket.
     * @param key - The name of the object.
     * @return - software.amazon.awssdk.transfer.s3.model.CompletedUpload - The
result of the completed upload.
     */
    public CompletedUpload uploadStream(S3TransferManager transferManager, String
bucketName, String key) {

        // AsyncExampleUtils.randomString() returns a random string up to 100
characters.
        String randomString = AsyncExampleUtils.randomString();
        logger.info("random string to upload: {}: length={}", randomString,
randomString.length());
        InputStream inputStream = new
ByteArrayInputStream(randomString.getBytes());

        // Executor required to handle reading from the InputStream on a separate
thread so the main upload is not blocked.
        ExecutorService executor = Executors.newSingleThreadExecutor();
        // Specify `null` for the content length when you don't know the content
length.
```

```
        AsyncRequestBody body = AsyncRequestBody.fromInputStream(inputStream,
 null, executor);

        Upload upload = transferManager.upload(builder -> builder
                .requestBody(body)
                .putObjectRequest(req -> req.bucket(bucketName).key(key))
                .build());

        CompletedUpload completedUpload = upload.completionFuture().join();
        executor.shutdown();
        return completedUpload;
    }
}
```

Swift

SDK for Swift

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import ArgumentParser
import AWSClientRuntime
import AWSS3
import Foundation
import Smithy
import SmithyHTTPAPI
import SmithyStreams


    /// Upload a file to the specified bucket.
    ///
    /// - Parameters:
    ///   - bucket: The Amazon S3 bucket name to store the file into.
    ///   - key: The name (or path) of the file to upload to in the `bucket`.
    ///   - sourcePath: The pathname on the local filesystem of the file to
    ///     upload.
```

```
    func uploadFile(sourcePath: String, bucket: String, key: String?) async
throws {
        let fileURL: URL = URL(fileURLWithPath: sourcePath)
        let fileName: String

        // If no key was provided, use the last component of the filename.

        if key == nil {
            fileName = fileURL.lastPathComponent
        } else {
            fileName = key!
        }

        let s3Client = try await S3Client()

        // Create a FileHandle for the source file.

        let fileHandle = FileHandle(forReadingAtPath: sourcePath)
        guard let fileHandle = fileHandle else {
            throw TransferError.readError
        }

        // Create a byte stream to retrieve the file's contents. This uses the
        // Smithy FileStream and ByteStream types.

        let stream = FileStream(fileHandle: fileHandle)
        let body = ByteStream.stream(stream)

        // Create a `PutObjectInput` with the ByteStream as the body of the
        // request's data. The AWS SDK for Swift will handle sending the
        // entire file in chunks, regardless of its size.

        let putInput = PutObjectInput(
            body: body,
            bucket: bucket,
            key: fileName
        )

        do {
            _ = try await s3Client.putObject(input: putInput)
        } catch {
            throw TransferError.uploadError("Error uploading the file: \(error)")
        }
```

```
        print("File uploaded to \(fileURL.path).")
    }
```

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use checksums to work with an Amazon S3 object using an AWS SDK

The following code example shows how to use checksums to work with an Amazon S3 object.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

The code examples use a subset of the following imports.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.core.exception.SdkException;
import software.amazon.awssdk.core.sync.RequestBody;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.ChecksumAlgorithm;
import software.amazon.awssdk.services.s3.model.ChecksumMode;
import software.amazon.awssdk.services.s3.model.CompletedMultipartUpload;
import software.amazon.awssdk.services.s3.model.CompletedPart;
import software.amazon.awssdk.services.s3.model.CreateMultipartUploadResponse;
import software.amazon.awssdk.services.s3.model.GetObjectResponse;
import software.amazon.awssdk.services.s3.model.UploadPartRequest;
import software.amazon.awssdk.services.s3.model.UploadPartResponse;
import software.amazon.awssdk.services.s3.waiters.S3Waiter;
import software.amazon.awssdk.transfer.s3.S3TransferManager;
import software.amazon.awssdk.transfer.s3.model.FileUpload;
```

```
import software.amazon.awssdk.transfer.s3.model.UploadFileRequest;

import java.io.FileInputStream;
import java.io.IOException;
import java.io.RandomAccessFile;
import java.net.URISyntaxException;
import java.net.URL;
import java.nio.ByteBuffer;
import java.nio.file.Paths;
import java.security.DigestInputStream;
import java.security.MessageDigest;
import java.security.NoSuchAlgorithmException;
import java.util.ArrayList;
import java.util.Base64;
import java.util.List;
import java.util.Objects;
import java.util.UUID;
```

Specify a checksum algorithm for the `putObject` method when you build the `PutObjectRequest`.

```
    public void putObjectWithChecksum() {
        s3Client.putObject(b -> b
                .bucket(bucketName)
                .key(key)
                .checksumAlgorithm(ChecksumAlgorithm.CRC32),
            RequestBody.fromString("This is a test"));
    }
```

Verify the checksum for the `getObject` method when you build the GetObjectRequest.

```
    public GetObjectResponse getObjectWithChecksum() {
        return s3Client.getObject(b -> b
                .bucket(bucketName)
                .key(key)
                .checksumMode(ChecksumMode.ENABLED))
            .response();
    }
```

Pre-calculate a checksum for the `putObject` method when you build the `PutObjectRequest`.

```
public void putObjectWithPrecalculatedChecksum(String filePath) {
    String checksum = calculateChecksum(filePath, "SHA-256");

    s3Client.putObject((b -> b
            .bucket(bucketName)
            .key(key)
            .checksumSHA256(checksum)),
        RequestBody.fromFile(Paths.get(filePath)));
}
```

Use the S3 Transfer Manager on top of the AWS CRT-based S3 client to transparently perform a multipart upload when the size of the content exceeds a threshold. The default threshold size is 8 MB.

You can specify a checksum algorithm for the SDK to use. By default, the SDK uses the CRC32 algorithm.

```
public void multipartUploadWithChecksumTm(String filePath) {
    S3TransferManager transferManager = S3TransferManager.create();
    UploadFileRequest uploadFileRequest = UploadFileRequest.builder()
        .putObjectRequest(b -> b
            .bucket(bucketName)
            .key(key)
            .checksumAlgorithm(ChecksumAlgorithm.SHA1))
        .source(Paths.get(filePath))
        .build();
    FileUpload fileUpload = transferManager.uploadFile(uploadFileRequest);
    fileUpload.completionFuture().join();
    transferManager.close();
}
```

Use the S3Client API or (S3AsyncClient API) to perform a multipart upload. If you specify an additional checksum, you must specify the algorithm to use on the initiation of the upload. You must also specify the algorithm for each part request and provide the checksum calculated for each part after it is uploaded.

```
   public void multipartUploadWithChecksumS3Client(String filePath) {
       ChecksumAlgorithm algorithm = ChecksumAlgorithm.CRC32;

       // Initiate the multipart upload.
       CreateMultipartUploadResponse createMultipartUploadResponse =
s3Client.createMultipartUpload(b -> b
           .bucket(bucketName)
           .key(key)
           .checksumAlgorithm(algorithm)); // Checksum specified on initiation.
       String uploadId = createMultipartUploadResponse.uploadId();

       // Upload the parts of the file.
       int partNumber = 1;
       List<CompletedPart> completedParts = new ArrayList<>();
       ByteBuffer bb = ByteBuffer.allocate(1024 * 1024 * 5); // 5 MB byte buffer

       try (RandomAccessFile file = new RandomAccessFile(filePath, "r")) {
           long fileSize = file.length();
           long position = 0;
           while (position < fileSize) {
               file.seek(position);
               long read = file.getChannel().read(bb);

               bb.flip(); // Swap position and limit before reading from the
buffer.
               UploadPartRequest uploadPartRequest = UploadPartRequest.builder()
                   .bucket(bucketName)
                   .key(key)
                   .uploadId(uploadId)
                   .checksumAlgorithm(algorithm) // Checksum specified on each
part.
                   .partNumber(partNumber)
                   .build();

               UploadPartResponse partResponse = s3Client.uploadPart(
                   uploadPartRequest,
                   RequestBody.fromByteBuffer(bb));

               CompletedPart part = CompletedPart.builder()
                   .partNumber(partNumber)
                   .checksumCRC32(partResponse.checksumCRC32()) // Provide the
calculated checksum.
                   .eTag(partResponse.eTag())
```

```
                    .build();
                completedParts.add(part);

                bb.clear();
                position += read;
                partNumber++;
            }
        } catch (IOException e) {
            System.err.println(e.getMessage());
        }

        // Complete the multipart upload.
        s3Client.completeMultipartUpload(b -> b
            .bucket(bucketName)
            .key(key)
            .uploadId(uploadId)

.multipartUpload(CompletedMultipartUpload.builder().parts(completedParts).build()));
    }
```

- For API details, see the following topics in *AWS SDK for Java 2.x API Reference*.
  - CompleteMultipartUpload
  - CreateMultipartUpload
  - UploadPart

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Work with Amazon S3 object integrity features using an AWS SDK

The following code example shows how to work with S3 object integrity features.

C++

SDK for C++

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Run an interactive scenario demonstrating Amazon S3 object integrity features.

```
//! Routine which runs the S3 object integrity workflow.
/*!
   \param clientConfig: Aws client configuration.
   \return bool: Function succeeded.
*/
bool AwsDoc::S3::s3ObjectIntegrityWorkflow(
        const Aws::S3::S3ClientConfiguration &clientConfiguration) {

    /*
     * Create a large file to be used for multipart uploads.
     */
    if (!createLargeFileIfNotExists()) {
        std::cerr << "Workflow exiting because large file creation failed." <<
 std::endl;
        return false;
    }

    Aws::String bucketName = TEST_BUCKET_PREFIX;
    bucketName += Aws::Utils::UUID::RandomUUID();
    bucketName = Aws::Utils::StringUtils::ToLower(bucketName.c_str());

    bucketName.resize(std::min(bucketName.size(), MAX_BUCKET_NAME_LENGTH));

    introductoryExplanations(bucketName);

    if (!AwsDoc::S3::createBucket(bucketName, clientConfiguration)) {
        std::cerr << "Workflow exiting because bucket creation failed." <<
 std::endl;
        return false;
    }
```

```
   Aws::S3::S3ClientConfiguration s3ClientConfiguration(clientConfiguration);
   std::shared_ptr<Aws::S3::S3Client> client =
Aws::MakeShared<Aws::S3::S3Client>("S3Client", s3ClientConfiguration);

   printAsterisksLine();
   std::cout << "Choose from one of the following checksum algorithms."
             << std::endl;

   for (HASH_METHOD hashMethod = DEFAULT; hashMethod <= SHA256; ++hashMethod) {
       std::cout << "  " << hashMethod << " - " <<
stringForHashMethod(hashMethod)
                << std::endl;
   }

   HASH_METHOD chosenHashMethod = askQuestionForIntRange("Enter an index: ",
DEFAULT,
                                                         SHA256);


   gUseCalculatedChecksum = !askYesNoQuestion(
           "Let the SDK calculate the checksum for you? (y/n) ");

   printAsterisksLine();

   std::cout << "The workflow will now upload a file using PutObject."
             << std::endl;
   std::cout << "Object integrity will be verified using the "
             << stringForHashMethod(chosenHashMethod) << " algorithm."
             << std::endl;
   if (gUseCalculatedChecksum) {
       std::cout
               << "A checksum computed by this workflow will be used for object
integrity verification,"
               << std::endl;
       std::cout << "except for the TransferManager upload." << std::endl;
   } else {
       std::cout
               << "A checksum computed by the SDK will be used for object
integrity verification."
               << std::endl;
   }

   pressEnterToContinue();
   printAsterisksLine();
```

```
    std::shared_ptr<Aws::IOStream> inputData =
            Aws::MakeShared<Aws::FStream>("SampleAllocationTag",
                                          TEST_FILE,
                                          std::ios_base::in |
                                          std::ios_base::binary);

    if (!*inputData) {
        std::cerr << "Error unable to read file " << TEST_FILE << std::endl;
        cleanUp(bucketName, clientConfiguration);
        return false;
    }

    Hasher hasher;
    HASH_METHOD putObjectHashMethod = chosenHashMethod;
    if (putObjectHashMethod == DEFAULT) {
        putObjectHashMethod = MD5; // MD5 is the default hash method for
PutObject.

        std::cout << "The default checksum algorithm for PutObject is "
                  << stringForHashMethod(putObjectHashMethod)
                  << std::endl;
    }

    // Demonstrate in code how the hash is computed.
    if (!hasher.calculateObjectHash(*inputData, putObjectHashMethod)) {
        std::cerr << "Error calculating hash for file " << TEST_FILE <<
std::endl;
        cleanUp(bucketName, clientConfiguration);
        return false;
    }
    Aws::String key = stringForHashMethod(putObjectHashMethod);
    key += "_";
    key += TEST_FILE_KEY;
    Aws::String localHash = hasher.getBase64HashString();

    // Upload the object with PutObject
    if (!putObjectWithHash(bucketName, key, localHash, putObjectHashMethod,
                           inputData, chosenHashMethod == DEFAULT,
                           *client)) {
        std::cerr << "Error putting file " << TEST_FILE << " to bucket "
                  << bucketName << " with key " << key << std::endl;
        cleanUp(bucketName, clientConfiguration);
        return false;
```

```
    }

    Aws::String retrievedHash;
    if (!retrieveObjectHash(bucketName, key,
                            putObjectHashMethod, retrievedHash,
                            nullptr, *client)) {
        std::cerr << "Error getting file " << TEST_FILE << " from bucket "
                  << bucketName << " with key " << key << std::endl;
        cleanUp(bucketName, clientConfiguration);
        return false;
    }

    explainPutObjectResults();
    verifyHashingResults(retrievedHash, hasher,
                         "PutObject upload", putObjectHashMethod);


    printAsterisksLine();
    pressEnterToContinue();

    key = "tr_";
    key += stringForHashMethod(chosenHashMethod) + "_" + MULTI_PART_TEST_FILE;

    introductoryTransferManagerUploadExplanations(key);

    HASH_METHOD transferManagerHashMethod = chosenHashMethod;
    if (transferManagerHashMethod == DEFAULT) {
        transferManagerHashMethod = CRC32;  // The default hash method for the
TransferManager is CRC32.

        std::cout << "The default checksum algorithm for TransferManager is "
                  << stringForHashMethod(transferManagerHashMethod)
                  << std::endl;
    }

    // Upload the large file using the transfer manager.
    if (!doTransferManagerUpload(bucketName, key, transferManagerHashMethod,
chosenHashMethod == DEFAULT,
                                 client)) {
        std::cerr << "Exiting because of an error in doTransferManagerUpload." <<
std::endl;
        cleanUp(bucketName, clientConfiguration);
        return false;
    }
```

```
   std::vector<Aws::String> retrievedTransferManagerPartHashes;
   Aws::String retrievedTransferManagerFinalHash;

   // Retrieve all the hashes for the TransferManager upload.
   if (!retrieveObjectHash(bucketName, key,
                           transferManagerHashMethod,
                           retrievedTransferManagerFinalHash,
                           &retrievedTransferManagerPartHashes, *client)) {
       std::cerr << "Exiting because of an error in retrieveObjectHash for
TransferManager." << std::endl;
       cleanUp(bucketName, clientConfiguration);
       return false;
   }

   AwsDoc::S3::Hasher locallyCalculatedFinalHash;
   std::vector<Aws::String> locallyCalculatedPartHashes;

   // Calculate the hashes locally to demonstrate how TransferManager hashes are
computed.
   if (!calculatePartHashesForFile(transferManagerHashMethod,
MULTI_PART_TEST_FILE,
                                   UPLOAD_BUFFER_SIZE,
                                   locallyCalculatedFinalHash,
                                   locallyCalculatedPartHashes)) {
       std::cerr << "Exiting because of an error in calculatePartHashesForFile."
<< std::endl;
       cleanUp(bucketName, clientConfiguration);
       return false;
   }

   verifyHashingResults(retrievedTransferManagerFinalHash,
                        locallyCalculatedFinalHash, "TransferManager upload",
                        transferManagerHashMethod,
                        retrievedTransferManagerPartHashes,
                        locallyCalculatedPartHashes);

   printAsterisksLine();

   key = "mp_";
   key += stringForHashMethod(chosenHashMethod) + "_" + MULTI_PART_TEST_FILE;

   multiPartUploadExplanations(key, chosenHashMethod);
```

```
    pressEnterToContinue();

    std::shared_ptr<Aws::IOStream> largeFileInputData =
            Aws::MakeShared<Aws::FStream>("SampleAllocationTag",
                                          MULTI_PART_TEST_FILE,
                                          std::ios_base::in |
                                          std::ios_base::binary);

    if (!largeFileInputData->good()) {
        std::cerr << "Error unable to read file " << TEST_FILE << std::endl;
        cleanUp(bucketName, clientConfiguration);
        return false;
    }

    HASH_METHOD multipartUploadHashMethod = chosenHashMethod;
    if (multipartUploadHashMethod == DEFAULT) {
        multipartUploadHashMethod = MD5;  // The default hash method for
multipart uploads is MD5.

        std::cout << "The default checksum algorithm for multipart upload is "
                  << stringForHashMethod(putObjectHashMethod)
                  << std::endl;
    }

    AwsDoc::S3::Hasher hashData;
    std::vector<Aws::String> partHashes;

    if (!doMultipartUpload(bucketName, key,
                           multipartUploadHashMethod,
                           largeFileInputData, chosenHashMethod == DEFAULT,
                           hashData,
                           partHashes,
                           *client)) {
        std::cerr << "Exiting because of an error in doMultipartUpload." <<
std::endl;
        cleanUp(bucketName, clientConfiguration);
        return false;
    }

    std::cout << "Finished multipart upload of with hash method " <<
              stringForHashMethod(multipartUploadHashMethod) << std::endl;

    std::cout << "Now we will retrieve the checksums from the server." <<
std::endl;
```

```
    retrievedHash.clear();
    std::vector<Aws::String> retrievedPartHashes;
    if (!retrieveObjectHash(bucketName, key,
                            multipartUploadHashMethod,
                            retrievedHash, &retrievedPartHashes, *client)) {
        std::cerr << "Exiting because of an error in retrieveObjectHash for
 multipart." << std::endl;
        cleanUp(bucketName, clientConfiguration);
        return false;
    }

    verifyHashingResults(retrievedHash, hashData, "MultiPart upload",
                         multipartUploadHashMethod,
                         retrievedPartHashes, partHashes);

    printAsterisksLine();

    if (askYesNoQuestion("Would you like to delete the resources created in this
 workflow? (y/n)")) {
        return cleanUp(bucketName, clientConfiguration);
    } else {
        std::cout << "The bucket " << bucketName << " was not deleted." <<
 std::endl;
        return true;
    }
}

//! Routine which uploads an object to an S3 bucket with different object
 integrity hashing methods.
/*!
   \param bucket: The name of the S3 bucket where the object will be uploaded.
   \param key: The unique identifier (key) for the object within the S3 bucket.
   \param hashData: The hash value that will be associated with the uploaded
 object.
   \param hashMethod: The hashing algorithm to use when calculating the hash
 value.
   \param body: The data content of the object being uploaded.
   \param useDefaultHashMethod: A flag indicating whether to use the default hash
 method or the one specified in the hashMethod parameter.
   \param client: The S3 client instance used to perform the upload operation.
   \return bool: Function succeeded.
*/
```

```
bool AwsDoc::S3::putObjectWithHash(const Aws::String &bucket, const Aws::String
 &key,
                                   const Aws::String &hashData,
                                   AwsDoc::S3::HASH_METHOD hashMethod,
                                   const std::shared_ptr<Aws::IOStream> &body,
                                   bool useDefaultHashMethod,
                                   const Aws::S3::S3Client &client) {
    Aws::S3::Model::PutObjectRequest request;
    request.SetBucket(bucket);
    request.SetKey(key);
    if (!useDefaultHashMethod) {
        if (hashMethod != MD5) {

 request.SetChecksumAlgorithm(getChecksumAlgorithmForHashMethod(hashMethod));
        }
    }

    if (gUseCalculatedChecksum) {
        switch (hashMethod) {
            case AwsDoc::S3::MD5:
                request.SetContentMD5(hashData);
                break;
            case AwsDoc::S3::SHA1:
                request.SetChecksumSHA1(hashData);
                break;
            case AwsDoc::S3::SHA256:
                request.SetChecksumSHA256(hashData);
                break;
            case AwsDoc::S3::CRC32:
                request.SetChecksumCRC32(hashData);
                break;
            case AwsDoc::S3::CRC32C:
                request.SetChecksumCRC32C(hashData);
                break;
            default:
                std::cerr << "Unknown hash method." << std::endl;
                return false;
        }
    }
    request.SetBody(body);
    Aws::S3::Model::PutObjectOutcome outcome = client.PutObject(request);
    body->seekg(0, body->beg);
    if (outcome.IsSuccess()) {
        std::cout << "Object successfully uploaded." << std::endl;
```

```
    } else {
        std::cerr << "Error uploading object." <<
                  outcome.GetError().GetMessage() << std::endl;
    }
    return outcome.IsSuccess();
}


// ! Routine which retrieves the hash value of an object stored in an S3 bucket.
/*!
   \param bucket: The name of the S3 bucket where the object is stored.
   \param key: The unique identifier (key) of the object within the S3 bucket.
   \param hashMethod: The hashing algorithm used to calculate the hash value of
 the object.
   \param[out] hashData: The retrieved hash.
   \param[out] partHashes: The part hashes if available.
   \param client: The S3 client instance used to retrieve the object.
   \return bool: Function succeeded.
*/
bool AwsDoc::S3::retrieveObjectHash(const Aws::String &bucket, const Aws::String
 &key,
                                    AwsDoc::S3::HASH_METHOD hashMethod,
                                    Aws::String &hashData,
                                    std::vector<Aws::String> *partHashes,
                                    const Aws::S3::S3Client &client) {
    Aws::S3::Model::GetObjectAttributesRequest request;
    request.SetBucket(bucket);
    request.SetKey(key);

    if (hashMethod == MD5) {
        Aws::Vector<Aws::S3::Model::ObjectAttributes> attributes;
        attributes.push_back(Aws::S3::Model::ObjectAttributes::ETag);
        request.SetObjectAttributes(attributes);

        Aws::S3::Model::GetObjectAttributesOutcome outcome =
 client.GetObjectAttributes(
                request);
        if (outcome.IsSuccess()) {
            const Aws::S3::Model::GetObjectAttributesResult &result =
 outcome.GetResult();
            hashData = result.GetETag();
        } else {
            std::cerr << "Error retrieving object etag attributes." <<
                      outcome.GetError().GetMessage() << std::endl;
```

```
            return false;
        }
    } else { // hashMethod != MD5
        Aws::Vector<Aws::S3::Model::ObjectAttributes> attributes;
        attributes.push_back(Aws::S3::Model::ObjectAttributes::Checksum);
        request.SetObjectAttributes(attributes);

        Aws::S3::Model::GetObjectAttributesOutcome outcome =
 client.GetObjectAttributes(
                request);
        if (outcome.IsSuccess()) {
            const Aws::S3::Model::GetObjectAttributesResult &result =
 outcome.GetResult();
            switch (hashMethod) {
                case AwsDoc::S3::DEFAULT: // NOLINT(*-branch-clone)
                    break;  // Default is not supported.
#pragma clang diagnostic push
#pragma ide diagnostic ignored "UnreachableCode"
                case AwsDoc::S3::MD5:
                    break;  // MD5 is not supported.
#pragma clang diagnostic pop
                case AwsDoc::S3::SHA1:
                    hashData = result.GetChecksum().GetChecksumSHA1();
                    break;
                case AwsDoc::S3::SHA256:
                    hashData = result.GetChecksum().GetChecksumSHA256();
                    break;
                case AwsDoc::S3::CRC32:
                    hashData = result.GetChecksum().GetChecksumCRC32();
                    break;
                case AwsDoc::S3::CRC32C:
                    hashData = result.GetChecksum().GetChecksumCRC32C();
                    break;
                default:
                    std::cerr << "Unknown hash method." << std::endl;
                    return false;
            }
        } else {
            std::cerr << "Error retrieving object checksum attributes." <<
                      outcome.GetError().GetMessage() << std::endl;
            return false;
        }

        if (nullptr != partHashes) {
```

```
            attributes.clear();
            attributes.push_back(Aws::S3::Model::ObjectAttributes::ObjectParts);
            request.SetObjectAttributes(attributes);
            outcome = client.GetObjectAttributes(request);
            if (outcome.IsSuccess()) {
                const Aws::S3::Model::GetObjectAttributesResult &result =
 outcome.GetResult();
                const Aws::Vector<Aws::S3::Model::ObjectPart> parts =
 result.GetObjectParts().GetParts();
                for (const Aws::S3::Model::ObjectPart &part: parts) {
                    switch (hashMethod) {
                        case AwsDoc::S3::DEFAULT: // Default is not supported.
 NOLINT(*-branch-clone)
                            break;
                        case AwsDoc::S3::MD5: // MD5 is not supported.
                            break;
                        case AwsDoc::S3::SHA1:
                            partHashes->push_back(part.GetChecksumSHA1());
                            break;
                        case AwsDoc::S3::SHA256:
                            partHashes->push_back(part.GetChecksumSHA256());
                            break;
                        case AwsDoc::S3::CRC32:
                            partHashes->push_back(part.GetChecksumCRC32());
                            break;
                        case AwsDoc::S3::CRC32C:
                            partHashes->push_back(part.GetChecksumCRC32C());
                            break;
                        default:
                            std::cerr << "Unknown hash method." << std::endl;
                            return false;
                    }
                }
            } else {
                std::cerr << "Error retrieving object attributes for object
 parts." <<
                          outcome.GetError().GetMessage() << std::endl;
                return false;
            }
        }
    }

    return true;
}
```

```
//! Verifies the hashing results between the retrieved and local hashes.
/*!
 \param retrievedHash The hash value retrieved from the remote source.
 \param localHash The hash value calculated locally.
 \param uploadtype The type of upload (e.g., "multipart", "single-part").
 \param hashMethod The hashing method used (e.g., MD5, SHA-256).
 \param retrievedPartHashes (Optional) The list of hashes for the individual
 parts retrieved from the remote source.
 \param localPartHashes (Optional) The list of hashes for the individual parts
 calculated locally.
 */
void AwsDoc::S3::verifyHashingResults(const Aws::String &retrievedHash,
                                      const Hasher &localHash,
                                      const Aws::String &uploadtype,
                                      HASH_METHOD hashMethod,
                                      const std::vector<Aws::String>
 &retrievedPartHashes,
                                      const std::vector<Aws::String>
 &localPartHashes) {
    std::cout << "For " << uploadtype << " retrieved hash is " << retrievedHash
 << std::endl;
    if (!retrievedPartHashes.empty()) {
        std::cout << retrievedPartHashes.size() << " part hash(es) were also
 retrieved."
                  << std::endl;
        for (auto &retrievedPartHash: retrievedPartHashes) {
            std::cout << "  Part hash " << retrievedPartHash << std::endl;
        }
    }
    Aws::String hashString;
    if (hashMethod == MD5) {
        hashString = localHash.getHexHashString();
        if (!localPartHashes.empty()) {
            hashString += "-" + std::to_string(localPartHashes.size());
        }
    } else {
        hashString = localHash.getBase64HashString();
    }

    bool allMatch = true;
    if (hashString != retrievedHash) {
        std::cerr << "For " << uploadtype << ", the main hashes do not match" <<
 std::endl;
```

```
        std::cerr << "Local hash- '" << hashString << "'" << std::endl;
        std::cerr << "Remote hash - '" << retrievedHash << "'" << std::endl;
        allMatch = false;
    }

    if (hashMethod != MD5) {
        if (localPartHashes.size() != retrievedPartHashes.size()) {
            std::cerr << "For " << uploadtype << ", the number of part hashes do
 not match" << std::endl;
            std::cerr << "Local number of hashes- '" << localPartHashes.size() <<
 "'"
                      << std::endl;
            std::cerr << "Remote number of hashes - '"
                      << retrievedPartHashes.size()
                      << "'" << std::endl;
        }

        for (int i = 0; i < localPartHashes.size(); ++i) {
            if (localPartHashes[i] != retrievedPartHashes[i]) {
                std::cerr << "For " << uploadtype << ", the part hashes do not
 match for part " << i + 1
                          << "." << std::endl;
                std::cerr << "Local hash- '" << localPartHashes[i] << "'"
                          << std::endl;
                std::cerr << "Remote hash - '" << retrievedPartHashes[i] << "'"
                          << std::endl;
                allMatch = false;
            }
        }
    }

    if (allMatch) {
        std::cout << "For " << uploadtype << ", locally and remotely calculated
 hashes all match!" << std::endl;
    }

}

static void transferManagerErrorCallback(const Aws::Transfer::TransferManager *,
                                         const std::shared_ptr<const
 Aws::Transfer::TransferHandle> &,
                                         const
 Aws::Client::AWSError<Aws::S3::S3Errors> &err) {
```

```
    std::cerr << "Error during transfer: '" << err.GetMessage() << "'" <<
 std::endl;
}

static void transferManagerStatusCallback(const Aws::Transfer::TransferManager *,
                                          const std::shared_ptr<const
 Aws::Transfer::TransferHandle> &handle) {
    if (handle->GetStatus() == Aws::Transfer::TransferStatus::IN_PROGRESS) {
        std::cout << "Bytes transferred: " << handle->GetBytesTransferred() <<
 std::endl;
    }
}

//! Routine which uploads an object to an S3 bucket using the AWS C++ SDK's
 Transfer Manager.
/*!
   \param bucket: The name of the S3 bucket where the object will be uploaded.
   \param key: The unique identifier (key) for the object within the S3 bucket.
   \param hashMethod: The hashing algorithm to use when calculating the hash
 value.
   \param useDefaultHashMethod: A flag indicating whether to use the default hash
 method or the one specified in the hashMethod parameter.
   \param client: The S3 client instance used to perform the upload operation.
   \return bool: Function succeeded.
*/
bool
AwsDoc::S3::doTransferManagerUpload(const Aws::String &bucket, const Aws::String
 &key,
                                    AwsDoc::S3::HASH_METHOD hashMethod,
                                    bool useDefaultHashMethod,
                                    const std::shared_ptr<Aws::S3::S3Client>
 &client) {
    std::shared_ptr<Aws::Utils::Threading::PooledThreadExecutor> executor =
 Aws::MakeShared<Aws::Utils::Threading::PooledThreadExecutor>(
            "executor", 25);
    Aws::Transfer::TransferManagerConfiguration transfer_config(executor.get());
    transfer_config.s3Client = client;
    transfer_config.bufferSize = UPLOAD_BUFFER_SIZE;
    if (!useDefaultHashMethod) {
        if (hashMethod == MD5) {
            transfer_config.computeContentMD5 = true;
        } else {
            transfer_config.checksumAlgorithm =
 getChecksumAlgorithmForHashMethod(
```

```
                    hashMethod);
        }
    }
    transfer_config.errorCallback = transferManagerErrorCallback;
    transfer_config.transferStatusUpdatedCallback =
 transferManagerStatusCallback;

    std::shared_ptr<Aws::Transfer::TransferManager> transfer_manager =
 Aws::Transfer::TransferManager::Create(
            transfer_config);

    std::cout << "Uploading the file..." << std::endl;
    std::shared_ptr<Aws::Transfer::TransferHandle> uploadHandle =
 transfer_manager->UploadFile(MULTI_PART_TEST_FILE,

              bucket, key,

              "text/plain",

              Aws::Map<Aws::String, Aws::String>());
    uploadHandle->WaitUntilFinished();
    bool success =
            uploadHandle->GetStatus() ==
 Aws::Transfer::TransferStatus::COMPLETED;
    if (!success) {
        Aws::Client::AWSError<Aws::S3::S3Errors> err = uploadHandle-
>GetLastError();
        std::cerr << "File upload failed:  " << err.GetMessage() << std::endl;
    }

    return success;
}

//! Routine which calculates the hash values for each part of a file being
 uploaded to an S3 bucket.
/*!
   \param hashMethod: The hashing algorithm to use when calculating the hash
 values.
   \param fileName: The path to the file for which the part hashes will be
 calculated.
   \param bufferSize: The size of the buffer to use when reading the file.
   \param[out] hashDataResult: The Hasher object that will store the concatenated
 hash value.
```

```
   \param[out] partHashes: The vector that will store the calculated hash values
 for each part of the file.
   \return bool: Function succeeded.
*/
bool AwsDoc::S3::calculatePartHashesForFile(AwsDoc::S3::HASH_METHOD hashMethod,
                                            const Aws::String &fileName,
                                            size_t bufferSize,
                                            AwsDoc::S3::Hasher &hashDataResult,
                                            std::vector<Aws::String> &partHashes)
 {
    std::ifstream fileStream(fileName.c_str(), std::ifstream::binary);
    fileStream.seekg(0, std::ifstream::end);
    size_t objectSize = fileStream.tellg();
    fileStream.seekg(0, std::ifstream::beg);
    std::vector<unsigned char> totalHashBuffer;
    size_t uploadedBytes = 0;


    while (uploadedBytes < objectSize) {
        std::vector<unsigned char> buffer(bufferSize);
        std::streamsize bytesToRead =
 static_cast<std::streamsize>(std::min(buffer.size(), objectSize -
 uploadedBytes));
        fileStream.read((char *) buffer.data(), bytesToRead);
        Aws::Utils::Stream::PreallocatedStreamBuf
 preallocatedStreamBuf(buffer.data(),

 bytesToRead);
        std::shared_ptr<Aws::IOStream> body =
                Aws::MakeShared<Aws::IOStream>("SampleAllocationTag",
                                               &preallocatedStreamBuf);
        Hasher hasher;
        if (!hasher.calculateObjectHash(*body, hashMethod)) {
            std::cerr << "Error calculating hash." << std::endl;
            return false;
        }
        Aws::String base64HashString = hasher.getBase64HashString();
        partHashes.push_back(base64HashString);

        Aws::Utils::ByteBuffer hashBuffer = hasher.getByteBufferHash();

        totalHashBuffer.insert(totalHashBuffer.end(),
 hashBuffer.GetUnderlyingData(),
```

```
                                hashBuffer.GetUnderlyingData() +
 hashBuffer.GetLength());

        uploadedBytes += bytesToRead;
    }

    return hashDataResult.calculateObjectHash(totalHashBuffer, hashMethod);
}

//! Create a multipart upload.
/*!
    \param bucket: The name of the S3 bucket where the object will be uploaded.
    \param key: The unique identifier (key) for the object within the S3 bucket.
    \param client: The S3 client instance used to perform the upload operation.
    \return Aws::String: Upload ID or empty string if failed.
*/
Aws::String
AwsDoc::S3::createMultipartUpload(const Aws::String &bucket, const Aws::String
 &key,
                                  Aws::S3::Model::ChecksumAlgorithm
 checksumAlgorithm,
                                  const Aws::S3::S3Client &client) {
    Aws::S3::Model::CreateMultipartUploadRequest request;
    request.SetBucket(bucket);
    request.SetKey(key);

    if (checksumAlgorithm != Aws::S3::Model::ChecksumAlgorithm::NOT_SET) {
        request.SetChecksumAlgorithm(checksumAlgorithm);
    }

    Aws::S3::Model::CreateMultipartUploadOutcome outcome =
            client.CreateMultipartUpload(request);

    Aws::String uploadID;
    if (outcome.IsSuccess()) {
        uploadID = outcome.GetResult().GetUploadId();
    } else {
        std::cerr << "Error creating multipart upload: " <<
 outcome.GetError().GetMessage() << std::endl;
    }

    return uploadID;
}
```

```
//! Upload a part to an S3 bucket.
/*!
    \param bucket: The name of the S3 bucket where the object will be uploaded.
    \param key: The unique identifier (key) for the object within the S3 bucket.
    \param uploadID: An upload ID string.
    \param partNumber:
    \param checksumAlgorithm: Checksum algorithm, ignored when NOT_SET.
    \param calculatedHash: A data integrity hash to set, depending on the
 checksum algorithm,
                            ignored when it is an empty string.
    \param body: An shared_ptr IOStream of the data to be uploaded.
    \param client: The S3 client instance used to perform the upload operation.
    \return UploadPartOutcome: The outcome.
*/

Aws::S3::Model::UploadPartOutcome AwsDoc::S3::uploadPart(const Aws::String
 &bucket,
                                                          const Aws::String &key,
                                                          const Aws::String
 &uploadID,
                                                          int partNumber,

 Aws::S3::Model::ChecksumAlgorithm checksumAlgorithm,
                                                          const Aws::String
 &calculatedHash,
                                                          const
 std::shared_ptr<Aws::IOStream> &body,
                                                          const Aws::S3::S3Client
 &client) {
    Aws::S3::Model::UploadPartRequest request;
    request.SetBucket(bucket);
    request.SetKey(key);
    request.SetUploadId(uploadID);
    request.SetPartNumber(partNumber);
    if (checksumAlgorithm != Aws::S3::Model::ChecksumAlgorithm::NOT_SET) {
        request.SetChecksumAlgorithm(checksumAlgorithm);
    }
    request.SetBody(body);

    if (!calculatedHash.empty()) {
        switch (checksumAlgorithm) {
            case Aws::S3::Model::ChecksumAlgorithm::NOT_SET:
                request.SetContentMD5(calculatedHash);
                break;
```

```
            case Aws::S3::Model::ChecksumAlgorithm::CRC32:
                request.SetChecksumCRC32(calculatedHash);
                break;
            case Aws::S3::Model::ChecksumAlgorithm::CRC32C:
                request.SetChecksumCRC32C(calculatedHash);
                break;
            case Aws::S3::Model::ChecksumAlgorithm::SHA1:
                request.SetChecksumSHA1(calculatedHash);
                break;
            case Aws::S3::Model::ChecksumAlgorithm::SHA256:
                request.SetChecksumSHA256(calculatedHash);
                break;
        }
    }

    return client.UploadPart(request);
}

//! Abort a multipart upload to an S3 bucket.
/*!
    \param bucket: The name of the S3 bucket where the object will be uploaded.
    \param key: The unique identifier (key) for the object within the S3 bucket.
    \param uploadID: An upload ID string.
    \param client: The S3 client instance used to perform the upload operation.
    \return bool: Function succeeded.
*/

bool AwsDoc::S3::abortMultipartUpload(const Aws::String &bucket,
                                      const Aws::String &key,
                                      const Aws::String &uploadID,
                                      const Aws::S3::S3Client &client) {
    Aws::S3::Model::AbortMultipartUploadRequest request;
    request.SetBucket(bucket);
    request.SetKey(key);
    request.SetUploadId(uploadID);

    Aws::S3::Model::AbortMultipartUploadOutcome outcome =
            client.AbortMultipartUpload(request);

    if (outcome.IsSuccess()) {
        std::cout << "Multipart upload aborted." << std::endl;
    } else {
        std::cerr << "Error aborting multipart upload: " <<
 outcome.GetError().GetMessage() << std::endl;
```

```
    }

    return outcome.IsSuccess();
}

//! Complete a multipart upload to an S3 bucket.
/*!
    \param bucket: The name of the S3 bucket where the object will be uploaded.
    \param key: The unique identifier (key) for the object within the S3 bucket.
    \param uploadID: An upload ID string.
    \param parts: A vector of CompleteParts.
    \param client: The S3 client instance used to perform the upload operation.
    \return CompleteMultipartUploadOutcome: The request outcome.
*/
Aws::S3::Model::CompleteMultipartUploadOutcome
 AwsDoc::S3::completeMultipartUpload(const Aws::String &bucket,

  const Aws::String &key,

  const Aws::String &uploadID,

  const Aws::Vector<Aws::S3::Model::CompletedPart> &parts,

  const Aws::S3::S3Client &client) {
    Aws::S3::Model::CompletedMultipartUpload completedMultipartUpload;
    completedMultipartUpload.SetParts(parts);

    Aws::S3::Model::CompleteMultipartUploadRequest request;
    request.SetBucket(bucket);
    request.SetKey(key);
    request.SetUploadId(uploadID);
    request.SetMultipartUpload(completedMultipartUpload);

    Aws::S3::Model::CompleteMultipartUploadOutcome outcome =
            client.CompleteMultipartUpload(request);

    if (!outcome.IsSuccess()) {
        std::cerr << "Error completing multipart upload: " <<
 outcome.GetError().GetMessage() << std::endl;
    }
    return outcome;
}

//! Routine which performs a multi-part upload.
```

```
/*!
    \param bucket: The name of the S3 bucket where the object will be uploaded.
    \param key: The unique identifier (key) for the object within the S3 bucket.
    \param hashMethod: The hashing algorithm to use when calculating the hash
 value.
    \param ioStream: An IOStream for the data to be uploaded.
    \param useDefaultHashMethod: A flag indicating whether to use the default
 hash method or the one specified in the hashMethod parameter.
    \param[out] hashDataResult: The Hasher object that will store the
 concatenated hash value.
    \param[out] partHashes: The vector that will store the calculated hash values
 for each part of the file.
    \param client: The S3 client instance used to perform the upload operation.
    \return bool: Function succeeded.
*/
bool AwsDoc::S3::doMultipartUpload(const Aws::String &bucket,
                                   const Aws::String &key,
                                   AwsDoc::S3::HASH_METHOD hashMethod,
                                   const std::shared_ptr<Aws::IOStream>
 &ioStream,
                                   bool useDefaultHashMethod,
                                   AwsDoc::S3::Hasher &hashDataResult,
                                   std::vector<Aws::String> &partHashes,
                                   const Aws::S3::S3Client &client) {
    // Get object size.
    ioStream->seekg(0, ioStream->end);
    size_t objectSize = ioStream->tellg();
    ioStream->seekg(0, ioStream->beg);

    Aws::S3::Model::ChecksumAlgorithm checksumAlgorithm =
 Aws::S3::Model::ChecksumAlgorithm::NOT_SET;
    if (!useDefaultHashMethod) {
        if (hashMethod != MD5) {
            checksumAlgorithm = getChecksumAlgorithmForHashMethod(hashMethod);
        }
    }
    Aws::String uploadID = createMultipartUpload(bucket, key, checksumAlgorithm,
 client);
    if (uploadID.empty()) {
        return false;
    }

    std::vector<unsigned char> totalHashBuffer;
    bool uploadSucceeded = true;
```

```
    std::streamsize uploadedBytes = 0;
    int partNumber = 1;
    Aws::Vector<Aws::S3::Model::CompletedPart> parts;
    while (uploadedBytes < objectSize) {
        std::cout << "Uploading part " << partNumber << "." << std::endl;

        std::vector<unsigned char> buffer(UPLOAD_BUFFER_SIZE);
        std::streamsize bytesToRead =
static_cast<std::streamsize>(std::min(buffer.size(),

objectSize - uploadedBytes));
        ioStream->read((char *) buffer.data(), bytesToRead);
        Aws::Utils::Stream::PreallocatedStreamBuf
preallocatedStreamBuf(buffer.data(),

bytesToRead);
        std::shared_ptr<Aws::IOStream> body =
                Aws::MakeShared<Aws::IOStream>("SampleAllocationTag",
                                               &preallocatedStreamBuf);

        Hasher hasher;
        if (!hasher.calculateObjectHash(*body, hashMethod)) {
            std::cerr << "Error calculating hash." << std::endl;
            uploadSucceeded = false;
            break;
        }

        Aws::String base64HashString = hasher.getBase64HashString();
        partHashes.push_back(base64HashString);

        Aws::Utils::ByteBuffer hashBuffer = hasher.getByteBufferHash();

        totalHashBuffer.insert(totalHashBuffer.end(),
hashBuffer.GetUnderlyingData(),
                               hashBuffer.GetUnderlyingData() +
hashBuffer.GetLength());

        Aws::String calculatedHash;
        if (gUseCalculatedChecksum) {
            calculatedHash = base64HashString;
        }
        Aws::S3::Model::UploadPartOutcome uploadPartOutcome = uploadPart(bucket,
key, uploadID, partNumber,
```

```
checksumAlgorithm, base64HashString, body,
                                                                    client);
       if (uploadPartOutcome.IsSuccess()) {
           const Aws::S3::Model::UploadPartResult &uploadPartResult =
uploadPartOutcome.GetResult();
           Aws::S3::Model::CompletedPart completedPart;
           completedPart.SetETag(uploadPartResult.GetETag());
           completedPart.SetPartNumber(partNumber);
           switch (hashMethod) {
               case AwsDoc::S3::MD5:
                   break; // Do nothing.
               case AwsDoc::S3::SHA1:

completedPart.SetChecksumSHA1(uploadPartResult.GetChecksumSHA1());
                   break;
               case AwsDoc::S3::SHA256:

completedPart.SetChecksumSHA256(uploadPartResult.GetChecksumSHA256());
                   break;
               case AwsDoc::S3::CRC32:

completedPart.SetChecksumCRC32(uploadPartResult.GetChecksumCRC32());
                   break;
               case AwsDoc::S3::CRC32C:

completedPart.SetChecksumCRC32C(uploadPartResult.GetChecksumCRC32C());
                   break;
               default:
                   std::cerr << "Unhandled hash method for completedPart." <<
std::endl;
                   break;
           }

           parts.push_back(completedPart);
       } else {
           std::cerr << "Error uploading part. " <<
                     uploadPartOutcome.GetError().GetMessage() << std::endl;
           uploadSucceeded = false;
           break;
       }

       uploadedBytes += bytesToRead;
       partNumber++;
```

```
    }

    if (!uploadSucceeded) {
        abortMultipartUpload(bucket, key, uploadID, client);
        return false;
    } else {

        Aws::S3::Model::CompleteMultipartUploadOutcome
 completeMultipartUploadOutcome = completeMultipartUpload(bucket,

                                key,

                                uploadID,

                                parts,

                                client);

        if (completeMultipartUploadOutcome.IsSuccess()) {
            std::cout << "Multipart upload completed." << std::endl;
            if (!hashDataResult.calculateObjectHash(totalHashBuffer, hashMethod))
 {
                std::cerr << "Error calculating hash." << std::endl;
                return false;
            }
        } else {
            std::cerr << "Error completing multipart upload." <<
                      completeMultipartUploadOutcome.GetError().GetMessage()
                      << std::endl;
        }

        return completeMultipartUploadOutcome.IsSuccess();
    }
}

//! Routine which retrieves the string for a HASH_METHOD constant.
/*!
    \param: hashMethod: A HASH_METHOD constant.
    \return: String: A string description of the hash method.
*/
Aws::String AwsDoc::S3::stringForHashMethod(AwsDoc::S3::HASH_METHOD hashMethod) {
    switch (hashMethod) {
        case AwsDoc::S3::DEFAULT:
            return "Default";
```

```
        case AwsDoc::S3::MD5:
            return "MD5";
        case AwsDoc::S3::SHA1:
            return "SHA1";
        case AwsDoc::S3::SHA256:
            return "SHA256";
        case AwsDoc::S3::CRC32:
            return "CRC32";
        case AwsDoc::S3::CRC32C:
            return "CRC32C";
        default:
            return "Unknown";
    }
}

//! Routine that returns the ChecksumAlgorithm for a HASH_METHOD constant.
/*!
    \param: hashMethod: A HASH_METHOD constant.
    \return: ChecksumAlgorithm: The ChecksumAlgorithm enum.
*/
Aws::S3::Model::ChecksumAlgorithm
AwsDoc::S3::getChecksumAlgorithmForHashMethod(AwsDoc::S3::HASH_METHOD hashMethod)
 {
    Aws::S3::Model::ChecksumAlgorithm result =
 Aws::S3::Model::ChecksumAlgorithm::NOT_SET;
    switch (hashMethod) {
        case AwsDoc::S3::DEFAULT:
            std::cerr << "getChecksumAlgorithmForHashMethod- DEFAULT is not
 valid." << std::endl;
            break;  // Default is not supported.
        case AwsDoc::S3::MD5:
            break; // Ignore MD5.
        case AwsDoc::S3::SHA1:
            result = Aws::S3::Model::ChecksumAlgorithm::SHA1;
            break;
        case AwsDoc::S3::SHA256:
            result = Aws::S3::Model::ChecksumAlgorithm::SHA256;
            break;
        case AwsDoc::S3::CRC32:
            result = Aws::S3::Model::ChecksumAlgorithm::CRC32;
            break;
        case AwsDoc::S3::CRC32C:
            result = Aws::S3::Model::ChecksumAlgorithm::CRC32C;
            break;
```

```
        default:
            std::cerr << "Unknown hash method." << std::endl;
            break;

    }

    return result;
}

//! Routine which cleans up after the example is complete.
/*!
    \param bucket: The name of the S3 bucket where the object was uploaded.
    \param clientConfiguration: The client configuration for the S3 client.
    \return bool: Function succeeded.
*/
bool AwsDoc::S3::cleanUp(const Aws::String &bucketName,
                         const Aws::S3::S3ClientConfiguration
 &clientConfiguration) {

    Aws::Vector<Aws::String> keysResult;
    bool result = true;
    if (AwsDoc::S3::listObjects(bucketName, keysResult, clientConfiguration)) {
        if (!keysResult.empty()) {
            result = AwsDoc::S3::deleteObjects(keysResult, bucketName,
                                               clientConfiguration);
        }
    } else {
        result = false;
    }

    return result && AwsDoc::S3::deleteBucket(bucketName, clientConfiguration);
}

//! Console interaction introducing the workflow.
/*!
  \param bucketName: The name of the S3 bucket to use.
*/
void AwsDoc::S3::introductoryExplanations(const Aws::String &bucketName) {

    std::cout
            << "Welcome to the Amazon Simple Storage Service (Amazon S3) object
 integrity workflow."
            << std::endl;
    printAsterisksLine();
```

```
    std::cout
            << "This workflow demonstrates how Amazon S3 uses checksum values to
 verify the integrity of data\n";
    std::cout << "uploaded to Amazon S3 buckets" << std::endl;
    std::cout
            << "The AWS SDK for C++ automatically handles checksums.\n";
    std::cout
            << "By default it calculates a checksum that is uploaded with an
 object.\n"
            << "The default checksum algorithm for PutObject and MultiPart upload
 is an MD5 hash.\n"
            << "The default checksum algorithm for TransferManager uploads is a
 CRC32 checksum."
            << std::endl;
    std::cout
            << "You can override the default behavior, requiring one of the
 following checksums,\n";
    std::cout << "MD5, CRC32, CRC32C, SHA-1 or SHA-256." << std::endl;
    std::cout << "You can also set the checksum hash value, instead of letting
 the SDK calculate the value."
              << std::endl;
    std::cout
            << "For more information, see https://docs.aws.amazon.com/AmazonS3/
latest/userguide/checking-object-integrity.html."
            << std::endl;

    std::cout
            << "This workflow will locally compute checksums for files uploaded
 to an Amazon S3 bucket,\n";
    std::cout << "even when the SDK also computes the checksum." << std::endl;
    std::cout
            << "This is done to provide demonstration code for how the checksums
 are calculated."
            << std::endl;
    std::cout << "A bucket named '" << bucketName << "' will be created for the
 object uploads."
              << std::endl;
}

//! Console interaction which explains the PutObject results.
/*!
*/
void AwsDoc::S3::explainPutObjectResults() {
```

```
    std::cout << "The upload was successful.\n";
    std::cout << "If the checksums had not matched, the upload would have
 failed."
              << std::endl;
    std::cout
            << "The checksums calculated by the server have been retrieved using
 the GetObjectAttributes."
            << std::endl;
    std::cout
            << "The locally calculated checksums have been verified against the
 retrieved checksums."
            << std::endl;
}

//! Console interaction explaining transfer manager uploads.
/*!
  \param objectKey: The key for the object being uploaded.
*/
void AwsDoc::S3::introductoryTransferManagerUploadExplanations(
        const Aws::String &objectKey) {
    std::cout
            << "Now the workflow will demonstrate object integrity for
 TransferManager multi-part uploads."
            << std::endl;
    std::cout
            << "The AWS C++ SDK has a TransferManager class which simplifies
 multipart uploads."
            << std::endl;
    std::cout
            << "The following code lets the TransferManager handle much of the
 checksum configuration."
            << std::endl;

    std::cout << "An object with the key '" << objectKey
              << " will be uploaded by the TransferManager using a "
              << BUFFER_SIZE_IN_MEGABYTES << " MB buffer." << std::endl;
    if (gUseCalculatedChecksum) {
        std::cout << "For TransferManager uploads, this demo always lets the SDK
 calculate the hash value."
                  << std::endl;
    }

    pressEnterToContinue();
    printAsterisksLine();
```

```
}

//! Console interaction explaining multi-part uploads.
/*!
  \param objectKey: The key for the object being uploaded.
  \param chosenHashMethod: The hash method selected by the user.
*/
void AwsDoc::S3::multiPartUploadExplanations(const Aws::String &objectKey,
                                             HASH_METHOD chosenHashMethod) {
    std::cout
            << "Now we will provide an in-depth demonstration of multi-part
 uploading by calling the multi-part upload APIs directly."
            << std::endl;
    std::cout << "These are the same APIs used by the TransferManager when
 uploading large files."
              << std::endl;
    std::cout
            << "In the following code, the checksums are also calculated locally
 and then compared."
            << std::endl;
    std::cout
            << "For multi-part uploads, a checksum is uploaded with each part.
 The final checksum is a concatenation of"
            << std::endl;
    std::cout << "the checksums for each part." << std::endl;
    std::cout
            << "This is explained in the user guide, https://docs.aws.amazon.com/
AmazonS3/latest/userguide/checking-object-integrity.html,\""
            << " in the section \"Using part-level checksums for multipart
 uploads\"." << std::endl;

    std::cout << "Starting multipart upload of with hash method " <<
              stringForHashMethod(chosenHashMethod) << " uploading to with object
 key\n"
              << "'" << objectKey << "'," << std::endl;

}

//! Create a large file for doing multi-part uploads.
/*!
*/
bool AwsDoc::S3::createLargeFileIfNotExists() {
    // Generate a large file by writing this source file multiple times to a new
 file.
```

```
    if (std::filesystem::exists(MULTI_PART_TEST_FILE)) {
        return true;
    }

    std::ofstream newFile(MULTI_PART_TEST_FILE, std::ios::out

                                                | std::ios::binary);

    if (!newFile) {
        std::cerr << "createLargeFileIfNotExists- Error creating file " <<
 MULTI_PART_TEST_FILE <<
                  std::endl;
        return false;
    }

    std::ifstream input(TEST_FILE, std::ios::in

                                  | std::ios::binary);
    if (!input) {
        std::cerr << "Error opening file " << TEST_FILE <<
                  std::endl;
        return false;
    }
    std::stringstream buffer;
    buffer << input.rdbuf();

    input.close();

    while (newFile.tellp() < LARGE_FILE_SIZE && !newFile.bad()) {
        buffer.seekg(std::stringstream::beg);
        newFile << buffer.rdbuf();
    }

    newFile.close();

    return true;
}
```

- For API details, see the following topics in *AWS SDK for C++ API Reference*.
  - AbortMultipartUpload
  - CompleteMultipartUpload

- CreateMultipartUpload
- DeleteObject
- GetObjectAttributes
- PutObject
- UploadPart

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Work with Amazon S3 versioned objects using an AWS SDK

The following code example shows how to:

- Create a versioned S3 bucket.
- Get all versions of an object.
- Roll an object back to a previous version.
- Delete and restore a versioned object.
- Permanently delete all versions of an object.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create functions that wrap S3 actions.

```
def create_versioned_bucket(bucket_name, prefix):
    """
    Creates an Amazon S3 bucket, enables it for versioning, and configures a
 lifecycle
    that expires noncurrent object versions after 7 days.
```

```
    Adding a lifecycle configuration to a versioned bucket is a best practice.
    It helps prevent objects in the bucket from accumulating a large number of
    noncurrent versions, which can slow down request performance.

    Usage is shown in the usage_demo_single_object function at the end of this
module.

    :param bucket_name: The name of the bucket to create.
    :param prefix: Identifies which objects are automatically expired under the
                   configured lifecycle rules.
    :return: The newly created bucket.
    """
    try:
        bucket = s3.create_bucket(
            Bucket=bucket_name,
            CreateBucketConfiguration={
                "LocationConstraint": s3.meta.client.meta.region_name
            },
        )
        logger.info("Created bucket %s.", bucket.name)
    except ClientError as error:
        if error.response["Error"]["Code"] == "BucketAlreadyOwnedByYou":
            logger.warning("Bucket %s already exists! Using it.", bucket_name)
            bucket = s3.Bucket(bucket_name)
        else:
            logger.exception("Couldn't create bucket %s.", bucket_name)
            raise

    try:
        bucket.Versioning().enable()
        logger.info("Enabled versioning on bucket %s.", bucket.name)
    except ClientError:
        logger.exception("Couldn't enable versioning on bucket %s.", bucket.name)
        raise

    try:
        expiration = 7
        bucket.LifecycleConfiguration().put(
            LifecycleConfiguration={
                "Rules": [
                    {
                        "Status": "Enabled",
                        "Prefix": prefix,
```

```
                        "NoncurrentVersionExpiration": {"NoncurrentDays":
 expiration},
                    }
                ]
            }
        )
        logger.info(
            "Configured lifecycle to expire noncurrent versions after %s days "
            "on bucket %s.",
            expiration,
            bucket.name,
        )
    except ClientError as error:
        logger.warning(
            "Couldn't configure lifecycle on bucket %s because %s. "
            "Continuing anyway.",
            bucket.name,
            error,
        )

    return bucket



def rollback_object(bucket, object_key, version_id):
    """
    Rolls back an object to an earlier version by deleting all versions that
    occurred after the specified rollback version.

    Usage is shown in the usage_demo_single_object function at the end of this
 module.

    :param bucket: The bucket that holds the object to roll back.
    :param object_key: The object to roll back.
    :param version_id: The version ID to roll back to.
    """
    # Versions must be sorted by last_modified date because delete markers are
    # at the end of the list even when they are interspersed in time.
    versions = sorted(
        bucket.object_versions.filter(Prefix=object_key),
        key=attrgetter("last_modified"),
        reverse=True,
    )
```

```
    logger.debug(
        "Got versions:\n%s",
        "\n".join(
            [
                f"\t{version.version_id}, last modified {version.last_modified}"
                for version in versions
            ]
        ),
    )

    if version_id in [ver.version_id for ver in versions]:
        print(f"Rolling back to version {version_id}")
        for version in versions:
            if version.version_id != version_id:
                version.delete()
                print(f"Deleted version {version.version_id}")
            else:
                break

        print(f"Active version is now {bucket.Object(object_key).version_id}")
    else:
        raise KeyError(
            f"{version_id} was not found in the list of versions for "
 f"{object_key}."
        )



def revive_object(bucket, object_key):
    """
    Revives a versioned object that was deleted by removing the object's active
    delete marker.
    A versioned object presents as deleted when its latest version is a delete
 marker.
    By removing the delete marker, we make the previous version the latest
 version
    and the object then presents as *not* deleted.

    Usage is shown in the usage_demo_single_object function at the end of this
 module.

    :param bucket: The bucket that contains the object.
    :param object_key: The object to revive.
    """
```

```
    # Get the latest version for the object.
    response = s3.meta.client.list_object_versions(
        Bucket=bucket.name, Prefix=object_key, MaxKeys=1
    )

    if "DeleteMarkers" in response:
        latest_version = response["DeleteMarkers"][0]
        if latest_version["IsLatest"]:
            logger.info(
                "Object %s was indeed deleted on %s. Let's revive it.",
                object_key,
                latest_version["LastModified"],
            )
            obj = bucket.Object(object_key)
            obj.Version(latest_version["VersionId"]).delete()
            logger.info(
                "Revived %s, active version is now %s  with body '%s'",
                object_key,
                obj.version_id,
                obj.get()["Body"].read(),
            )
        else:
            logger.warning(
                "Delete marker is not the latest version for %s!", object_key
            )
    elif "Versions" in response:
        logger.warning("Got an active version for %s, nothing to do.",
 object_key)
    else:
        logger.error("Couldn't get any version info for %s.", object_key)



def permanently_delete_object(bucket, object_key):
    """
    Permanently deletes a versioned object by deleting all of its versions.

    Usage is shown in the usage_demo_single_object function at the end of this
 module.

    :param bucket: The bucket that contains the object.
    :param object_key: The object to delete.
    """
    try:
```

```
        bucket.object_versions.filter(Prefix=object_key).delete()
        logger.info("Permanently deleted all versions of object %s.", object_key)
    except ClientError:
        logger.exception("Couldn't delete all versions of %s.", object_key)
        raise
```

Upload the stanza of a poem to a versioned object and perform a series of actions on it.

```
def usage_demo_single_object(obj_prefix="demo-versioning/"):
    """
    Demonstrates usage of versioned object functions. This demo uploads a stanza
    of a poem and performs a series of revisions, deletions, and revivals on it.

    :param obj_prefix: The prefix to assign to objects created by this demo.
    """
    with open("father_william.txt") as file:
        stanzas = file.read().split("\n\n")

    width = get_terminal_size((80, 20))[0]
    print("-" * width)
    print("Welcome to the usage demonstration of Amazon S3 versioning.")
    print(
        "This demonstration uploads a single stanza of a poem to an Amazon "
        "S3 bucket and then applies various revisions to it."
    )
    print("-" * width)
    print("Creating a version-enabled bucket for the demo...")
    bucket = create_versioned_bucket("bucket-" + str(uuid.uuid1()), obj_prefix)

    print("\nThe initial version of our stanza:")
    print(stanzas[0])

    # Add the first stanza and revise it a few times.
    print("\nApplying some revisions to the stanza...")
    obj_stanza_1 = bucket.Object(f"{obj_prefix}stanza-1")
    obj_stanza_1.put(Body=bytes(stanzas[0], "utf-8"))
    obj_stanza_1.put(Body=bytes(stanzas[0].upper(), "utf-8"))
    obj_stanza_1.put(Body=bytes(stanzas[0].lower(), "utf-8"))
    obj_stanza_1.put(Body=bytes(stanzas[0][::-1], "utf-8"))
    print(
```

```
        "The latest version of the stanza is now:",
        obj_stanza_1.get()["Body"].read().decode("utf-8"),
        sep="\n",
    )

    # Versions are returned in order, most recent first.
    obj_stanza_1_versions =
 bucket.object_versions.filter(Prefix=obj_stanza_1.key)
    print(
        "The version data of the stanza revisions:",
        *[
            f"    {version.version_id}, last modified {version.last_modified}"
            for version in obj_stanza_1_versions
        ],
        sep="\n",
    )

    # Rollback two versions.
    print("\nRolling back two versions...")
    rollback_object(bucket, obj_stanza_1.key, list(obj_stanza_1_versions)
[2].version_id)
    print(
        "The latest version of the stanza:",
        obj_stanza_1.get()["Body"].read().decode("utf-8"),
        sep="\n",
    )

    # Delete the stanza
    print("\nDeleting the stanza...")
    obj_stanza_1.delete()
    try:
        obj_stanza_1.get()
    except ClientError as error:
        if error.response["Error"]["Code"] == "NoSuchKey":
            print("The stanza is now deleted (as expected).")
        else:
            raise

    # Revive the stanza
    print("\nRestoring the stanza...")
    revive_object(bucket, obj_stanza_1.key)
    print(
        "The stanza is restored! The latest version is again:",
        obj_stanza_1.get()["Body"].read().decode("utf-8"),
```

```
        sep="\n",
    )

    # Permanently delete all versions of the object. This cannot be undone!
    print("\nPermanently deleting all versions of the stanza...")
    permanently_delete_object(bucket, obj_stanza_1.key)
    obj_stanza_1_versions =
bucket.object_versions.filter(Prefix=obj_stanza_1.key)
    if len(list(obj_stanza_1_versions)) == 0:
        print("The stanza has been permanently deleted and now has no versions.")
    else:
        print("Something went wrong. The stanza still exists!")

    print(f"\nRemoving {bucket.name}...")
    bucket.delete()
    print(f"{bucket.name} deleted.")
    print("Demo done!")
```

- For API details, see the following topics in *AWS SDK for Python (Boto3) API Reference*.
  - CreateBucket
  - DeleteObject
  - ListObjectVersions
  - PutBucketLifecycleConfiguration

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Serverless examples for Amazon S3

The following code examples show how to use Amazon S3 with AWS SDKs.

Examples

- Invoke a Lambda function from an Amazon S3 trigger

Invoke a Lambda function from an Amazon S3 trigger

The following code examples show how to implement a Lambda function that receives an event triggered by uploading an object to an S3 bucket. The function retrieves the S3 bucket name and object key from the event parameter and calls the Amazon S3 API to retrieve and log the content type of the object.

.NET

SDK for .NET

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the Serverless examples repository.

Consuming an S3 event with Lambda using .NET.

```
// Copyright Amazon.com, Inc. or its affiliates. All Rights Reserved.
// SPDX-License-Identifier: Apache-2.0
using System.Threading.Tasks;
using Amazon.Lambda.Core;
using Amazon.S3;
using System;
using Amazon.Lambda.S3Events;
using System.Web;

// Assembly attribute to enable the Lambda function's JSON input to be converted
 into a .NET class.
[assembly:
 LambdaSerializer(typeof(Amazon.Lambda.Serialization.SystemTextJson.DefaultLambdaJsonSeri

namespace S3Integration
{
    public class Function
    {
        private static AmazonS3Client _s3Client;
        public Function() : this(null)
        {
        }
```

```
        internal Function(AmazonS3Client s3Client)
        {
            _s3Client = s3Client ?? new AmazonS3Client();
        }

        public async Task<string> Handler(S3Event evt, ILambdaContext context)
        {
            try
            {
                if (evt.Records.Count <= 0)
                {
                    context.Logger.LogLine("Empty S3 Event received");
                    return string.Empty;
                }

                var bucket = evt.Records[0].S3.Bucket.Name;
                var key = HttpUtility.UrlDecode(evt.Records[0].S3.Object.Key);

                context.Logger.LogLine($"Request is for {bucket} and {key}");

                var objectResult = await _s3Client.GetObjectAsync(bucket, key);

                context.Logger.LogLine($"Returning {objectResult.Key}");

                return objectResult.Key;
            }
            catch (Exception e)
            {
                context.Logger.LogLine($"Error processing request -
 {e.Message}");

                return string.Empty;
            }
        }
    }
}
```

Go

SDK for Go V2

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the Serverless examples repository.

Consuming an S3 event with Lambda using Go.

```
// Copyright Amazon.com, Inc. or its affiliates. All Rights Reserved.
// SPDX-License-Identifier: Apache-2.0
package main

import (
 "context"
 "log"

 "github.com/aws/aws-lambda-go/events"
 "github.com/aws/aws-lambda-go/lambda"
 "github.com/aws/aws-sdk-go-v2/config"
 "github.com/aws/aws-sdk-go-v2/service/s3"
)

func handler(ctx context.Context, s3Event events.S3Event) error {
 sdkConfig, err := config.LoadDefaultConfig(ctx)
 if err != nil {
  log.Printf("failed to load default config: %s", err)
  return err
 }
 s3Client := s3.NewFromConfig(sdkConfig)

 for _, record := range s3Event.Records {
  bucket := record.S3.Bucket.Name
  key := record.S3.Object.URLDecodedKey
  headOutput, err := s3Client.HeadObject(ctx, &s3.HeadObjectInput{
   Bucket: &bucket,
   Key:    &key,
  })
  if err != nil {
   log.Printf("error getting head of object %s/%s: %s", bucket, key, err)
```

```
    return err
   }
   log.Printf("successfully retrieved %s/%s of type %s", bucket, key,
  *headOutput.ContentType)
  }

  return nil
}

func main() {
 lambda.Start(handler)
}
```

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the Serverless examples repository.

Consuming an S3 event with Lambda using Java.

```
// Copyright Amazon.com, Inc. or its affiliates. All Rights Reserved.
// SPDX-License-Identifier: Apache-2.0
package example;

import software.amazon.awssdk.services.s3.model.HeadObjectRequest;
import software.amazon.awssdk.services.s3.model.HeadObjectResponse;
import software.amazon.awssdk.services.s3.S3Client;

import com.amazonaws.services.lambda.runtime.Context;
import com.amazonaws.services.lambda.runtime.RequestHandler;
import com.amazonaws.services.lambda.runtime.events.S3Event;
import
 com.amazonaws.services.lambda.runtime.events.models.s3.S3EventNotification.S3EventNotifi

import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
```

```
public class Handler implements RequestHandler<S3Event, String> {
    private static final Logger logger = LoggerFactory.getLogger(Handler.class);
    @Override
    public String handleRequest(S3Event s3event, Context context) {
        try {
          S3EventNotificationRecord record = s3event.getRecords().get(0);
          String srcBucket = record.getS3().getBucket().getName();
          String srcKey = record.getS3().getObject().getUrlDecodedKey();

          S3Client s3Client = S3Client.builder().build();
          HeadObjectResponse headObject = getHeadObject(s3Client, srcBucket,
 srcKey);

          logger.info("Successfully retrieved " + srcBucket + "/" + srcKey + " of
 type " + headObject.contentType());

          return "Ok";
        } catch (Exception e) {
          throw new RuntimeException(e);
        }
    }

    private HeadObjectResponse getHeadObject(S3Client s3Client, String bucket,
 String key) {
        HeadObjectRequest headObjectRequest = HeadObjectRequest.builder()
                .bucket(bucket)
                .key(key)
                .build();
        return s3Client.headObject(headObjectRequest);
    }
}
```

JavaScript

SDK for JavaScript (v3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the Serverless examples repository.

Consuming an S3 event with Lambda using JavaScript.

```
import { S3Client, HeadObjectCommand } from "@aws-sdk/client-s3";

const client = new S3Client();

export const handler = async (event, context) => {

    // Get the object from the event and show its content type
    const bucket = event.Records[0].s3.bucket.name;
    const key = decodeURIComponent(event.Records[0].s3.object.key.replace(/\+/g,
 ' '));

    try {
        const { ContentType } = await client.send(new HeadObjectCommand({
            Bucket: bucket,
            Key: key,
        }));

        console.log('CONTENT TYPE:', ContentType);
        return ContentType;

    } catch (err) {
        console.log(err);
        const message = `Error getting object ${key} from bucket ${bucket}. Make
 sure they exist and your bucket is in the same region as this function.`;
        console.log(message);
        throw new Error(message);
    }
};
```

Consuming an S3 event with Lambda using TypeScript.

```
// Copyright Amazon.com, Inc. or its affiliates. All Rights Reserved.
// SPDX-License-Identifier: Apache-2.0
import { S3Event } from 'aws-lambda';
import { S3Client, HeadObjectCommand } from '@aws-sdk/client-s3';

const s3 = new S3Client({ region: process.env.AWS_REGION });

export const handler = async (event: S3Event): Promise<string | undefined> => {
  // Get the object from the event and show its content type
```

```
  const bucket = event.Records[0].s3.bucket.name;
  const key = decodeURIComponent(event.Records[0].s3.object.key.replace(/\+/g, '
 '));
  const params = {
    Bucket: bucket,
    Key: key,
  };
  try {
    const { ContentType } = await s3.send(new HeadObjectCommand(params));
    console.log('CONTENT TYPE:', ContentType);
    return ContentType;
  } catch (err) {
    console.log(err);
    const message = `Error getting object ${key} from bucket ${bucket}. Make sure
 they exist and your bucket is in the same region as this function.`;
    console.log(message);
    throw new Error(message);
  }
};
```

PHP

SDK for PHP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the Serverless examples repository.

Consuming an S3 event with Lambda using PHP.

```
<?php

use Bref\Context\Context;
use Bref\Event\S3\S3Event;
use Bref\Event\S3\S3Handler;
use Bref\Logger\StderrLogger;

require __DIR__ . '/vendor/autoload.php';
```

```
class Handler extends S3Handler
{
    private StderrLogger $logger;
    public function __construct(StderrLogger $logger)
    {
        $this->logger = $logger;
    }

    public function handleS3(S3Event $event, Context $context) : void
    {
        $this->logger->info("Processing S3 records");

        // Get the object from the event and show its content type
        $records = $event->getRecords();

        foreach ($records as $record)
        {
            $bucket = $record->getBucket()->getName();
            $key = urldecode($record->getObject()->getKey());

            try {
                $fileSize = urldecode($record->getObject()->getSize());
                echo "File Size: " . $fileSize . "\n";
                // TODO: Implement your custom processing logic here
            } catch (Exception $e) {
                echo $e->getMessage() . "\n";
                echo 'Error getting object ' . $key . ' from bucket ' .
 $bucket . '. Make sure they exist and your bucket is in the same region as this
 function.' . "\n";
                throw $e;
            }
        }
    }
}

$logger = new StderrLogger();
return new Handler($logger);
```

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the Serverless examples repository.

Consuming an S3 event with Lambda using Python.

```
# Copyright Amazon.com, Inc. or its affiliates. All Rights Reserved.
# SPDX-License-Identifier: Apache-2.0
import json
import urllib.parse
import boto3

print('Loading function')

s3 = boto3.client('s3')


def lambda_handler(event, context):
    #print("Received event: " + json.dumps(event, indent=2))

    # Get the object from the event and show its content type
    bucket = event['Records'][0]['s3']['bucket']['name']
    key = urllib.parse.unquote_plus(event['Records'][0]['s3']['object']['key'],
 encoding='utf-8')
    try:
        response = s3.get_object(Bucket=bucket, Key=key)
        print("CONTENT TYPE: " + response['ContentType'])
        return response['ContentType']
    except Exception as e:
        print(e)
        print('Error getting object {} from bucket {}. Make sure they exist and
 your bucket is in the same region as this function.'.format(key, bucket))
        raise e
```

Ruby

SDK for Ruby

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the Serverless examples repository.

Consuming an S3 event with Lambda using Ruby.

```
require 'json'
require 'uri'
require 'aws-sdk'

puts 'Loading function'

def lambda_handler(event:, context:)
  s3 = Aws::S3::Client.new(region: 'region') # Your AWS region
  # puts "Received event: #{JSON.dump(event)}"

  # Get the object from the event and show its content type
  bucket = event['Records'][0]['s3']['bucket']['name']
  key = URI.decode_www_form_component(event['Records'][0]['s3']['object']['key'],
 Encoding::UTF_8)
  begin
    response = s3.get_object(bucket: bucket, key: key)
    puts "CONTENT TYPE: #{response.content_type}"
    return response.content_type
  rescue StandardError => e
    puts e.message
    puts "Error getting object #{key} from bucket #{bucket}. Make sure they exist
 and your bucket is in the same region as this function."
    raise e
  end
end
```

Rust

SDK for Rust

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the Serverless examples repository.

Consuming an S3 event with Lambda using Rust.

```
// Copyright Amazon.com, Inc. or its affiliates. All Rights Reserved.
// SPDX-License-Identifier: Apache-2.0
use aws_lambda_events::event::s3::S3Event;
use aws_sdk_s3::{Client};
use lambda_runtime::{run, service_fn, Error, LambdaEvent};


/// Main function
#[tokio::main]
async fn main() -> Result<(), Error> {
    tracing_subscriber::fmt()
        .with_max_level(tracing::Level::INFO)
        .with_target(false)
        .without_time()
        .init();

    // Initialize the AWS SDK for Rust
    let config = aws_config::load_from_env().await;
    let s3_client = Client::new(&config);

    let res = run(service_fn(|request: LambdaEvent<S3Event>| {
        function_handler(&s3_client, request)
    })).await;

    res
}

async fn function_handler(
    s3_client: &Client,
    evt: LambdaEvent<S3Event>
) -> Result<(), Error> {
```

```
    tracing::info!(records = ?evt.payload.records.len(), "Received request from
 SQS");

    if evt.payload.records.len() == 0 {
        tracing::info!("Empty S3 event received");
    }

    let bucket = evt.payload.records[0].s3.bucket.name.as_ref().expect("Bucket
 name to exist");
    let key = evt.payload.records[0].s3.object.key.as_ref().expect("Object key to
 exist");

    tracing::info!("Request is for {} and object {}", bucket, key);

    let s3_get_object_result = s3_client
        .get_object()
        .bucket(bucket)
        .key(key)
        .send()
        .await;

    match s3_get_object_result {
        Ok(_) => tracing::info!("S3 Get Object success, the s3GetObjectResult
 contains a 'body' property of type ByteStream"),
        Err(_) => tracing::info!("Failure with S3 Get Object request")
    }

    Ok(())
}
```

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Code examples for Amazon S3 Control using AWS SDKs

The following code examples show how to use Amazon S3 Control with an AWS software development kit (SDK).

Basics are code examples that show you how to perform the essential operations within a service.

Actions are code excerpts from larger programs and must be run in context. While actions show you how to call individual service functions, you can see actions in context in their related scenarios.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Get started

Hello Amazon S3 Control

The following code example shows how to get started using Amazon S3 Control.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import
 software.amazon.awssdk.auth.credentials.EnvironmentVariableCredentialsProvider;
import software.amazon.awssdk.core.client.config.ClientOverrideConfiguration;
import software.amazon.awssdk.core.retry.RetryMode;
import software.amazon.awssdk.core.retry.RetryPolicy;
import software.amazon.awssdk.http.async.SdkAsyncHttpClient;
import software.amazon.awssdk.http.nio.netty.NettyNioAsyncHttpClient;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3control.S3ControlAsyncClient;
import software.amazon.awssdk.services.s3control.model.JobListDescriptor;
import software.amazon.awssdk.services.s3control.model.JobStatus;
import software.amazon.awssdk.services.s3control.model.ListJobsRequest;
import software.amazon.awssdk.services.s3control.paginators.ListJobsPublisher;
import java.time.Duration;
import java.util.List;
import java.util.concurrent.CompletableFuture;
import java.util.concurrent.CompletionException;

/**
```

```
 * Before running this example:
 * <p/>
 * The SDK must be able to authenticate AWS requests on your behalf. If you have
 not configured
 * authentication for SDKs and tools,see https://docs.aws.amazon.com/sdkref/
latest/guide/access.html in the AWS SDKs and Tools Reference Guide.
 * <p/>
 * You must have a runtime environment configured with the Java SDK.
 * See https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/setup.html
 in the Developer Guide if this is not set up.
 */
public class HelloS3Batch {
    private static S3ControlAsyncClient asyncClient;

    public static void main(String[] args) {
        S3BatchActions actions = new S3BatchActions();
        String accountId = actions.getAccountId();
        try {
            listBatchJobsAsync(accountId)
                .exceptionally(ex -> {
                    System.err.println("List batch jobs failed: " +
 ex.getMessage());
                    return null;
                })
                .join();

        } catch (CompletionException ex) {
            System.err.println("Failed to list batch jobs: " + ex.getMessage());
        }
    }

    /**
     * Retrieves the asynchronous S3 Control client instance.
     * <p>
     * This method creates and returns a singleton instance of the {@link
 S3ControlAsyncClient}. If the instance
     * has not been created yet, it will be initialized with the following
 configuration:
     * <ul>
     *   <li>Maximum concurrency: 100</li>
     *   <li>Connection timeout: 60 seconds</li>
     *   <li>Read timeout: 60 seconds</li>
     *   <li>Write timeout: 60 seconds</li>
     *   <li>API call timeout: 2 minutes</li>
```

```
     *   <li>API call attempt timeout: 90 seconds</li>
     *   <li>Retry policy: 3 retries</li>
     *   <li>Region: US_EAST_1</li>
     *   <li>Credentials provider: {@link
EnvironmentVariableCredentialsProvider}</li>
     * </ul>
     *
     * @return the asynchronous S3 Control client instance
     */
    private static S3ControlAsyncClient getAsyncClient() {
        if (asyncClient == null) {
            SdkAsyncHttpClient httpClient = NettyNioAsyncHttpClient.builder()
                .maxConcurrency(100)
                .connectionTimeout(Duration.ofSeconds(60))
                .readTimeout(Duration.ofSeconds(60))
                .writeTimeout(Duration.ofSeconds(60))
                .build();

            ClientOverrideConfiguration overrideConfig =
ClientOverrideConfiguration.builder()
                .apiCallTimeout(Duration.ofMinutes(2))
                .apiCallAttemptTimeout(Duration.ofSeconds(90))
                .retryStrategy(RetryMode.STANDARD)
                .build();

            asyncClient = S3ControlAsyncClient.builder()
                .region(Region.US_EAST_1)
                .httpClient(httpClient)
                .overrideConfiguration(overrideConfig)
                .build();
        }
        return asyncClient;
    }

    /**
     * Asynchronously lists batch jobs that have completed for the specified
account.
     *
     * @param accountId the ID of the account to list jobs for
     * @return a CompletableFuture that completes when the job listing operation
is finished
     */
    public static CompletableFuture<Void> listBatchJobsAsync(String accountId) {
        ListJobsRequest jobsRequest = ListJobsRequest.builder()
```

```
            .jobStatuses(JobStatus.COMPLETE)
            .accountId(accountId)
            .maxResults(10)
            .build();

        ListJobsPublisher publisher =
getAsyncClient().listJobsPaginator(jobsRequest);
        return publisher.subscribe(response -> {
            List<JobListDescriptor> jobs = response.jobs();
            for (JobListDescriptor job : jobs) {
                System.out.println("The job id is " + job.jobId());
                System.out.println("The job priority is " + job.priority());
            }
        }).thenAccept(response -> {
            System.out.println("Listing batch jobs completed");
        }).exceptionally(ex -> {
            System.err.println("Failed to list batch jobs: " + ex.getMessage());
            throw new RuntimeException(ex);
        });
    }
```

- For API details, see ListJobs in *AWS SDK for Java 2.x API Reference*.

Code examples

- Basic examples for Amazon S3 Control using AWS SDKs
  - Hello Amazon S3 Control
  - Learn the basics of Amazon S3 Control with an AWS SDK
  - Actions for Amazon S3 Control using AWS SDKs
    - Use CreateJob with an AWS SDK or CLI
    - Use DeleteJobTagging with an AWS SDK
    - Use DescribeJob with an AWS SDK or CLI
    - Use GetJobTagging with an AWS SDK
    - Use PutJobTagging with an AWS SDK
    - Use UpdateJobPriority with an AWS SDK or CLI
    - Use UpdateJobStatus with an AWS SDK or CLI

Basic examples for Amazon S3 Control using AWS SDKs

The following code examples show how to use the basics of Amazon S3 Control with AWS SDKs.

Examples

- Hello Amazon S3 Control
- Learn the basics of Amazon S3 Control with an AWS SDK
- Actions for Amazon S3 Control using AWS SDKs
  - Use CreateJob with an AWS SDK or CLI
  - Use DeleteJobTagging with an AWS SDK
  - Use DescribeJob with an AWS SDK or CLI
  - Use GetJobTagging with an AWS SDK
  - Use PutJobTagging with an AWS SDK
  - Use UpdateJobPriority with an AWS SDK or CLI
  - Use UpdateJobStatus with an AWS SDK or CLI

Hello Amazon S3 Control

The following code example shows how to get started using Amazon S3 Control.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
import
 software.amazon.awssdk.auth.credentials.EnvironmentVariableCredentialsProvider;
import software.amazon.awssdk.core.client.config.ClientOverrideConfiguration;
import software.amazon.awssdk.core.retry.RetryMode;
import software.amazon.awssdk.core.retry.RetryPolicy;
import software.amazon.awssdk.http.async.SdkAsyncHttpClient;
import software.amazon.awssdk.http.nio.netty.NettyNioAsyncHttpClient;
```

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3control.S3ControlAsyncClient;
import software.amazon.awssdk.services.s3control.model.JobListDescriptor;
import software.amazon.awssdk.services.s3control.model.JobStatus;
import software.amazon.awssdk.services.s3control.model.ListJobsRequest;
import software.amazon.awssdk.services.s3control.paginators.ListJobsPublisher;
import java.time.Duration;
import java.util.List;
import java.util.concurrent.CompletableFuture;
import java.util.concurrent.CompletionException;

/**
 * Before running this example:
 * <p/>
 * The SDK must be able to authenticate AWS requests on your behalf. If you have
 not configured
 * authentication for SDKs and tools,see https://docs.aws.amazon.com/sdkref/
latest/guide/access.html in the AWS SDKs and Tools Reference Guide.
 * <p/>
 * You must have a runtime environment configured with the Java SDK.
 * See https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/setup.html
 in the Developer Guide if this is not set up.
 */
public class HelloS3Batch {
    private static S3ControlAsyncClient asyncClient;

    public static void main(String[] args) {
        S3BatchActions actions = new S3BatchActions();
        String accountId = actions.getAccountId();
        try {
            listBatchJobsAsync(accountId)
                .exceptionally(ex -> {
                    System.err.println("List batch jobs failed: " +
 ex.getMessage());
                    return null;
                })
                .join();

        } catch (CompletionException ex) {
            System.err.println("Failed to list batch jobs: " + ex.getMessage());
        }
    }

    /**
```

```
    * Retrieves the asynchronous S3 Control client instance.
    * <p>
    * This method creates and returns a singleton instance of the {@link
S3ControlAsyncClient}. If the instance
    * has not been created yet, it will be initialized with the following
configuration:
    * <ul>
    *   <li>Maximum concurrency: 100</li>
    *   <li>Connection timeout: 60 seconds</li>
    *   <li>Read timeout: 60 seconds</li>
    *   <li>Write timeout: 60 seconds</li>
    *   <li>API call timeout: 2 minutes</li>
    *   <li>API call attempt timeout: 90 seconds</li>
    *   <li>Retry policy: 3 retries</li>
    *   <li>Region: US_EAST_1</li>
    *   <li>Credentials provider: {@link
EnvironmentVariableCredentialsProvider}</li>
    * </ul>
    *
    * @return the asynchronous S3 Control client instance
    */
   private static S3ControlAsyncClient getAsyncClient() {
       if (asyncClient == null) {
           SdkAsyncHttpClient httpClient = NettyNioAsyncHttpClient.builder()
               .maxConcurrency(100)
               .connectionTimeout(Duration.ofSeconds(60))
               .readTimeout(Duration.ofSeconds(60))
               .writeTimeout(Duration.ofSeconds(60))
               .build();

           ClientOverrideConfiguration overrideConfig =
ClientOverrideConfiguration.builder()
               .apiCallTimeout(Duration.ofMinutes(2))
               .apiCallAttemptTimeout(Duration.ofSeconds(90))
               .retryStrategy(RetryMode.STANDARD)
               .build();

           asyncClient = S3ControlAsyncClient.builder()
               .region(Region.US_EAST_1)
               .httpClient(httpClient)
               .overrideConfiguration(overrideConfig)
               .build();
       }
       return asyncClient;
```

```
    }

    /**
     * Asynchronously lists batch jobs that have completed for the specified
account.
     *
     * @param accountId the ID of the account to list jobs for
     * @return a CompletableFuture that completes when the job listing operation
is finished
     */
    public static CompletableFuture<Void> listBatchJobsAsync(String accountId) {
        ListJobsRequest jobsRequest = ListJobsRequest.builder()
            .jobStatuses(JobStatus.COMPLETE)
            .accountId(accountId)
            .maxResults(10)
            .build();

        ListJobsPublisher publisher =
getAsyncClient().listJobsPaginator(jobsRequest);
        return publisher.subscribe(response -> {
            List<JobListDescriptor> jobs = response.jobs();
            for (JobListDescriptor job : jobs) {
                System.out.println("The job id is " + job.jobId());
                System.out.println("The job priority is " + job.priority());
            }
        }).thenAccept(response -> {
            System.out.println("Listing batch jobs completed");
        }).exceptionally(ex -> {
            System.err.println("Failed to list batch jobs: " + ex.getMessage());
            throw new RuntimeException(ex);
        });
    }
```

- For API details, see ListJobs in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Learn the basics of Amazon S3 Control with an AWS SDK

The following code example shows how to learn core operations for Amazon S3 Control.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Learn core operations.

```
package com.example.s3.batch;

import software.amazon.awssdk.services.s3.model.S3Exception;
import java.io.IOException;
import java.util.Map;
import java.util.Scanner;
import java.util.UUID;
import java.util.concurrent.CompletionException;

public class S3BatchScenario {

    public static final String DASHES = new String(new char[80]).replace("\0",
 "-");
    private static final String STACK_NAME = "MyS3Stack";
    public static void main(String[] args) throws IOException {
        S3BatchActions actions = new S3BatchActions();
        String accountId = actions.getAccountId();
        String uuid = java.util.UUID.randomUUID().toString();
        Scanner scanner = new Scanner(System.in);

        System.out.println(DASHES);
        System.out.println("Welcome to the Amazon S3 Batch basics scenario.");
        System.out.println("""
            S3 Batch operations enables efficient and cost-effective processing
 of large-scale
            data stored in Amazon S3. It automatically scales resources to handle
 varying workloads
```

```
            without the need for manual intervention.

            One of the key features of S3 Batch is its ability to perform tagging
operations on objects stored in
            S3 buckets. Users can leverage S3 Batch to apply, update, or remove
tags on thousands or millions of
            objects in a single operation, streamlining the management and
organization of their data.

            This can be particularly useful for tasks such as cost allocation,
lifecycle management, or
            metadata-driven workflows, where consistent and accurate tagging is
essential.
            S3 Batch's scalability and serverless nature make it an ideal
solution for organizations with
            growing data volumes and complex data management requirements.

            This Java program walks you through Amazon S3 Batch operations.

            Let's get started...

            """);
        waitForInputToContinue(scanner);
        // Use CloudFormation to stand up the resource required for this
scenario.
        System.out.println("Use CloudFormation to stand up the resource required
for this scenario.");
        CloudFormationHelper.deployCloudFormationStack(STACK_NAME);

        Map<String, String> stackOutputs =
CloudFormationHelper.getStackOutputs(STACK_NAME);
        String iamRoleArn = stackOutputs.get("S3BatchRoleArn");
        System.out.println(DASHES);

        System.out.println(DASHES);
        System.out.println("Setup the required bucket for this scenario.");
        waitForInputToContinue(scanner);
        String bucketName = "amzn-s3-demo-bucket-" + UUID.randomUUID(); // Change
bucket name.
        actions.createBucket(bucketName);
        String reportBucketName = "arn:aws:s3:::"+bucketName;
        String manifestLocation = "arn:aws:s3:::"+bucketName+"/job-manifest.csv";
        System.out.println("Populate the bucket with the required files.");
```

```
        String[] fileNames = {"job-manifest.csv", "object-key-1.txt", "object-
key-2.txt", "object-key-3.txt", "object-key-4.txt"};
        actions.uploadFilesToBucket(bucketName, fileNames, actions);
        waitForInputToContinue(scanner);
        System.out.println(DASHES);

        System.out.println(DASHES);
        System.out.println("1. Create a S3 Batch Job");
        System.out.println("This job tags all objects listed in the manifest file
 with tags");
        waitForInputToContinue(scanner);
        String jobId ;
        try {
            jobId = actions.createS3JobAsync(accountId, iamRoleArn,
 manifestLocation, reportBucketName, uuid).join();
            System.out.println("The Job id is " + jobId);

        } catch (S3Exception e) {
            System.err.println("SSM error: " + e.getMessage());
            return;
        } catch (RuntimeException e) {
            System.err.println("Unexpected error: " + e.getMessage());
            return;
        }

        waitForInputToContinue(scanner);
        System.out.println(DASHES);

        System.out.println(DASHES);
        System.out.println("2. Update an existing S3 Batch Operations job's
 priority");
        System.out.println("""
             In this step, we modify the job priority value. The higher the
 number, the higher the priority.
             So, a job with a priority of `30` would have a higher priority than
 a job with
             a priority of `20`. This is a common way to represent the priority
 of a task
             or job, with higher numbers indicating a higher priority.

             Ensure that the job status allows for priority updates. Jobs in
 certain
             states (e.g., Cancelled, Failed, or Completed) cannot have their
 priorities
```

```
            updated. Only jobs in the Active or Suspended state typically allow
priority
            updates.
            """);

        try {
            actions.updateJobPriorityAsync(jobId, accountId)
                .exceptionally(ex -> {
                    System.err.println("Update job priority failed: " +
ex.getMessage());
                    return null;
                })
                .join();
        } catch (CompletionException ex) {
            System.err.println("Failed to update job priority: " +
ex.getMessage());
        }
        waitForInputToContinue(scanner);
        System.out.println(DASHES);

        System.out.println(DASHES);
        System.out.println("3. Cancel the S3 Batch job");
        System.out.print("Do you want to cancel the Batch job? (y/n): ");
        String cancelAns = scanner.nextLine();
        if (cancelAns != null && cancelAns.trim().equalsIgnoreCase("y")) {
            try {
                actions.cancelJobAsync(jobId, accountId)
                    .exceptionally(ex -> {
                        System.err.println("Cancel job failed: " +
ex.getMessage());
                        return null;
                    })
                    .join();
            } catch (CompletionException ex) {
                System.err.println("Failed to cancel job: " + ex.getMessage());
            }
        } else {
            System.out.println("Job " +jobId +" was not canceled.");
        }
        System.out.println(DASHES);

        System.out.println(DASHES);
        System.out.println("4. Describe the job that was just created");
        waitForInputToContinue(scanner);
```

```
        try {
            actions.describeJobAsync(jobId, accountId)
                .exceptionally(ex -> {
                    System.err.println("Describe job failed: " +
ex.getMessage());
                    return null;
                })
                .join();
        } catch (CompletionException ex) {
            System.err.println("Failed to describe job: " + ex.getMessage());
        }
        System.out.println(DASHES);

        System.out.println(DASHES);
        System.out.println("5. Describe the tags associated with the job");
        waitForInputToContinue(scanner);
        try {
            actions.getJobTagsAsync(jobId, accountId)
                .exceptionally(ex -> {
                    System.err.println("Get job tags failed: " +
ex.getMessage());
                    return null;
                })
                .join();
        } catch (CompletionException ex) {
            System.err.println("Failed to get job tags: " + ex.getMessage());
        }
        System.out.println(DASHES);

        System.out.println(DASHES);
        System.out.println("6. Update Batch Job Tags");
        waitForInputToContinue(scanner);
        try {
            actions.putJobTaggingAsync(jobId, accountId)
                .exceptionally(ex -> {
                    System.err.println("Put job tagging failed: " +
ex.getMessage());
                    return null;
                })
                .join();
        } catch (CompletionException ex) {
            System.err.println("Failed to put job tagging: " + ex.getMessage());
        }
        System.out.println(DASHES);
```

```
        System.out.println(DASHES);
        System.out.println("7. Delete the Amazon S3 Batch job tagging.");
        System.out.print("Do you want to delete Batch job tagging? (y/n)");
        String delAns = scanner.nextLine();
        if (delAns != null && delAns.trim().equalsIgnoreCase("y")) {
            try {
                actions.deleteBatchJobTagsAsync(jobId, accountId)
                    .exceptionally(ex -> {
                        System.err.println("Delete batch job tags failed: " +
ex.getMessage());
                        return null;
                    })
                    .join();
            } catch (CompletionException ex) {
                System.err.println("Failed to delete batch job tags: " +
ex.getMessage());
            }
        } else {
            System.out.println("Tagging was not deleted.");
        }
        System.out.println(DASHES);

        System.out.println(DASHES);
        System.out.print("Do you want to delete the AWS resources used in this
scenario? (y/n)");
        String delResAns = scanner.nextLine();
        if (delResAns != null && delResAns.trim().equalsIgnoreCase("y")) {
            actions.deleteFilesFromBucket(bucketName, fileNames, actions);
            actions.deleteBucketFolderAsync(bucketName);
            actions.deleteBucket(bucketName)
                .thenRun(() -> System.out.println("Bucket deletion completed"))
                .exceptionally(ex -> {
                    System.err.println("Error occurred: " + ex.getMessage());
                    return null;
                });
            CloudFormationHelper.destroyCloudFormationStack(STACK_NAME);
        } else {
            System.out.println("The AWS resources were not deleted.");
        }
        System.out.println("The Amazon S3 Batch scenario has successfully
completed.");
        System.out.println(DASHES);
    }
```

```
    private static void waitForInputToContinue(Scanner scanner) {
        while (true) {
            System.out.println();
            System.out.println("Enter 'c' followed by <ENTER> to continue:");
            String input = scanner.nextLine();

            if (input.trim().equalsIgnoreCase("c")) {
                System.out.println("Continuing with the program...");
                System.out.println();
                break;
            } else {
                // Handle invalid input.
                System.out.println("Invalid input. Please try again.");
            }
        }
    }


}
```

An action class that wraps operations.

```
public class S3BatchActions {

    private static S3ControlAsyncClient asyncClient;

    private static S3AsyncClient s3AsyncClient ;
    /**
     * Retrieves the asynchronous S3 Control client instance.
     * <p>
     * This method creates and returns a singleton instance of the {@link
 S3ControlAsyncClient}. If the instance
     * has not been created yet, it will be initialized with the following
 configuration:
     * <ul>
     *   <li>Maximum concurrency: 100</li>
     *   <li>Connection timeout: 60 seconds</li>
     *   <li>Read timeout: 60 seconds</li>
     *   <li>Write timeout: 60 seconds</li>
     *   <li>API call timeout: 2 minutes</li>
     *   <li>API call attempt timeout: 90 seconds</li>
```

```
     *   <li>Retry policy: 3 retries</li>
     *   <li>Region: US_EAST_1</li>
     *   <li>Credentials provider: {@link
EnvironmentVariableCredentialsProvider}</li>
     * </ul>
     *
     * @return the asynchronous S3 Control client instance
     */
    private static S3ControlAsyncClient getAsyncClient() {
        if (asyncClient == null) {
            SdkAsyncHttpClient httpClient = NettyNioAsyncHttpClient.builder()
                .maxConcurrency(100)
                .connectionTimeout(Duration.ofSeconds(60))
                .readTimeout(Duration.ofSeconds(60))
                .writeTimeout(Duration.ofSeconds(60))
                .build();

            ClientOverrideConfiguration overrideConfig =
ClientOverrideConfiguration.builder()
                .apiCallTimeout(Duration.ofMinutes(2))
                .apiCallAttemptTimeout(Duration.ofSeconds(90))
                .retryPolicy(RetryPolicy.builder()
                    .numRetries(3)
                    .build())
                .build();

            asyncClient = S3ControlAsyncClient.builder()
                .region(Region.US_EAST_1)
                .httpClient(httpClient)
                .overrideConfiguration(overrideConfig)
                .build();
        }
        return asyncClient;
    }

    private static S3AsyncClient getS3AsyncClient() {
        if (asyncClient == null) {
            SdkAsyncHttpClient httpClient = NettyNioAsyncHttpClient.builder()
                .maxConcurrency(100)
                .connectionTimeout(Duration.ofSeconds(60))
                .readTimeout(Duration.ofSeconds(60))
                .writeTimeout(Duration.ofSeconds(60))
                .build();
```

```
            ClientOverrideConfiguration overrideConfig =
ClientOverrideConfiguration.builder()
                .apiCallTimeout(Duration.ofMinutes(2))
                .apiCallAttemptTimeout(Duration.ofSeconds(90))
                .retryStrategy(RetryMode.STANDARD)
                .build();

            s3AsyncClient = S3AsyncClient.builder()
                .region(Region.US_EAST_1)
                .httpClient(httpClient)
                .overrideConfiguration(overrideConfig)
                .build();
        }
        return s3AsyncClient;
    }


    /**
     * Cancels a job asynchronously.
     *
     * @param jobId The ID of the job to be canceled.
     * @param accountId The ID of the account associated with the job.
     * @return A {@link CompletableFuture} that completes when the job status has
been updated to "CANCELLED".
     *         If an error occurs during the update, the returned future will
complete exceptionally.
     */
    public CompletableFuture<Void> cancelJobAsync(String jobId, String accountId)
{
        UpdateJobStatusRequest updateJobStatusRequest =
UpdateJobStatusRequest.builder()
            .accountId(accountId)
            .jobId(jobId)
            .requestedJobStatus(String.valueOf(JobStatus.CANCELLED))
            .build();

        return asyncClient.updateJobStatus(updateJobStatusRequest)
            .thenAccept(updateJobStatusResponse -> {
                System.out.println("Job status updated to: " +
updateJobStatusResponse.status());
            })
            .exceptionally(ex -> {
                System.err.println("Failed to cancel job: " + ex.getMessage());
                throw new RuntimeException(ex); // Propagate the exception
```

```
            });
    }

    /**
     * Updates the priority of a job asynchronously.
     *
     * @param jobId     the ID of the job to update
     * @param accountId the ID of the account associated with the job
     * @return a {@link CompletableFuture} that represents the asynchronous
operation, which completes when the job priority has been updated or an error
has occurred
     */
    public CompletableFuture<Void> updateJobPriorityAsync(String jobId, String
accountId) {
        UpdateJobPriorityRequest priorityRequest =
UpdateJobPriorityRequest.builder()
            .accountId(accountId)
            .jobId(jobId)
            .priority(60)
            .build();

        CompletableFuture<Void> future = new CompletableFuture<>();
        getAsyncClient().updateJobPriority(priorityRequest)
            .thenAccept(response -> {
                System.out.println("The job priority was updated");
                future.complete(null); // Complete the CompletableFuture on
successful execution
            })
            .exceptionally(ex -> {
                System.err.println("Failed to update job priority: " +
ex.getMessage());
                future.completeExceptionally(ex); // Complete the
CompletableFuture exceptionally on error
                return null; // Return null to handle the exception
            });

        return future;
    }

    /**
     * Asynchronously retrieves the tags associated with a specific job in an AWS
account.
     *
     * @param jobId     the ID of the job for which to retrieve the tags
```

```
     * @param accountId the ID of the AWS account associated with the job
     * @return a {@link CompletableFuture} that completes when the job tags have
been retrieved, or with an exception if the operation fails
     * @throws RuntimeException if an error occurs while retrieving the job tags
     */
    public CompletableFuture<Void> getJobTagsAsync(String jobId, String
accountId) {
        GetJobTaggingRequest request = GetJobTaggingRequest.builder()
            .jobId(jobId)
            .accountId(accountId)
            .build();

        return asyncClient.getJobTagging(request)
            .thenAccept(response -> {
                List<S3Tag> tags = response.tags();
                if (tags.isEmpty()) {
                    System.out.println("No tags found for job ID: " + jobId);
                } else {
                    for (S3Tag tag : tags) {
                        System.out.println("Tag key is: " + tag.key());
                        System.out.println("Tag value is: " + tag.value());
                    }
                }
            })
            .exceptionally(ex -> {
                System.err.println("Failed to get job tags: " + ex.getMessage());
                throw new RuntimeException(ex); // Propagate the exception
            });
    }

    /**
     * Asynchronously deletes the tags associated with a specific batch job.
     *
     * @param jobId     The ID of the batch job whose tags should be deleted.
     * @param accountId The ID of the account associated with the batch job.
     * @return A CompletableFuture that completes when the job tags have been
successfully deleted, or an exception is thrown if the deletion fails.
     */
    public CompletableFuture<Void> deleteBatchJobTagsAsync(String jobId, String
accountId) {
        DeleteJobTaggingRequest jobTaggingRequest =
DeleteJobTaggingRequest.builder()
            .accountId(accountId)
            .jobId(jobId)
```

```
            .build();

        return asyncClient.deleteJobTagging(jobTaggingRequest)
            .thenAccept(response -> {
                System.out.println("You have successfully deleted " + jobId + "
tagging.");
            })
            .exceptionally(ex -> {
                System.err.println("Failed to delete job tags: " +
ex.getMessage());
                throw new RuntimeException(ex);
            });
    }

    /**
     * Asynchronously describes the specified job.
     *
     * @param jobId     the ID of the job to describe
     * @param accountId the ID of the AWS account associated with the job
     * @return a {@link CompletableFuture} that completes when the job
description is available
     * @throws RuntimeException if an error occurs while describing the job
     */
    public CompletableFuture<Void> describeJobAsync(String jobId, String
accountId) {
        DescribeJobRequest jobRequest = DescribeJobRequest.builder()
            .jobId(jobId)
            .accountId(accountId)
            .build();

        return getAsyncClient().describeJob(jobRequest)
            .thenAccept(response -> {
                System.out.println("Job ID: " + response.job().jobId());
                System.out.println("Description: " +
response.job().description());
                System.out.println("Status: " + response.job().statusAsString());
                System.out.println("Role ARN: " + response.job().roleArn());
                System.out.println("Priority: " + response.job().priority());
                System.out.println("Progress Summary: " +
response.job().progressSummary());

                // Print out details about the job manifest.
                JobManifest manifest = response.job().manifest();
```

```
                System.out.println("Manifest Location: " +
manifest.location().objectArn());
                System.out.println("Manifest ETag: " +
manifest.location().eTag());

                // Print out details about the job operation.
                JobOperation operation = response.job().operation();
                if (operation.s3PutObjectTagging() != null) {
                    System.out.println("Operation: S3 Put Object Tagging");
                    System.out.println("Tag Set: " +
operation.s3PutObjectTagging().tagSet());
                }

                // Print out details about the job report.
                JobReport report = response.job().report();
                System.out.println("Report Bucket: " + report.bucket());
                System.out.println("Report Prefix: " + report.prefix());
                System.out.println("Report Format: " + report.format());
                System.out.println("Report Enabled: " + report.enabled());
                System.out.println("Report Scope: " +
report.reportScopeAsString());
            })
            .exceptionally(ex -> {
                System.err.println("Failed to describe job: " + ex.getMessage());
                throw new RuntimeException(ex);
            });
    }

    /**
     * Creates an asynchronous S3 job using the AWS Java SDK.
     *
     * @param accountId         the AWS account ID associated with the job
     * @param iamRoleArn        the ARN of the IAM role to be used for the job
     * @param manifestLocation  the location of the job manifest file in S3
     * @param reportBucketName  the name of the S3 bucket to store the job report
     * @param uuid              a unique identifier for the job
     * @return a CompletableFuture that represents the asynchronous creation of
the S3 job.
     *         The CompletableFuture will return the job ID if the job is created
successfully,
     *         or throw an exception if there is an error.
     */
    public CompletableFuture<String> createS3JobAsync(String accountId, String
iamRoleArn,
```

```
                                                                String manifestLocation,
 String reportBucketName, String uuid) {

        String[] bucketName = new String[]{""};
        String[] parts = reportBucketName.split(":::");
        if (parts.length > 1) {
            bucketName[0] = parts[1];
        } else {
            System.out.println("The input string does not contain the expected
 format.");
        }

        return CompletableFuture.supplyAsync(() -> getETag(bucketName[0], "job-
manifest.csv"))
            .thenCompose(eTag -> {
                  ArrayList<S3Tag> tagSet = new ArrayList<>();
                S3Tag s3Tag = S3Tag.builder()
                    .key("keyOne")
                    .value("ValueOne")
                    .build();
                S3Tag s3Tag2 = S3Tag.builder()
                    .key("keyTwo")
                    .value("ValueTwo")
                    .build();
                tagSet.add(s3Tag);
                tagSet.add(s3Tag2);

                S3SetObjectTaggingOperation objectTaggingOperation =
 S3SetObjectTaggingOperation.builder()
                    .tagSet(tagSet)
                    .build();

                JobOperation jobOperation = JobOperation.builder()
                    .s3PutObjectTagging(objectTaggingOperation)
                    .build();

                JobManifestLocation jobManifestLocation =
 JobManifestLocation.builder()
                    .objectArn(manifestLocation)
                    .eTag(eTag)
                    .build();

                JobManifestSpec manifestSpec = JobManifestSpec.builder()
                    .fieldsWithStrings("Bucket", "Key")
```

```
                    .format("S3BatchOperations_CSV_20180820")
                    .build();

                JobManifest jobManifest = JobManifest.builder()
                    .spec(manifestSpec)
                    .location(jobManifestLocation)
                    .build();

                JobReport jobReport = JobReport.builder()
                    .bucket(reportBucketName)
                    .prefix("reports")
                    .format("Report_CSV_20180820")
                    .enabled(true)
                    .reportScope("AllTasks")
                    .build();

                CreateJobRequest jobRequest = CreateJobRequest.builder()
                    .accountId(accountId)
                    .description("Job created using the AWS Java SDK")
                    .manifest(jobManifest)
                    .operation(jobOperation)
                    .report(jobReport)
                    .priority(42)
                    .roleArn(iamRoleArn)
                    .clientRequestToken(uuid)
                    .confirmationRequired(false)
                    .build();

                // Create the job asynchronously.
                 return getAsyncClient().createJob(jobRequest)
                    .thenApply(CreateJobResponse::jobId);
                 })
                 .handle((jobId, ex) -> {
                    if (ex != null) {
                    Throwable cause = (ex instanceof CompletionException) ?
ex.getCause() : ex;
                    if (cause instanceof S3ControlException) {
                        throw new CompletionException(cause);
                    } else {
                        throw new RuntimeException(cause);
                    }
                }
                return jobId;
            });
```

```
    }

    /**
     * Retrieves the ETag (Entity Tag) for an object stored in an Amazon S3
bucket.
     *
     * @param bucketName the name of the Amazon S3 bucket where the object is
stored
     * @param key the key (file name) of the object in the Amazon S3 bucket
     * @return the ETag of the object
     */
    public String getETag(String bucketName, String key) {
        S3Client s3Client = S3Client.builder()
            .region(Region.US_EAST_1)
            .build();

        HeadObjectRequest headObjectRequest = HeadObjectRequest.builder()
            .bucket(bucketName)
            .key(key)
            .build();

        HeadObjectResponse headObjectResponse =
s3Client.headObject(headObjectRequest);
        return headObjectResponse.eTag();
    }

    /**
     * Asynchronously adds tags to a job in the system.
     *
     * @param jobId     the ID of the job to add tags to
     * @param accountId the account ID associated with the job
     * @return a CompletableFuture that completes when the tagging operation is
finished
     */
    public CompletableFuture<Void> putJobTaggingAsync(String jobId, String
accountId) {
        S3Tag departmentTag = S3Tag.builder()
            .key("department")
            .value("Marketing")
            .build();

        S3Tag fiscalYearTag = S3Tag.builder()
            .key("FiscalYear")
            .value("2020")
```

```
            .build();

        PutJobTaggingRequest putJobTaggingRequest =
PutJobTaggingRequest.builder()
            .jobId(jobId)
            .accountId(accountId)
            .tags(departmentTag, fiscalYearTag)
            .build();

        return asyncClient.putJobTagging(putJobTaggingRequest)
            .thenRun(() -> {
                System.out.println("Additional Tags were added to job " + jobId);
            })
            .exceptionally(ex -> {
                System.err.println("Failed to add tags to job: " +
ex.getMessage());
                throw new RuntimeException(ex); // Propagate the exception
            });
    }

    // Setup the S3 bucket required for this scenario.
    /**
     * Creates an Amazon S3 bucket with the specified name.
     *
     * @param bucketName the name of the S3 bucket to create
     * @throws S3Exception if there is an error creating the bucket
     */
    public void createBucket(String bucketName) {
        try {
            S3Client s3Client = S3Client.builder()
                .region(Region.US_EAST_1)
                .build();


            S3Waiter s3Waiter = s3Client.waiter();
            CreateBucketRequest bucketRequest = CreateBucketRequest.builder()
                .bucket(bucketName)
                .build();

            s3Client.createBucket(bucketRequest);
            HeadBucketRequest bucketRequestWait = HeadBucketRequest.builder()
                .bucket(bucketName)
                .build();
```

```
            // Wait until the bucket is created and print out the response.
            WaiterResponse<HeadBucketResponse> waiterResponse =
s3Waiter.waitUntilBucketExists(bucketRequestWait);
            waiterResponse.matched().response().ifPresent(System.out::println);
            System.out.println(bucketName + " is ready");

        } catch (S3Exception e) {
            System.err.println(e.awsErrorDetails().errorMessage());
            System.exit(1);
        }
    }

    /**
     * Uploads a file to an Amazon S3 bucket asynchronously.
     *
     * @param bucketName the name of the S3 bucket to upload the file to
     * @param fileName the name of the file to be uploaded
     * @throws RuntimeException if an error occurs during the file upload
     */
    public void populateBucket(String bucketName, String fileName) {
        // Define the path to the directory.
        Path filePath = Paths.get("src/main/resources/batch/",
fileName).toAbsolutePath();
        PutObjectRequest putOb = PutObjectRequest.builder()
            .bucket(bucketName)
            .key(fileName)
            .build();

        CompletableFuture<PutObjectResponse> future =
getS3AsyncClient().putObject(putOb, AsyncRequestBody.fromFile(filePath));
        future.whenComplete((result, ex) -> {
            if (ex != null) {
                System.err.println("Error uploading file: " + ex.getMessage());
            } else {
                System.out.println("Successfully placed " + fileName + " into
bucket " + bucketName);
            }
        }).join();
    }


    // Update the bucketName in CSV.
    public void updateCSV(String newValue) {
```

```
        Path csvFilePath = Paths.get("src/main/resources/batch/job-
manifest.csv").toAbsolutePath();
        try {
            // Read all lines from the CSV file.
            List<String> lines = Files.readAllLines(csvFilePath);

            // Update the first value in each line.
            List<String> updatedLines = lines.stream()
                .map(line -> {
                    String[] parts = line.split(",");
                    parts[0] = newValue;
                    return String.join(",", parts);
                })
                .collect(Collectors.toList());

            // Write the updated lines back to the CSV file
            Files.write(csvFilePath, updatedLines);
            System.out.println("CSV file updated successfully.");
        } catch (Exception e) {
            e.printStackTrace();
        }
    }

    /**
     * Deletes an object from an Amazon S3 bucket asynchronously.
     *
     * @param bucketName The name of the S3 bucket where the object is stored.
     * @param objectName The name of the object to be deleted.
     * @return A {@link CompletableFuture} that completes when the object has
been deleted,
     *         or throws a {@link RuntimeException} if an error occurs during the
deletion.
     */
    public CompletableFuture<Void> deleteBucketObjects(String bucketName, String
objectName) {
        ArrayList<ObjectIdentifier> toDelete = new ArrayList<>();
        toDelete.add(ObjectIdentifier.builder()
            .key(objectName)
            .build());

        DeleteObjectsRequest dor = DeleteObjectsRequest.builder()
            .bucket(bucketName)
            .delete(Delete.builder()
                .objects(toDelete).build())
```

```
            .build();

        return getS3AsyncClient().deleteObjects(dor)
            .thenAccept(result -> {
                System.out.println("The object was deleted!");
            })
            .exceptionally(ex -> {
                throw new RuntimeException("Error deleting object: " +
ex.getMessage(), ex);
            });
    }

    /**
     * Deletes a folder and all its contents asynchronously from an Amazon S3
bucket.
     *
     * @param bucketName the name of the S3 bucket containing the folder to be
deleted
     * @return a {@link CompletableFuture} that completes when the folder and its
contents have been deleted
     * @throws RuntimeException if any error occurs during the deletion process
     */
    public void deleteBucketFolderAsync(String bucketName) {
        String folderName = "reports/";
        ListObjectsV2Request request = ListObjectsV2Request.builder()
            .bucket(bucketName)
            .prefix(folderName)
            .build();

        CompletableFuture<ListObjectsV2Response> listObjectsFuture =
getS3AsyncClient().listObjectsV2(request);
        listObjectsFuture.thenCompose(response -> {
            List<CompletableFuture<DeleteObjectResponse>> deleteFutures =
response.contents().stream()
                .map(obj -> {
                    DeleteObjectRequest deleteRequest =
DeleteObjectRequest.builder()
                        .bucket(bucketName)
                        .key(obj.key())
                        .build();
                    return getS3AsyncClient().deleteObject(deleteRequest)
                        .thenApply(deleteResponse -> {
                            System.out.println("Deleted object: " + obj.key());
                            return deleteResponse;
```

```
                        });
                })
                .collect(Collectors.toList());

            return CompletableFuture.allOf(deleteFutures.toArray(new
CompletableFuture[0]))
                .thenCompose(v -> {
                    // Delete the folder.
                    DeleteObjectRequest deleteRequest =
DeleteObjectRequest.builder()
                        .bucket(bucketName)
                        .key(folderName)
                        .build();
                    return getS3AsyncClient().deleteObject(deleteRequest)
                        .thenApply(deleteResponse -> {
                            System.out.println("Deleted folder: " + folderName);
                            return deleteResponse;
                        });
                });
        }).join();
    }

    /**
     * Deletes an Amazon S3 bucket.
     *
     * @param bucketName the name of the bucket to delete
     * @return a {@link CompletableFuture} that completes when the bucket has
been deleted, or exceptionally if there is an error
     * @throws RuntimeException if there is an error deleting the bucket
     */
    public CompletableFuture<Void> deleteBucket(String bucketName) {
        S3AsyncClient s3Client = getS3AsyncClient();
        return s3Client.deleteBucket(DeleteBucketRequest.builder()
                .bucket(bucketName)
                .build())
            .thenAccept(deleteBucketResponse -> {
                System.out.println(bucketName + " was deleted");
            })
            .exceptionally(ex -> {
                // Handle the exception or rethrow it.
                throw new RuntimeException("Failed to delete bucket: " +
bucketName, ex);
            });
    }
```

```
   /**
    * Uploads a set of files to an Amazon S3 bucket.
    *
    * @param bucketName the name of the S3 bucket to upload the files to
    * @param fileNames an array of file names to be uploaded
    * @param actions an instance of {@link S3BatchActions} that provides the
implementation for the necessary S3 operations
    * @throws IOException if there's an error creating the text files or
uploading the files to the S3 bucket
    */
   public static void uploadFilesToBucket(String bucketName, String[] fileNames,
S3BatchActions actions) throws IOException {
       actions.updateCSV(bucketName);
       createTextFiles(fileNames);
       for (String fileName : fileNames) {
           actions.populateBucket(bucketName, fileName);
       }
       System.out.println("All files are placed in the S3 bucket " +
bucketName);
   }

   /**
    * Deletes the specified files from the given S3 bucket.
    *
    * @param bucketName the name of the S3 bucket
    * @param fileNames an array of file names to be deleted from the bucket
    * @param actions the S3BatchActions instance to be used for the file
deletion
    * @throws IOException if an I/O error occurs during the file deletion
    */
   public void deleteFilesFromBucket(String bucketName, String[] fileNames,
S3BatchActions actions) throws IOException {
       for (String fileName : fileNames) {
                   actions.deleteBucketObjects(bucketName, fileName)
                  .thenRun(() -> System.out.println("Object deletion completed"))
                  .exceptionally(ex -> {
                      System.err.println("Error occurred: " + ex.getMessage());
                      return null;
                  });
       }
       System.out.println("All files have been deleted from the bucket " +
bucketName);
   }
```

```
    public static void createTextFiles(String[] fileNames) {
        String currentDirectory = System.getProperty("user.dir");
        String directoryPath = currentDirectory + "\\src\\main\\resources\
\batch";
        Path path = Paths.get(directoryPath);

        try {
            // Create the directory if it doesn't exist.
            if (Files.notExists(path)) {
                Files.createDirectories(path);
                System.out.println("Created directory: " + path.toString());
            } else {
                System.out.println("Directory already exists: " +
 path.toString());
            }

            for (String fileName : fileNames) {
                // Check if the file is a .txt file.
                if (fileName.endsWith(".txt")) {
                    // Define the path for the new file.
                    Path filePath = path.resolve(fileName);
                    System.out.println("Attempting to create file: " +
 filePath.toString());

                    // Create and write content to the new file.
                    Files.write(filePath, "This is a test".getBytes());

                    // Verify the file was created.
                    if (Files.exists(filePath)) {
                        System.out.println("Successfully created file: " +
 filePath.toString());
                    } else {
                        System.out.println("Failed to create file: " +
 filePath.toString());
                    }
                }
            }

        } catch (IOException e) {
            System.err.println("An error occurred: " + e.getMessage());
            e.printStackTrace();
        }
    }
```

```
    public String getAccountId() {
        StsClient stsClient = StsClient.builder()
            .region(Region.US_EAST_1)
            .build();

        GetCallerIdentityResponse callerIdentityResponse =
 stsClient.getCallerIdentity();
        return callerIdentityResponse.account();
    }
}
```

- For API details, see the following topics in *AWS SDK for Java 2.x API Reference*.
  - CreateJob
  - DeleteJobTagging
  - DescribeJob
  - GetJobTagging
  - ListJobs
  - PutJobTagging
  - UpdateJobPriority
  - UpdateJobStatus

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Actions for Amazon S3 Control using AWS SDKs

The following code examples demonstrate how to perform individual Amazon S3 Control actions with AWS SDKs. Each example includes a link to GitHub, where you can find instructions for setting up and running the code.

The following examples include only the most commonly used actions. For a complete list, see the Amazon S3 Control API Reference.

Examples

- Use CreateJob with an AWS SDK or CLI

- Use DeleteJobTagging with an AWS SDK
- Use DescribeJob with an AWS SDK or CLI
- Use GetJobTagging with an AWS SDK
- Use PutJobTagging with an AWS SDK
- Use UpdateJobPriority with an AWS SDK or CLI
- Use UpdateJobStatus with an AWS SDK or CLI

Use `CreateJob` with an AWS SDK or CLI

The following code examples show how to use `CreateJob`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Learn the basics

CLI

AWS CLI

To create an Amazon S3 batch operations job

The following `create-job` example creates an Amazon S3 batch operations job to tag objects as `confidential` in the bucket ``employee-records`.

```
aws s3control create-job \
    --account-id 123456789012 \
    --operation '{"S3PutObjectTagging": { "TagSet": [{"Key":"confidential",
 "Value":"true"}] }}' \
    --report '{"Bucket":"arn:aws:s3:::employee-records-logs","Prefix":"batch-op-
create-job",
 "Format":"Report_CSV_20180820","Enabled":true,"ReportScope":"AllTasks"}' \
    --manifest '{"Spec":{"Format":"S3BatchOperations_CSV_20180820","Fields":
["Bucket","Key"]},"Location":{"ObjectArn":"arn:aws:s3:::employee-records-logs/
inv-report/7a6a9be4-072c-407e-85a2-
ec3e982f773e.csv","ETag":"69f52a4e9f797e987155d9c8f5880897"}}' \
    --priority 42 \
    --role-arn arn:aws:iam::123456789012:role/S3BatchJobRole
```

Output:

```
{
    "JobId": "93735294-df46-44d5-8638-6356f335324e"
}
```

- For API details, see CreateJob in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create an asynchronous S3 job.

```
   /**
    * Creates an asynchronous S3 job using the AWS Java SDK.
    *
    * @param accountId         the AWS account ID associated with the job
    * @param iamRoleArn        the ARN of the IAM role to be used for the job
    * @param manifestLocation  the location of the job manifest file in S3
    * @param reportBucketName  the name of the S3 bucket to store the job report
    * @param uuid              a unique identifier for the job
    * @return a CompletableFuture that represents the asynchronous creation of
the S3 job.
    *         The CompletableFuture will return the job ID if the job is created
successfully,
    *         or throw an exception if there is an error.
    */
   public CompletableFuture<String> createS3JobAsync(String accountId, String
iamRoleArn,
                                                     String manifestLocation,
String reportBucketName, String uuid) {

       String[] bucketName = new String[]{""};
       String[] parts = reportBucketName.split(":::");
       if (parts.length > 1) {
           bucketName[0] = parts[1];
```

```
        } else {
            System.out.println("The input string does not contain the expected
 format.");
        }

        return CompletableFuture.supplyAsync(() -> getETag(bucketName[0], "job-
manifest.csv"))
            .thenCompose(eTag -> {
                  ArrayList<S3Tag> tagSet = new ArrayList<>();
                S3Tag s3Tag = S3Tag.builder()
                    .key("keyOne")
                    .value("ValueOne")
                    .build();
                S3Tag s3Tag2 = S3Tag.builder()
                    .key("keyTwo")
                    .value("ValueTwo")
                    .build();
                tagSet.add(s3Tag);
                tagSet.add(s3Tag2);

                S3SetObjectTaggingOperation objectTaggingOperation =
 S3SetObjectTaggingOperation.builder()
                    .tagSet(tagSet)
                    .build();

                JobOperation jobOperation = JobOperation.builder()
                    .s3PutObjectTagging(objectTaggingOperation)
                    .build();

                JobManifestLocation jobManifestLocation =
 JobManifestLocation.builder()
                    .objectArn(manifestLocation)
                    .eTag(eTag)
                    .build();

                JobManifestSpec manifestSpec = JobManifestSpec.builder()
                    .fieldsWithStrings("Bucket", "Key")
                    .format("S3BatchOperations_CSV_20180820")
                    .build();

                JobManifest jobManifest = JobManifest.builder()
                    .spec(manifestSpec)
                    .location(jobManifestLocation)
                    .build();
```

```
                JobReport jobReport = JobReport.builder()
                    .bucket(reportBucketName)
                    .prefix("reports")
                    .format("Report_CSV_20180820")
                    .enabled(true)
                    .reportScope("AllTasks")
                    .build();

                CreateJobRequest jobRequest = CreateJobRequest.builder()
                    .accountId(accountId)
                    .description("Job created using the AWS Java SDK")
                    .manifest(jobManifest)
                    .operation(jobOperation)
                    .report(jobReport)
                    .priority(42)
                    .roleArn(iamRoleArn)
                    .clientRequestToken(uuid)
                    .confirmationRequired(false)
                    .build();

                // Create the job asynchronously.
                 return getAsyncClient().createJob(jobRequest)
                    .thenApply(CreateJobResponse::jobId);
                 })
                 .handle((jobId, ex) -> {
                    if (ex != null) {
                    Throwable cause = (ex instanceof CompletionException) ?
ex.getCause() : ex;
                    if (cause instanceof S3ControlException) {
                        throw new CompletionException(cause);
                    } else {
                        throw new RuntimeException(cause);
                    }
                }
                return jobId;
            });
    }
```

Create a compliance retention job.

```
    /**
     * Creates a compliance retention job in Amazon S3 Control.
     * <p>
     * A compliance retention job in Amazon S3 Control is a feature that allows
 you to
     * set a retention period for objects stored in an S3 bucket.
     * This feature is particularly useful for organizations that need to comply
 with
     * regulatory requirements or internal policies that mandate the retention of
 data for
     * a specific duration.
     *
     * @param s3ControlClient The S3ControlClient instance to use for the API
 call.
     * @return The job ID of the created compliance retention job.
     */
    public static String createComplianceRetentionJob(final S3ControlClient
 s3ControlClient, String roleArn, String bucketName, String accountId) {
        final String manifestObjectArn = "arn:aws:s3:::amzn-s3-demo-manifest-
bucket/compliance-objects-manifest.csv";
        final String manifestObjectVersionId = "your-object-version-Id";

        Instant jan2025 = Instant.parse("2025-01-01T00:00:00Z");
        JobOperation jobOperation = JobOperation.builder()
            .s3PutObjectRetention(S3SetObjectRetentionOperation.builder()
                .retention(S3Retention.builder()
                    .mode(S3ObjectLockRetentionMode.COMPLIANCE)
                    .retainUntilDate(jan2025)
                    .build())
                .build())
            .build();

        JobManifestLocation manifestLocation = JobManifestLocation.builder()
            .objectArn(manifestObjectArn)
            .eTag(manifestObjectVersionId)
            .build();

        JobManifestSpec manifestSpec = JobManifestSpec.builder()
            .fieldsWithStrings("Bucket", "Key")
            .format("S3BatchOperations_CSV_20180820")
            .build();

        JobManifest manifestToPublicApi = JobManifest.builder()
            .location(manifestLocation)
```

```
            .spec(manifestSpec)
            .build();

        // Report details.
        final String jobReportBucketArn = "arn:aws:s3:::" + bucketName;
        final String jobReportPrefix = "reports/compliance-objects-bops";

        JobReport jobReport = JobReport.builder()
            .enabled(true)
            .reportScope(JobReportScope.ALL_TASKS)
            .bucket(jobReportBucketArn)
            .prefix(jobReportPrefix)
            .format(JobReportFormat.REPORT_CSV_20180820)
            .build();

        final Boolean requiresConfirmation = true;
        final int priority = 10;
        CreateJobRequest request = CreateJobRequest.builder()
            .accountId(accountId)
            .description("Set compliance retain-until to 1 Jan 2025")
            .manifest(manifestToPublicApi)
            .operation(jobOperation)
            .priority(priority)
            .roleArn(roleArn)
            .report(jobReport)
            .confirmationRequired(requiresConfirmation)
            .build();

        // Create the job and get the result.
        CreateJobResponse result = s3ControlClient.createJob(request);
        return result.jobId();
    }
```

Create a legal hold off job.

```
    /**
     * Creates a compliance retention job in Amazon S3 Control.
     * <p>
     * A compliance retention job in Amazon S3 Control is a feature that allows
you to
     * set a retention period for objects stored in an S3 bucket.
```

```
     * This feature is particularly useful for organizations that need to comply
 with
     * regulatory requirements or internal policies that mandate the retention of
 data for
     * a specific duration.
     *
     * @param s3ControlClient The S3ControlClient instance to use for the API
 call.
     * @return The job ID of the created compliance retention job.
     */
    public static String createComplianceRetentionJob(final S3ControlClient
 s3ControlClient, String roleArn, String bucketName, String accountId) {
        final String manifestObjectArn = "arn:aws:s3:::amzn-s3-demo-manifest-
bucket/compliance-objects-manifest.csv";
        final String manifestObjectVersionId = "your-object-version-Id";

        Instant jan2025 = Instant.parse("2025-01-01T00:00:00Z");
        JobOperation jobOperation = JobOperation.builder()
            .s3PutObjectRetention(S3SetObjectRetentionOperation.builder()
                .retention(S3Retention.builder()
                    .mode(S3ObjectLockRetentionMode.COMPLIANCE)
                    .retainUntilDate(jan2025)
                    .build())
                .build())
            .build();

        JobManifestLocation manifestLocation = JobManifestLocation.builder()
            .objectArn(manifestObjectArn)
            .eTag(manifestObjectVersionId)
            .build();

        JobManifestSpec manifestSpec = JobManifestSpec.builder()
            .fieldsWithStrings("Bucket", "Key")
            .format("S3BatchOperations_CSV_20180820")
            .build();

        JobManifest manifestToPublicApi = JobManifest.builder()
            .location(manifestLocation)
            .spec(manifestSpec)
            .build();

        // Report details.
        final String jobReportBucketArn = "arn:aws:s3:::" + bucketName;
        final String jobReportPrefix = "reports/compliance-objects-bops";
```

```
        JobReport jobReport = JobReport.builder()
            .enabled(true)
            .reportScope(JobReportScope.ALL_TASKS)
            .bucket(jobReportBucketArn)
            .prefix(jobReportPrefix)
            .format(JobReportFormat.REPORT_CSV_20180820)
            .build();

        final Boolean requiresConfirmation = true;
        final int priority = 10;
        CreateJobRequest request = CreateJobRequest.builder()
            .accountId(accountId)
            .description("Set compliance retain-until to 1 Jan 2025")
            .manifest(manifestToPublicApi)
            .operation(jobOperation)
            .priority(priority)
            .roleArn(roleArn)
            .report(jobReport)
            .confirmationRequired(requiresConfirmation)
            .build();

        // Create the job and get the result.
        CreateJobResponse result = s3ControlClient.createJob(request);
        return result.jobId();
    }
```

Create a new governance retention job.

```
/**
 * Before running this Java V2 code example, set up your development
 * environment, including your credentials.
 *
 * For more information, see the following documentation topic:
 *
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/get-
started.html
 */
public class CreateGovernanceRetentionJob {

    public static void main(String[]args) throws ParseException {
        final String usage = """
```

```
            Usage:
                <manifestObjectArn> <jobReportBucketArn> <roleArn> <accountId>
<manifestObjectVersionId>

            Where:
                manifestObjectArn - The Amazon Resource Name (ARN) of the S3
object that contains the manifest file for the governance objects.\s
                bucketName - The ARN of the S3 bucket where the job report will
be stored.
                roleArn - The ARN of the IAM role that will be used to perform
the governance retention operation.
                accountId - Your AWS account Id.
                manifestObjectVersionId =  A unique value that is used as the
`eTag` property of the `JobManifestLocation` object.
            """;

        if (args.length != 4) {
            System.out.println(usage);
            return;
        }

        String manifestObjectArn = args[0];
        String jobReportBucketArn = args[1];
        String roleArn = args[2];
        String accountId = args[3];
        String manifestObjectVersionId = args[4];

        S3ControlClient s3ControlClient = S3ControlClient.create();
        createGovernanceRetentionJob(s3ControlClient, manifestObjectArn,
jobReportBucketArn, roleArn, accountId, manifestObjectVersionId);
    }

    public static String createGovernanceRetentionJob(final S3ControlClient
s3ControlClient, String manifestObjectArn, String jobReportBucketArn, String
roleArn, String accountId, String manifestObjectVersionId) throws ParseException
{
        final JobManifestLocation manifestLocation =
JobManifestLocation.builder()
            .objectArn(manifestObjectArn)
            .eTag(manifestObjectVersionId)
            .build();

        final JobManifestSpec manifestSpec = JobManifestSpec.builder()
```

```
            .format(JobManifestFormat.S3_BATCH_OPERATIONS_CSV_20180820)
            .fields(Arrays.asList(JobManifestFieldName.BUCKET,
JobManifestFieldName.KEY))
            .build();

        final JobManifest manifestToPublicApi = JobManifest.builder()
            .location(manifestLocation)
            .spec(manifestSpec)
            .build();

        final String jobReportPrefix = "reports/governance-objects";
        final JobReport jobReport = JobReport.builder()
            .enabled(true)
            .reportScope(JobReportScope.ALL_TASKS)
            .bucket(jobReportBucketArn)
            .prefix(jobReportPrefix)
            .format(JobReportFormat.REPORT_CSV_20180820)
            .build();

        final SimpleDateFormat format = new SimpleDateFormat("dd/MM/yyyy");
        final Date jan30th = format.parse("30/01/2025");

        final S3SetObjectRetentionOperation s3SetObjectRetentionOperation =
S3SetObjectRetentionOperation.builder()
            .retention(S3Retention.builder()
                .mode(S3ObjectLockRetentionMode.GOVERNANCE)
                .retainUntilDate(jan30th.toInstant())
                .build())
            .build();

        final JobOperation jobOperation = JobOperation.builder()
            .s3PutObjectRetention(s3SetObjectRetentionOperation)
            .build();

        final Boolean requiresConfirmation = true;
        final int priority = 10;

        final CreateJobRequest request = CreateJobRequest.builder()
            .accountId(accountId)
            .description("Put governance retention")
            .manifest(manifestToPublicApi)
            .operation(jobOperation)
            .priority(priority)
            .roleArn(roleArn)
```

```
            .report(jobReport)
            .confirmationRequired(requiresConfirmation)
            .build();

        final CreateJobResponse result = s3ControlClient.createJob(request);
        return result.jobId();
    }
}
```

- For API details, see CreateJob in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteJobTagging` with an AWS SDK

The following code example shows how to use `DeleteJobTagging`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Learn the basics

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    /**
     * Asynchronously deletes the tags associated with a specific batch job.
     *
     * @param jobId     The ID of the batch job whose tags should be deleted.
     * @param accountId The ID of the account associated with the batch job.
```

```
    * @return A CompletableFuture that completes when the job tags have been
successfully deleted, or an exception is thrown if the deletion fails.
    */
   public CompletableFuture<Void> deleteBatchJobTagsAsync(String jobId, String
accountId) {
       DeleteJobTaggingRequest jobTaggingRequest =
DeleteJobTaggingRequest.builder()
           .accountId(accountId)
           .jobId(jobId)
           .build();

       return asyncClient.deleteJobTagging(jobTaggingRequest)
           .thenAccept(response -> {
               System.out.println("You have successfully deleted " + jobId + "
tagging.");
           })
           .exceptionally(ex -> {
               System.err.println("Failed to delete job tags: " +
ex.getMessage());
               throw new RuntimeException(ex);
           });
   }
```

- For API details, see DeleteJobTagging in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DescribeJob` with an AWS SDK or CLI

The following code examples show how to use `DescribeJob`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Learn the basics

CLI

AWS CLI

To describe an Amazon S3 batch operations job

The following `describe-job` provides configuration parameters and status for the specified batch operations job.

```
aws s3control describe-job \
    --account-id 123456789012 \
    --job-id 93735294-df46-44d5-8638-6356f335324e
```

Output:

```
{
    "Job": {
        "TerminationDate": "2019-10-03T21:49:53.944Z",
        "JobId": "93735294-df46-44d5-8638-6356f335324e",
        "FailureReasons": [],
        "Manifest": {
            "Spec": {
                "Fields": [
                    "Bucket",
                    "Key"
                ],
                "Format": "S3BatchOperations_CSV_20180820"
            },
            "Location": {
                "ETag": "69f52a4e9f797e987155d9c8f5880897",
                "ObjectArn": "arn:aws:s3:::employee-records-logs/inv-
report/7a6a9be4-072c-407e-85a2-ec3e982f773e.csv"
            }
        },
        "Operation": {
            "S3PutObjectTagging": {
                "TagSet": [
                    {
                        "Value": "true",
                        "Key": "confidential"
                    }
                ]
            }
```

```
        },
        "RoleArn": "arn:aws:iam::123456789012:role/S3BatchJobRole",
        "ProgressSummary": {
            "TotalNumberOfTasks": 8,
            "NumberOfTasksFailed": 0,
            "NumberOfTasksSucceeded": 8
        },
        "Priority": 42,
        "Report": {
            "ReportScope": "AllTasks",
            "Format": "Report_CSV_20180820",
            "Enabled": true,
            "Prefix": "batch-op-create-job",
            "Bucket": "arn:aws:s3:::employee-records-logs"
        },
        "JobArn": "arn:aws:s3:us-west-2:123456789012:job/93735294-
df46-44d5-8638-6356f335324e",
        "CreationTime": "2019-10-03T21:48:48.048Z",
        "Status": "Complete"
    }
}
```

- For API details, see DescribeJob in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    /**
     * Asynchronously describes the specified job.
     *
     * @param jobId     the ID of the job to describe
     * @param accountId the ID of the AWS account associated with the job
     * @return a {@link CompletableFuture} that completes when the job
 description is available
     * @throws RuntimeException if an error occurs while describing the job
```

```
    */
   public CompletableFuture<Void> describeJobAsync(String jobId, String
accountId) {
       DescribeJobRequest jobRequest = DescribeJobRequest.builder()
           .jobId(jobId)
           .accountId(accountId)
           .build();

       return getAsyncClient().describeJob(jobRequest)
           .thenAccept(response -> {
               System.out.println("Job ID: " + response.job().jobId());
               System.out.println("Description: " +
response.job().description());
               System.out.println("Status: " + response.job().statusAsString());
               System.out.println("Role ARN: " + response.job().roleArn());
               System.out.println("Priority: " + response.job().priority());
               System.out.println("Progress Summary: " +
response.job().progressSummary());

               // Print out details about the job manifest.
               JobManifest manifest = response.job().manifest();
               System.out.println("Manifest Location: " +
manifest.location().objectArn());
               System.out.println("Manifest ETag: " +
manifest.location().eTag());

               // Print out details about the job operation.
               JobOperation operation = response.job().operation();
               if (operation.s3PutObjectTagging() != null) {
                   System.out.println("Operation: S3 Put Object Tagging");
                   System.out.println("Tag Set: " +
operation.s3PutObjectTagging().tagSet());
               }

               // Print out details about the job report.
               JobReport report = response.job().report();
               System.out.println("Report Bucket: " + report.bucket());
               System.out.println("Report Prefix: " + report.prefix());
               System.out.println("Report Format: " + report.format());
               System.out.println("Report Enabled: " + report.enabled());
               System.out.println("Report Scope: " +
report.reportScopeAsString());
           })
           .exceptionally(ex -> {
```

```
                System.err.println("Failed to describe job: " + ex.getMessage());
                throw new RuntimeException(ex);
            });
    }
```

- For API details, see DescribeJob in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetJobTagging` with an AWS SDK

The following code example shows how to use `GetJobTagging`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Learn the basics

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
    /**
     * Asynchronously retrieves the tags associated with a specific job in an AWS
account.
     *
     * @param jobId     the ID of the job for which to retrieve the tags
     * @param accountId the ID of the AWS account associated with the job
     * @return a {@link CompletableFuture} that completes when the job tags have
been retrieved, or with an exception if the operation fails
     * @throws RuntimeException if an error occurs while retrieving the job tags
```

```
     */
    public CompletableFuture<Void> getJobTagsAsync(String jobId, String
 accountId) {
        GetJobTaggingRequest request = GetJobTaggingRequest.builder()
            .jobId(jobId)
            .accountId(accountId)
            .build();

        return asyncClient.getJobTagging(request)
            .thenAccept(response -> {
                List<S3Tag> tags = response.tags();
                if (tags.isEmpty()) {
                    System.out.println("No tags found for job ID: " + jobId);
                } else {
                    for (S3Tag tag : tags) {
                        System.out.println("Tag key is: " + tag.key());
                        System.out.println("Tag value is: " + tag.value());
                    }
                }
            })
            .exceptionally(ex -> {
                System.err.println("Failed to get job tags: " + ex.getMessage());
                throw new RuntimeException(ex); // Propagate the exception
            });
    }
```

- For API details, see GetJobTagging in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutJobTagging` with an AWS SDK

The following code example shows how to use `PutJobTagging`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Learn the basics

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
   /**
    * Asynchronously adds tags to a job in the system.
    *
    * @param jobId     the ID of the job to add tags to
    * @param accountId the account ID associated with the job
    * @return a CompletableFuture that completes when the tagging operation is
finished
    */
   public CompletableFuture<Void> putJobTaggingAsync(String jobId, String
accountId) {
       S3Tag departmentTag = S3Tag.builder()
           .key("department")
           .value("Marketing")
           .build();

       S3Tag fiscalYearTag = S3Tag.builder()
           .key("FiscalYear")
           .value("2020")
           .build();

       PutJobTaggingRequest putJobTaggingRequest =
PutJobTaggingRequest.builder()
           .jobId(jobId)
           .accountId(accountId)
           .tags(departmentTag, fiscalYearTag)
           .build();

       return asyncClient.putJobTagging(putJobTaggingRequest)
           .thenRun(() -> {
               System.out.println("Additional Tags were added to job " + jobId);
           })
           .exceptionally(ex -> {
```

```
                System.err.println("Failed to add tags to job: " +
 ex.getMessage());
                throw new RuntimeException(ex); // Propagate the exception
            });
    }
```

- For API details, see PutJobTagging in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `UpdateJobPriority` with an AWS SDK or CLI

The following code examples show how to use `UpdateJobPriority`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Learn the basics

CLI

AWS CLI

To update the job priority of an Amazon S3 batch operations job

The following `update-job-priority` example updates the specified job to a new priority.

```
aws s3control update-job-priority \
    --account-id 123456789012 \
    --job-id 8d9a18fe-c303-4d39-8ccc-860d372da386 \
    --priority 52
```

Output:

```
{
    "JobId": "8d9a18fe-c303-4d39-8ccc-860d372da386",
    "Priority": 52
```

```
}
```

- For API details, see UpdateJobPriority in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
   /**
    * Updates the priority of a job asynchronously.
    *
    * @param jobId     the ID of the job to update
    * @param accountId the ID of the account associated with the job
    * @return a {@link CompletableFuture} that represents the asynchronous
operation, which completes when the job priority has been updated or an error
has occurred
    */
   public CompletableFuture<Void> updateJobPriorityAsync(String jobId, String
accountId) {
       UpdateJobPriorityRequest priorityRequest =
UpdateJobPriorityRequest.builder()
           .accountId(accountId)
           .jobId(jobId)
           .priority(60)
           .build();

       CompletableFuture<Void> future = new CompletableFuture<>();
       getAsyncClient().updateJobPriority(priorityRequest)
           .thenAccept(response -> {
               System.out.println("The job priority was updated");
               future.complete(null); // Complete the CompletableFuture on
successful execution
           })
           .exceptionally(ex -> {
               System.err.println("Failed to update job priority: " +
ex.getMessage());
```

```
                future.completeExceptionally(ex); // Complete the
 CompletableFuture exceptionally on error
                return null; // Return null to handle the exception
            });

        return future;
    }
```

- For API details, see UpdateJobPriority in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `UpdateJobStatus` with an AWS SDK or CLI

The following code examples show how to use `UpdateJobStatus`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Learn the basics

CLI

AWS CLI

To update the status of an Amazon S3 batch operations job

The following `update-job-status` example cancels the specified job which is awaiting approval.

```
aws s3control update-job-status \
    --account-id 123456789012 \
    --job-id 8d9a18fe-c303-4d39-8ccc-860d372da386 \
    --requested-job-status Cancelled
```

Output:

```
{
```

```
    "Status": "Cancelled",
    "JobId": "8d9a18fe-c303-4d39-8ccc-860d372da386"
}
```

The following `update-job-status` example confirms and runs the specified which is awaiting approval.

```
aws s3control update-job-status \
    --account-id 123456789012 \
    --job-id 5782949f-3301-4fb3-be34-8d5bab54dbca \
    --requested-job-status Ready

Output::

{
    "Status": "Ready",
    "JobId": "5782949f-3301-4fb3-
be34-8d5bab54dbca"
}
```

The following `update-job-status` example cancels the specified job which is running.

```
 aws s3control update-job-status \
    --account-id 123456789012 \
    --job-id 5782949f-3301-4fb3-be34-8d5bab54dbca \
    --requested-job-status Cancelled

Output::
{
         "Status": "Cancelling",
         "JobId": "5782949f-3301-4fb3-be34-8d5bab54dbca"
}
```

- For API details, see UpdateJobStatus in *AWS CLI Command Reference*.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
   /**
    * Cancels a job asynchronously.
    *
    * @param jobId The ID of the job to be canceled.
    * @param accountId The ID of the account associated with the job.
    * @return A {@link CompletableFuture} that completes when the job status has
been updated to "CANCELLED".
    *         If an error occurs during the update, the returned future will
complete exceptionally.
    */
   public CompletableFuture<Void> cancelJobAsync(String jobId, String accountId)
{
       UpdateJobStatusRequest updateJobStatusRequest =
UpdateJobStatusRequest.builder()
           .accountId(accountId)
           .jobId(jobId)
           .requestedJobStatus(String.valueOf(JobStatus.CANCELLED))
           .build();

       return asyncClient.updateJobStatus(updateJobStatusRequest)
           .thenAccept(updateJobStatusResponse -> {
               System.out.println("Job status updated to: " +
updateJobStatusResponse.status());
           })
           .exceptionally(ex -> {
               System.err.println("Failed to cancel job: " + ex.getMessage());
               throw new RuntimeException(ex); // Propagate the exception
           });
   }
```

- For API details, see UpdateJobStatus in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Code examples for S3 Directory Buckets using AWS SDKs

The following code examples show how to use S3 Directory Buckets with an AWS software development kit (SDK).

Basics are code examples that show you how to perform the essential operations within a service.

Actions are code excerpts from larger programs and must be run in context. While actions show you how to call individual service functions, you can see actions in context in their related scenarios.

Scenarios are code examples that show you how to accomplish specific tasks by calling multiple functions within a service or combined with other AWS services.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Get started

Hello Amazon S3 directory buckets

The following code example shows how to get started using Amazon S3 directory buckets.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
package com.example.s3.directorybucket;


import org.slf4j.Logger;
```

```
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.Bucket;
import software.amazon.awssdk.services.s3.model.BucketInfo;
import software.amazon.awssdk.services.s3.model.BucketType;
import software.amazon.awssdk.services.s3.model.CreateBucketConfiguration;
import software.amazon.awssdk.services.s3.model.CreateBucketRequest;
import software.amazon.awssdk.services.s3.model.CreateBucketResponse;
import software.amazon.awssdk.services.s3.model.DataRedundancy;
import software.amazon.awssdk.services.s3.model.DeleteBucketRequest;
import software.amazon.awssdk.services.s3.model.ListDirectoryBucketsRequest;
import software.amazon.awssdk.services.s3.model.ListDirectoryBucketsResponse;
import software.amazon.awssdk.services.s3.model.LocationInfo;
import software.amazon.awssdk.services.s3.model.LocationType;
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.util.List;
import java.util.stream.Collectors;

import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;

/**
 * Before running this example:
 * <p>
 * The SDK must be able to authenticate AWS requests on your behalf. If you have
 * not configured
 * authentication for SDKs and tools, see
 * https://docs.aws.amazon.com/sdkref/latest/guide/access.html in the AWS SDKs
 * and Tools Reference Guide.
 * <p>
 * You must have a runtime environment configured with the Java SDK.
 * See
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/setup.html in
 * the Developer Guide if this is not set up.
 * <p>
 * To use S3 directory buckets, configure a gateway VPC endpoint. This is the
 * recommended method to enable directory bucket traffic without
 * requiring an internet gateway or NAT device. For more information on
 * configuring VPC gateway endpoints, visit
 * https://docs.aws.amazon.com/AmazonS3/latest/userguide/s3-express-
networking.html#s3-express-networking-vpc-gateway.
 * <p>
 * Directory buckets are available in specific AWS Regions and Zones. For
```

```
 * details on Regions and Zones supporting directory buckets, see
 * https://docs.aws.amazon.com/AmazonS3/latest/userguide/s3-express-
networking.html#s3-express-endpoints.
 */

public class HelloS3DirectoryBuckets {
    private static final Logger logger =
 LoggerFactory.getLogger(HelloS3DirectoryBuckets.class);

    public static void main(String[] args) {
        String bucketName = "test-bucket-" + System.currentTimeMillis() + "--
usw2-az1--x-s3";
        Region region = Region.US_WEST_2;
        String zone = "usw2-az1";
        S3Client s3Client = createS3Client(region);

        try {
            // Create the directory bucket
            createDirectoryBucket(s3Client, bucketName, zone);
            logger.info("Created bucket: {}", bucketName);

            // List all directory buckets
            List<String> bucketNames = listDirectoryBuckets(s3Client);
            bucketNames.forEach(name -> logger.info("Bucket Name: {}", name));
        } catch (S3Exception e) {
            logger.error("An error occurred during S3 operations: {} - Error
 code: {}",
                    e.awsErrorDetails().errorMessage(),
 e.awsErrorDetails().errorCode(), e);
        } finally {
            try {
                // Delete the created bucket
                deleteDirectoryBucket(s3Client, bucketName);
                logger.info("Deleted bucket: {}", bucketName);
            } catch (S3Exception e) {
                logger.error("Failed to delete the bucket due to S3 error: {} -
 Error code: {}",
                        e.awsErrorDetails().errorMessage(),
 e.awsErrorDetails().errorCode(), e);
            } catch (RuntimeException e) {
                logger.error("Failed to delete the bucket due to unexpected
 error: {}", e.getMessage(), e);
            } finally {
                s3Client.close();
```

```
            }
        }
    }

    /**
     * Creates a new S3 directory bucket in a specified Zone (For example, a
     * specified Availability Zone in this code example).
     *
     * @param s3Client   The S3 client used to create the bucket
     * @param bucketName The name of the bucket to be created
     * @param zone       The region where the bucket will be created
     * @throws S3Exception if there's an error creating the bucket
     */
    public static void createDirectoryBucket(S3Client s3Client, String
 bucketName, String zone) throws S3Exception {
        logger.info("Creating bucket: {}", bucketName);

        CreateBucketConfiguration bucketConfiguration =
 CreateBucketConfiguration.builder()
                .location(LocationInfo.builder()
                        .type(LocationType.AVAILABILITY_ZONE)
                        .name(zone).build())
                .bucket(BucketInfo.builder()
                        .type(BucketType.DIRECTORY)
                        .dataRedundancy(DataRedundancy.SINGLE_AVAILABILITY_ZONE)
                        .build())
                .build();
        try {
            CreateBucketRequest bucketRequest = CreateBucketRequest.builder()
                    .bucket(bucketName)
                    .createBucketConfiguration(bucketConfiguration).build();
            CreateBucketResponse response = s3Client.createBucket(bucketRequest);
            logger.info("Bucket created successfully with location: {}",
 response.location());
        } catch (S3Exception e) {
            logger.error("Error creating bucket: {} - Error code: {}",
 e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            throw e;
        }
    }

    /**
     * Lists all S3 directory buckets.
```

```
     *
     * @param s3Client The S3 client used to interact with S3
     * @return A list of bucket names
     */
    public static List<String> listDirectoryBuckets(S3Client s3Client) {
        logger.info("Listing all directory buckets");

        try {
            // Create a ListBucketsRequest
            ListDirectoryBucketsRequest listBucketsRequest =
ListDirectoryBucketsRequest.builder().build();

            // Retrieve the list of buckets
            ListDirectoryBucketsResponse response =
s3Client.listDirectoryBuckets(listBucketsRequest);

            // Extract bucket names
            List<String> bucketNames = response.buckets().stream()
                    .map(Bucket::name)
                    .collect(Collectors.toList());

            return bucketNames;
        } catch (S3Exception e) {
            logger.error("Failed to list buckets: {} - Error code: {}",
e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            throw e;
        }
    }

    /**
     * Deletes the specified S3 directory bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the bucket to delete
     */
    public static void deleteDirectoryBucket(S3Client s3Client, String
bucketName) {
        try {
            DeleteBucketRequest deleteBucketRequest =
DeleteBucketRequest.builder()
                    .bucket(bucketName)
                    .build();
            s3Client.deleteBucket(deleteBucketRequest);
```

```
        } catch (S3Exception e) {
            logger.error("Failed to delete bucket: " + bucketName + " - Error
 code: " + e.awsErrorDetails().errorCode(),
                    e);
            throw e;
        }
    }

}
```

- For API details, see the following topics in *AWS SDK for Java 2.x API Reference*.
  - CreateBucket
  - ListDirectoryBuckets

Code examples

- Basic examples for S3 Directory Buckets using AWS SDKs
  - Hello Amazon S3 directory buckets
  - Learn the basics of S3 Directory Buckets with an AWS SDK
  - Actions for S3 Directory Buckets using AWS SDKs
    - Use AbortMultipartUpload with an AWS SDK
    - Use CompleteMultipartUpload with an AWS SDK
    - Use CopyObject with an AWS SDK
    - Use CreateBucket with an AWS SDK
    - Use CreateMultipartUpload with an AWS SDK
    - Use CreateSession with an AWS SDK
    - Use DeleteBucket with an AWS SDK
    - Use DeleteBucketEncryption with an AWS SDK
    - Use DeleteBucketPolicy with an AWS SDK
    - Use DeleteObject with an AWS SDK
    - Use DeleteObjects with an AWS SDK
    - Use GetBucketEncryption with an AWS SDK
    - Use GetBucketPolicy with an AWS SDK
    - Use GetObject with an AWS SDK

- Use GetObjectAttributes with an AWS SDK
- Use HeadBucket with an AWS SDK
- Use HeadObject with an AWS SDK
- Use ListDirectoryBuckets with an AWS SDK
- Use ListMultipartUploads with an AWS SDK
- Use ListObjectsV2 with an AWS SDK
- Use ListParts with an AWS SDK
- Use PutBucketEncryption with an AWS SDK
- Use PutBucketPolicy with an AWS SDK
- Use PutObject with an AWS SDK
- Use UploadPart with an AWS SDK
- Use UploadPartCopy with an AWS SDK

- Scenarios for S3 Directory Buckets using AWS SDKs
  - Create a presigned URL for Amazon S3 directory buckets to get an object using an AWS SDK

Basic examples for S3 Directory Buckets using AWS SDKs

The following code examples show how to use the basics of Amazon S3 Directory Buckets with AWS SDKs.

Examples

- Hello Amazon S3 directory buckets
- Learn the basics of S3 Directory Buckets with an AWS SDK
- Actions for S3 Directory Buckets using AWS SDKs
  - Use AbortMultipartUpload with an AWS SDK
  - Use CompleteMultipartUpload with an AWS SDK
  - Use CopyObject with an AWS SDK
  - Use CreateBucket with an AWS SDK
  - Use CreateMultipartUpload with an AWS SDK
  - Use CreateSession with an AWS SDK
  - Use DeleteBucket with an AWS SDK
  - Use DeleteBucketEncryption with an AWS SDK

- Use DeleteBucketPolicy with an AWS SDK
- Use DeleteObject with an AWS SDK
- Use DeleteObjects with an AWS SDK
- Use GetBucketEncryption with an AWS SDK
- Use GetBucketPolicy with an AWS SDK
- Use GetObject with an AWS SDK
- Use GetObjectAttributes with an AWS SDK
- Use HeadBucket with an AWS SDK
- Use HeadObject with an AWS SDK
- Use ListDirectoryBuckets with an AWS SDK
- Use ListMultipartUploads with an AWS SDK
- Use ListObjectsV2 with an AWS SDK
- Use ListParts with an AWS SDK
- Use PutBucketEncryption with an AWS SDK
- Use PutBucketPolicy with an AWS SDK
- Use PutObject with an AWS SDK
- Use UploadPart with an AWS SDK
- Use UploadPartCopy with an AWS SDK

Hello Amazon S3 directory buckets

The following code example shows how to get started using Amazon S3 directory buckets.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
package com.example.s3.directorybucket;


import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.Bucket;
import software.amazon.awssdk.services.s3.model.BucketInfo;
import software.amazon.awssdk.services.s3.model.BucketType;
import software.amazon.awssdk.services.s3.model.CreateBucketConfiguration;
import software.amazon.awssdk.services.s3.model.CreateBucketRequest;
import software.amazon.awssdk.services.s3.model.CreateBucketResponse;
import software.amazon.awssdk.services.s3.model.DataRedundancy;
import software.amazon.awssdk.services.s3.model.DeleteBucketRequest;
import software.amazon.awssdk.services.s3.model.ListDirectoryBucketsRequest;
import software.amazon.awssdk.services.s3.model.ListDirectoryBucketsResponse;
import software.amazon.awssdk.services.s3.model.LocationInfo;
import software.amazon.awssdk.services.s3.model.LocationType;
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.util.List;
import java.util.stream.Collectors;

import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;

/**
 * Before running this example:
 * <p>
 * The SDK must be able to authenticate AWS requests on your behalf. If you have
 * not configured
 * authentication for SDKs and tools, see
 * https://docs.aws.amazon.com/sdkref/latest/guide/access.html in the AWS SDKs
 * and Tools Reference Guide.
 * <p>
 * You must have a runtime environment configured with the Java SDK.
 * See
 * https://docs.aws.amazon.com/sdk-for-java/latest/developer-guide/setup.html in
 * the Developer Guide if this is not set up.
 * <p>
 * To use S3 directory buckets, configure a gateway VPC endpoint. This is the
 * recommended method to enable directory bucket traffic without
 * requiring an internet gateway or NAT device. For more information on
 * configuring VPC gateway endpoints, visit
```

```
 * https://docs.aws.amazon.com/AmazonS3/latest/userguide/s3-express-
networking.html#s3-express-networking-vpc-gateway.
 * <p>
 * Directory buckets are available in specific AWS Regions and Zones. For
 * details on Regions and Zones supporting directory buckets, see
 * https://docs.aws.amazon.com/AmazonS3/latest/userguide/s3-express-
networking.html#s3-express-endpoints.
 */

public class HelloS3DirectoryBuckets {
    private static final Logger logger =
 LoggerFactory.getLogger(HelloS3DirectoryBuckets.class);

    public static void main(String[] args) {
        String bucketName = "test-bucket-" + System.currentTimeMillis() + "--
usw2-az1--x-s3";
        Region region = Region.US_WEST_2;
        String zone = "usw2-az1";
        S3Client s3Client = createS3Client(region);

        try {
            // Create the directory bucket
            createDirectoryBucket(s3Client, bucketName, zone);
            logger.info("Created bucket: {}", bucketName);

            // List all directory buckets
            List<String> bucketNames = listDirectoryBuckets(s3Client);
            bucketNames.forEach(name -> logger.info("Bucket Name: {}", name));
        } catch (S3Exception e) {
            logger.error("An error occurred during S3 operations: {} - Error
 code: {}",
                    e.awsErrorDetails().errorMessage(),
 e.awsErrorDetails().errorCode(), e);
        } finally {
            try {
                // Delete the created bucket
                deleteDirectoryBucket(s3Client, bucketName);
                logger.info("Deleted bucket: {}", bucketName);
            } catch (S3Exception e) {
                logger.error("Failed to delete the bucket due to S3 error: {} -
 Error code: {}",
                        e.awsErrorDetails().errorMessage(),
 e.awsErrorDetails().errorCode(), e);
            } catch (RuntimeException e) {
```

```
                logger.error("Failed to delete the bucket due to unexpected
error: {}", e.getMessage(), e);
            } finally {
                s3Client.close();
            }
        }
    }

    /**
     * Creates a new S3 directory bucket in a specified Zone (For example, a
     * specified Availability Zone in this code example).
     *
     * @param s3Client   The S3 client used to create the bucket
     * @param bucketName The name of the bucket to be created
     * @param zone       The region where the bucket will be created
     * @throws S3Exception if there's an error creating the bucket
     */
    public static void createDirectoryBucket(S3Client s3Client, String
bucketName, String zone) throws S3Exception {
        logger.info("Creating bucket: {}", bucketName);

        CreateBucketConfiguration bucketConfiguration =
CreateBucketConfiguration.builder()
                .location(LocationInfo.builder()
                        .type(LocationType.AVAILABILITY_ZONE)
                        .name(zone).build())
                .bucket(BucketInfo.builder()
                        .type(BucketType.DIRECTORY)
                        .dataRedundancy(DataRedundancy.SINGLE_AVAILABILITY_ZONE)
                        .build())
                .build();
        try {
            CreateBucketRequest bucketRequest = CreateBucketRequest.builder()
                    .bucket(bucketName)
                    .createBucketConfiguration(bucketConfiguration).build();
            CreateBucketResponse response = s3Client.createBucket(bucketRequest);
            logger.info("Bucket created successfully with location: {}",
response.location());
        } catch (S3Exception e) {
            logger.error("Error creating bucket: {} - Error code: {}",
e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            throw e;
        }
```

```
    }

    /**
     * Lists all S3 directory buckets.
     *
     * @param s3Client The S3 client used to interact with S3
     * @return A list of bucket names
     */
    public static List<String> listDirectoryBuckets(S3Client s3Client) {
        logger.info("Listing all directory buckets");

        try {
            // Create a ListBucketsRequest
            ListDirectoryBucketsRequest listBucketsRequest =
ListDirectoryBucketsRequest.builder().build();

            // Retrieve the list of buckets
            ListDirectoryBucketsResponse response =
s3Client.listDirectoryBuckets(listBucketsRequest);

            // Extract bucket names
            List<String> bucketNames = response.buckets().stream()
                    .map(Bucket::name)
                    .collect(Collectors.toList());

            return bucketNames;
        } catch (S3Exception e) {
            logger.error("Failed to list buckets: {} - Error code: {}",
e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            throw e;
        }
    }

    /**
     * Deletes the specified S3 directory bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the bucket to delete
     */
    public static void deleteDirectoryBucket(S3Client s3Client, String
bucketName) {
        try {
```

```
            DeleteBucketRequest deleteBucketRequest =
 DeleteBucketRequest.builder()
                    .bucket(bucketName)
                    .build();
            s3Client.deleteBucket(deleteBucketRequest);
        } catch (S3Exception e) {
            logger.error("Failed to delete bucket: " + bucketName + " - Error
 code: " + e.awsErrorDetails().errorCode(),
                    e);
            throw e;
        }
    }

}
```

- For API details, see the following topics in *AWS SDK for Java 2.x API Reference*.
  - CreateBucket
  - ListDirectoryBuckets

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Learn the basics of S3 Directory Buckets with an AWS SDK

The following code examples show how to:

- Set up a VPC and VPC Endpoint.
- Set up the Policies, Roles, and User to work with S3 directory buckets and the S3 Express One Zone storage class.
- Create two S3 Clients.
- Create two buckets.
- Create an object and copy it over.
- Demonstrate performance difference.
- Populate the buckets to show the lexicographical difference.
- Prompt the user to see if they want to clean up the resources.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Run an interactive scenario demonstrating Amazon S3 features.

```
public class S3DirectoriesScenario {

    public static final String DASHES = new String(new char[80]).replace("\0",
 "-");

    private static final Logger logger =
 LoggerFactory.getLogger(S3DirectoriesScenario.class);
    static Scanner scanner = new Scanner(System.in);

    private static S3AsyncClient mS3RegularClient;
    private static S3AsyncClient mS3ExpressClient;

    private static String mdirectoryBucketName;
    private static String mregularBucketName;

    private static String stackName = "cfn-stack-s3-express-basics--" +
 UUID.randomUUID();

    private static String regularUser = "";
    private static String vpcId = "";
    private static String expressUser = "";

    private static String vpcEndpointId = "";

    private static final S3DirectoriesActions s3DirectoriesActions = new
 S3DirectoriesActions();

    public static void main(String[] args) {
        try {
            s3ExpressScenario();
        } catch (RuntimeException e) {
```

```
            logger.info(e.getMessage());
        }
    }

    // Runs the scenario.
    private static void s3ExpressScenario() {
        logger.info(DASHES);
        logger.info("Welcome to the Amazon S3 Express Basics demo using AWS SDK
for Java V2.");
        logger.info("""
            Let's get started! First, please note that S3 Express One Zone works
best when working within the AWS infrastructure,
            specifically when working in the same Availability Zone (AZ). To see
the best results in this example and when you implement
            directory buckets into your infrastructure, it is best to put your
compute resources in the same AZ as your directory
            bucket.
            """);
        waitForInputToContinue(scanner);
        logger.info(DASHES);

        // Create an optional VPC and create 2 IAM users.
        UserNames userNames = createVpcUsers();
        String expressUserName = userNames.getExpressUserName();
        String regularUserName = userNames.getRegularUserName();

        //  Set up two S3 clients, one regular and one express,
        //  and two buckets, one regular and one directory.
        setupClientsAndBuckets(expressUserName, regularUserName);

        // Create an S3 session for the express S3 client and add objects to the
buckets.
        logger.info("Now let's add some objects to our buckets and demonstrate
how to work with S3 Sessions.");
        waitForInputToContinue(scanner);
        String bucketObject = createSessionAddObjects();

        // Demonstrate performance differences between regular and directory
buckets.
        demonstratePerformance(bucketObject);

        // Populate the buckets to show the lexicographical difference between
        // regular and express buckets.
        showLexicographicalDifferences(bucketObject);
```

```
        logger.info(DASHES);
        logger.info("That's it for our tour of the basic operations for S3
Express One Zone.");
        logger.info("Would you like to cleanUp the AWS resources? (y/n): ");
        String response = scanner.next().trim().toLowerCase();
        if (response.equals("y")) {
            cleanUp(stackName);
        }
    }

    /*
      Delete resources created by this scenario.
    */
    public static void cleanUp(String stackName) {
        try {
            if (mdirectoryBucketName != null) {

s3DirectoriesActions.deleteBucketAndObjectsAsync(mS3ExpressClient,
mdirectoryBucketName).join();
            }
            logger.info("Deleted directory bucket " + mdirectoryBucketName);
            mdirectoryBucketName = null;
            if (mregularBucketName != null) {

s3DirectoriesActions.deleteBucketAndObjectsAsync(mS3RegularClient,
mregularBucketName).join();
            }
        } catch (CompletionException ce) {
            Throwable cause = ce.getCause();
            if (cause instanceof S3Exception) {
                logger.error("S3Exception occurred: {}", cause.getMessage(), ce);
            } else {
                logger.error("An unexpected error occurred: {}",
cause.getMessage(), ce);
            }
        }

        logger.info("Deleted regular bucket " + mregularBucketName);
        mregularBucketName = null;
        CloudFormationHelper.destroyCloudFormationStack(stackName);
    }

    private static void showLexicographicalDifferences(String bucketObject) {
```

```
        logger.info(DASHES);
        logger.info("""
            7. Populate the buckets to show the lexicographical (alphabetical)
difference
            when object names are listed. Now let's explore how directory buckets
store
            objects in a different manner to regular buckets. The key is in the
name
            "Directory". Where regular buckets store their key/value pairs in a
            flat manner, directory buckets use actual directories/folders.
            This allows for more rapid indexing, traversing, and therefore
            retrieval times!

            The more segmented your bucket is, with lots of
            directories, sub-directories, and objects, the more efficient it
becomes.
            This structural difference also causes `ListObject` operations to
behave
            differently, which can cause unexpected results. Let's add a few
more
            objects in sub-directories to see how the output of
            ListObjects changes.
            """);

        waitForInputToContinue(scanner);

        //  Populate a few more files in each bucket so that we can use
        //  ListObjects and show the difference.
        String otherObject = "other/" + bucketObject;
        String altObject = "alt/" + bucketObject;
        String otherAltObject = "other/alt/" + bucketObject;

        try {
            s3DirectoriesActions.putObjectAsync(mS3RegularClient,
mregularBucketName, otherObject, "").join();
            s3DirectoriesActions.putObjectAsync(mS3ExpressClient,
mdirectoryBucketName, otherObject, "").join();
            s3DirectoriesActions.putObjectAsync(mS3RegularClient,
mregularBucketName, altObject, "").join();
            s3DirectoriesActions.putObjectAsync(mS3ExpressClient,
mdirectoryBucketName, altObject, "").join();
            s3DirectoriesActions.putObjectAsync(mS3RegularClient,
mregularBucketName, otherAltObject, "").join();
```

```
            s3DirectoriesActions.putObjectAsync(mS3ExpressClient,
mdirectoryBucketName, otherAltObject, "").join();

        } catch (CompletionException ce) {
            Throwable cause = ce.getCause();
            if (cause instanceof NoSuchBucketException) {
                logger.error("S3Exception occurred: {}", cause.getMessage(), ce);
            } else {
                logger.error("An unexpected error occurred: {}",
cause.getMessage(), ce);
            }
            return;
        }

        try {
            // List objects in both S3 buckets.
            List<String> dirBucketObjects =
s3DirectoriesActions.listObjectsAsync(mS3ExpressClient,
mdirectoryBucketName).join();
            List<String> regBucketObjects =
s3DirectoriesActions.listObjectsAsync(mS3RegularClient,
mregularBucketName).join();

            logger.info("Directory bucket content");
            for (String obj : dirBucketObjects) {
                logger.info(obj);
            }

            logger.info("Regular bucket content");
            for (String obj : regBucketObjects) {
                logger.info(obj);
            }
        } catch (CompletionException e) {
            logger.error("Async operation failed: {} ",
e.getCause().getMessage());
            return;
        }

        logger.info("""
            Notice how the regular bucket lists objects in lexicographical order,
while the directory bucket does not. This is
            because the regular bucket considers the whole "key" to be the object
identifier, while the directory bucket actually
```

```
            creates directories and uses the object "key" as a path to the
object.
            """);
        waitForInputToContinue(scanner);
    }

    /**
     * Demonstrates the performance difference between downloading an object from
a directory bucket and a regular bucket.
     *
     * <p>This method:
     * <ul>
     *     <li>Prompts the user to choose the number of downloads (default is
1,000).</li>
     *     <li>Downloads the specified object from the directory bucket and
measures the total time.</li>
     *     <li>Downloads the same object from the regular bucket and measures the
total time.</li>
     *     <li>Compares the time differences and prints the results.</li>
     * </ul>
     *
     * <p>Note: The performance difference will be more pronounced if this
example is run on an EC2 instance
     * in the same Availability Zone as the buckets.
     *
     * @param bucketObject the name of the object to download
     */
    private static void demonstratePerformance(String bucketObject) {
        logger.info(DASHES);
        logger.info("6. Demonstrate the performance difference.");
        logger.info("""
            Now, let's do a performance test. We'll download the same object from
each
            bucket repeatedly and compare the total time needed.

            Note: the performance difference will be much more pronounced if this
            example is run in an EC2 instance in the same Availability Zone as
            the bucket.
            """);
        waitForInputToContinue(scanner);

        int downloads = 1000; // Default value.
        logger.info("The default number of downloads of the same object for this
example is set at " + downloads + ".");
```

```
        // Ask if the user wants to download a different number.
        logger.info("Would you like to download the file a different number of
times? (y/n): ");
        String response = scanner.next().trim().toLowerCase();
        if (response.equals("y")) {
            int maxDownloads = 1_000_000;

            // Ask for a valid number of downloads.
            while (true) {
                logger.info("Enter a number between 1 and " + maxDownloads + "
for the number of downloads: ");
                if (scanner.hasNextInt()) {
                    downloads = scanner.nextInt();
                    if (downloads >= 1 && downloads <= maxDownloads) {
                        break;
                    } else {
                        logger.info("Please enter a number between 1 and " +
maxDownloads + ".");
                    }
                } else {
                    logger.info("Invalid input. Please enter a valid integer.");
                    scanner.next();
                }
            }

            logger.info("You have chosen to download {}  items.", downloads);
        } else {
            logger.info("No changes made. Using default downloads: {}",
downloads);
        }
        // Simulating the download process for the directory bucket.
        logger.info("Downloading from the directory bucket.");
        long directoryTimeStart = System.nanoTime();
        for (int index = 0; index < downloads; index++) {
            if (index % 50 == 0) {
                logger.info("Download " + index + " of " + downloads);
            }

            try {
                // Get the object from the directory bucket.
                s3DirectoriesActions.getObjectAsync(mS3ExpressClient,
mdirectoryBucketName, bucketObject).join();
            } catch (CompletionException ce) {
```

```
                Throwable cause = ce.getCause();
                if (cause instanceof NoSuchKeyException) {
                    logger.error("S3Exception occurred: {}", cause.getMessage(),
ce);
                } else {
                    logger.error("An unexpected error occurred: {}",
cause.getMessage(), ce);
                }
                return;
            }
        }
        long directoryTimeDifference = System.nanoTime() - directoryTimeStart;

        // Download from the regular bucket.
        logger.info("Downloading from the regular bucket.");
        long normalTimeStart = System.nanoTime();
        for (int index = 0; index < downloads; index++) {
            if (index % 50 == 0) {
                logger.info("Download " + index + " of " + downloads);
            }

            try {
                s3DirectoriesActions.getObjectAsync(mS3RegularClient,
mregularBucketName, bucketObject).join();
            } catch (CompletionException ce) {
                Throwable cause = ce.getCause();
                if (cause instanceof NoSuchKeyException) {
                    logger.error("S3Exception occurred: {}", cause.getMessage(),
ce);
                } else {
                    logger.error("An unexpected error occurred: {}",
cause.getMessage(), ce);
                }
                return;
            }
        }

        long normalTimeDifference = System.nanoTime() - normalTimeStart;
        logger.info("The directory bucket took " + directoryTimeDifference
+ " nanoseconds, while the regular bucket took " + normalTimeDifference + "
nanoseconds.");
        long difference = normalTimeDifference - directoryTimeDifference;
        logger.info("That's a difference of " + difference + " nanoseconds, or");
        logger.info(difference / 1_000_000_000.0 + " seconds.");
```

```
        if (difference < 0) {
            logger.info("The directory buckets were slower. This can happen if
you are not running on the cloud within a VPC.");
        }
        waitForInputToContinue(scanner);
    }

    private static String createSessionAddObjects() {
        logger.info(DASHES);
        logger.info("""
            5. Create an object and copy it.
            We'll create an object consisting of some text and upload it to the
            regular bucket.
            """);
        waitForInputToContinue(scanner);

        String bucketObject = "basic-text-object.txt";
        try {
            s3DirectoriesActions.putObjectAsync(mS3RegularClient,
mregularBucketName, bucketObject, "Look Ma, I'm a bucket!").join();
            s3DirectoriesActions.createSessionAsync(mS3ExpressClient,
mdirectoryBucketName).join();

            // Copy the object to the destination S3 bucket.
            s3DirectoriesActions.copyObjectAsync(mS3ExpressClient,
mregularBucketName, bucketObject, mdirectoryBucketName, bucketObject).join();
        } catch (CompletionException ce) {
            Throwable cause = ce.getCause();
            if (cause instanceof S3Exception) {
                logger.error("S3Exception occurred: {}", cause.getMessage(), ce);
            } else {
                logger.error("An unexpected error occurred: {}",
cause.getMessage(), ce);
            }
        }
        logger.info("""
            It worked! This is because the S3Client that performed the copy
operation
            is the expressClient using the credentials for the user with
permission to
            work with directory buckets.
```

```
            It's important to remember the user permissions when interacting
with
            directory buckets. Instead of validating permissions on every call
as
            regular buckets do, directory buckets utilize the user credentials
and session
            token to validate. This allows for much faster connection speeds on
every call.
            For single calls, this is low, but for many concurrent calls
            this adds up to a lot of time saved.
            """);
        waitForInputToContinue(scanner);
        return bucketObject;
    }

    /**
     * Creates VPC users for the S3 Express One Zone scenario.
     * <p>
     * This method performs the following steps:
     * <ol>
     *     <li>Optionally creates a new VPC and VPC Endpoint if the application
is running in an EC2 instance in the same Availability Zone as the directory
buckets.</li>
     *     <li>Creates two IAM users: one with S3 Express One Zone permissions
and one without.</li>
     * </ol>
     *
     * @return a {@link UserNames} object containing the names of the created IAM
users
     */
    public static UserNames createVpcUsers() {
        /*
        Optionally create a VPC.
        Create two IAM users, one with S3 Express One Zone permissions and one
without.
        */
        logger.info(DASHES);
        logger.info("""
            1. First, we'll set up a new VPC and VPC Endpoint if this program is
running in an EC2 instance in the same AZ as your\s
            directory buckets will be. Are you running this in an EC2 instance
located in the same AZ as your intended directory buckets?
            """);
```

```
        logger.info("Do you want to setup a VPC Endpoint? (y/n)");
        String endpointAns = scanner.nextLine().trim();
        if (endpointAns.equalsIgnoreCase("y")) {
            logger.info("""
                Great! Let's set up a VPC, retrieve the Route Table from it, and
create a VPC Endpoint to connect the S3 Client to.
                """);
            try {
                s3DirectoriesActions.setupVPCAsync().join();
            } catch (CompletionException ce) {
                Throwable cause = ce.getCause();
                if (cause instanceof Ec2Exception) {
                    logger.error("IamException occurred: {}", cause.getMessage(),
ce);
                } else {
                    logger.error("An unexpected error occurred: {}",
cause.getMessage(), ce);
                }
            }
            waitForInputToContinue(scanner);
        } else {
            logger.info("Skipping the VPC setup. Don't forget to use this in
production!");
        }
        logger.info(DASHES);
        logger.info("""
            2. Create a RegularUser and ExpressUser by using the AWS CDK.
            One IAM User, named RegularUser, will have permissions to work only
            with regular buckets and one IAM user, named ExpressUser, will have
            permissions to work only with directory buckets.
            """);
        waitForInputToContinue(scanner);

        // Create two users required for this scenario.
        Map<String, String> stackOutputs = createUsersUsingCDK(stackName);
        regularUser = stackOutputs.get("RegularUser");
        expressUser = stackOutputs.get("ExpressUser");

        UserNames names = new UserNames();
        names.setRegularUserName(regularUser);
        names.setExpressUserName(expressUser);
        return names;
    }
```

```
    /**
     * Creates users using AWS CloudFormation.
     *
     * @return a {@link Map} of String keys and String values representing the
stack outputs,
     * which may include user-related information such as user names and IDs.
     */
    public static Map<String, String> createUsersUsingCDK(String stackName) {
        logger.info("We'll use an AWS CloudFormation template to create the IAM
users and policies.");
        CloudFormationHelper.deployCloudFormationStack(stackName);
        return CloudFormationHelper.getStackOutputsAsync(stackName).join();
    }

    /**
     * Sets up the necessary clients and buckets for the S3 Express service.
     *
     * @param expressUserName the username for the user with S3 Express
permissions
     * @param regularUserName the username for the user with regular S3
permissions
     */
    public static void setupClientsAndBuckets(String expressUserName, String
regularUserName) {
        Scanner locscanner = new Scanner(System.in);
        String accessKeyIdforRegUser;
        String secretAccessforRegUser;
        try {
            CreateAccessKeyResponse keyResponse =
s3DirectoriesActions.createAccessKeyAsync(regularUserName).join();
            accessKeyIdforRegUser = keyResponse.accessKey().accessKeyId();
            secretAccessforRegUser = keyResponse.accessKey().secretAccessKey();
        } catch (CompletionException ce) {
            Throwable cause = ce.getCause();
            if (cause instanceof IamException) {
                logger.error("IamException occurred: {}", cause.getMessage(),
ce);
            } else {
                logger.error("An unexpected error occurred: {}",
cause.getMessage(), ce);
            }
            return;
        }
```

```
        String accessKeyIdforExpressUser;
        String secretAccessforExpressUser;
        try {
            CreateAccessKeyResponse keyResponseExpress =
s3DirectoriesActions.createAccessKeyAsync(expressUserName).join();
            accessKeyIdforExpressUser =
keyResponseExpress.accessKey().accessKeyId();
            secretAccessforExpressUser =
keyResponseExpress.accessKey().secretAccessKey();
        } catch (CompletionException ce) {
            Throwable cause = ce.getCause();
            if (cause instanceof IamException) {
                logger.error("IamException occurred: {}", cause.getMessage(),
ce);
            } else {
                logger.error("An unexpected error occurred: {}",
cause.getMessage(), ce);
            }
            return;
        }

        logger.info(DASHES);
        logger.info("""
            3. Create two S3Clients; one uses the ExpressUser's credentials and
one uses the RegularUser's credentials.
            The 2 S3Clients will use different credentials.
            """);
        waitForInputToContinue(locscanner);
        try {
            mS3RegularClient =
createS3ClientWithAccessKeyAsync(accessKeyIdforRegUser,
secretAccessforRegUser).join();
            mS3ExpressClient =
createS3ClientWithAccessKeyAsync(accessKeyIdforExpressUser,
secretAccessforExpressUser).join();
        } catch (CompletionException ce) {
            Throwable cause = ce.getCause();
            if (cause instanceof IllegalArgumentException) {
                logger.error("An invalid argument exception occurred: {}",
cause.getMessage(), ce);
            } else {
                logger.error("An unexpected error occurred: {}",
cause.getMessage(), ce);
            }
```

```
            return;
        }

        logger.info("""
            We can now use the ExpressUser client to make calls to S3 Express
operations.
            """);
        waitForInputToContinue(locscanner);
        logger.info(DASHES);
        logger.info("""
            4. Create two buckets.
            Now we will create a directory bucket which is the linchpin of the S3
Express One Zone service. Directory buckets
            behave differently from regular S3 buckets which we will explore
here. We'll also create a regular bucket, put
            an object into the regular bucket, and copy it to the directory
bucket.
            """);

        logger.info("""
            Now, let's choose an availability zone (AZ) for the directory
bucket.
            We'll choose one that is supported.
            """);
        String zoneId;
        String regularBucketName;
        try {
            zoneId = s3DirectoriesActions.selectAvailabilityZoneIdAsync().join();
            regularBucketName = "reg-bucket-" + System.currentTimeMillis();
        } catch (CompletionException ce) {
            Throwable cause = ce.getCause();
            if (cause instanceof Ec2Exception) {
                logger.error("EC2Exception occurred: {}", cause.getMessage(),
ce);
            } else {
                logger.error("An unexpected error occurred: {}",
cause.getMessage(), ce);
            }
            return;
        }
        logger.info("""
            Now, let's create the actual directory bucket, as well as a regular
bucket."
             """);
```

```
        String directoryBucketName = "test-bucket-" + System.currentTimeMillis()
+ "--" + zoneId + "--x-s3";
        try {
            s3DirectoriesActions.createDirectoryBucketAsync(mS3ExpressClient,
directoryBucketName, zoneId).join();
            logger.info("Created directory bucket {}", directoryBucketName);
        } catch (CompletionException ce) {
            Throwable cause = ce.getCause();
            if (cause instanceof BucketAlreadyExistsException) {
                logger.error("The bucket already exists. Moving on: {}",
cause.getMessage(), ce);
            } else {
                logger.error("An unexpected error occurred: {}",
cause.getMessage(), ce);
                return;
            }
        }

        // Assign to the data member.
        mdirectoryBucketName = directoryBucketName;
        try {
            s3DirectoriesActions.createBucketAsync(mS3RegularClient,
regularBucketName).join();
            logger.info("Created regular bucket {} ", regularBucketName);
            mregularBucketName = regularBucketName;
        } catch (CompletionException ce) {
            Throwable cause = ce.getCause();
            if (cause instanceof BucketAlreadyExistsException) {
                logger.error("The bucket already exists. Moving on: {}",
cause.getMessage(), ce);
            } else {
                logger.error("An unexpected error occurred: {}",
cause.getMessage(), ce);
                return;
            }
        }
        logger.info("Great! Both buckets were created.");
        waitForInputToContinue(locscanner);
    }

    /**
     * Creates an asynchronous S3 client with the specified access key and secret
access key.
```

```
     *
     * @param accessKeyId     the AWS access key ID
     * @param secretAccessKey the AWS secret access key
     * @return a {@link CompletableFuture} that asynchronously creates the S3
 client
     * @throws IllegalArgumentException if the access key ID or secret access key
 is null
     */
    public static CompletableFuture<S3AsyncClient>
 createS3ClientWithAccessKeyAsync(String accessKeyId, String secretAccessKey) {
        return CompletableFuture.supplyAsync(() -> {
            // Validate input parameters
            if (accessKeyId == null || accessKeyId.isBlank() || secretAccessKey
 == null || secretAccessKey.isBlank()) {
                throw new IllegalArgumentException("Access Key ID and Secret
 Access Key must not be null or empty");
            }

            AwsBasicCredentials awsCredentials =
 AwsBasicCredentials.create(accessKeyId, secretAccessKey);
            return S3AsyncClient.builder()

 .credentialsProvider(StaticCredentialsProvider.create(awsCredentials))
                .region(Region.US_WEST_2)
                .build();
        });
    }

    private static void waitForInputToContinue(Scanner scanner) {
        while (true) {
            logger.info("");
            logger.info("Enter 'c' followed by <ENTER> to continue:");
            String input = scanner.nextLine();

            if (input.trim().equalsIgnoreCase("c")) {
                logger.info("Continuing with the program...");
                logger.info("");
                break;
            } else {
                logger.info("Invalid input. Please try again.");
            }
        }
    }
}
```

A wrapper class for Amazon S3 SDK methods.

```
public class S3DirectoriesActions {

    private static IamAsyncClient iamAsyncClient;

    private static Ec2AsyncClient ec2AsyncClient;
    private static final Logger logger =
 LoggerFactory.getLogger(S3DirectoriesActions.class);

    private static IamAsyncClient getIAMAsyncClient() {
        if (iamAsyncClient == null) {
            SdkAsyncHttpClient httpClient = NettyNioAsyncHttpClient.builder()
                .maxConcurrency(100)
                .connectionTimeout(Duration.ofSeconds(60))
                .readTimeout(Duration.ofSeconds(60))
                .writeTimeout(Duration.ofSeconds(60))
                .build();

            ClientOverrideConfiguration overrideConfig =
 ClientOverrideConfiguration.builder()
                .apiCallTimeout(Duration.ofMinutes(2))
                .apiCallAttemptTimeout(Duration.ofSeconds(90))
                .retryStrategy(RetryMode.STANDARD)
                .build();

            iamAsyncClient = IamAsyncClient.builder()
                .httpClient(httpClient)
                .overrideConfiguration(overrideConfig)
                .build();
        }
        return iamAsyncClient;
    }

    private static Ec2AsyncClient getEc2AsyncClient() {
        if (ec2AsyncClient == null) {
            SdkAsyncHttpClient httpClient = NettyNioAsyncHttpClient.builder()
                .maxConcurrency(100)
                .connectionTimeout(Duration.ofSeconds(60))
                .readTimeout(Duration.ofSeconds(60))
                .writeTimeout(Duration.ofSeconds(60))
```

```
                .build();

            ClientOverrideConfiguration overrideConfig =
ClientOverrideConfiguration.builder()
                .apiCallTimeout(Duration.ofMinutes(2))
                .apiCallAttemptTimeout(Duration.ofSeconds(90))
                .retryStrategy(RetryMode.STANDARD)
                .build();

            ec2AsyncClient = Ec2AsyncClient.builder()
                .httpClient(httpClient)
                .region(Region.US_WEST_2)
                .overrideConfiguration(overrideConfig)
                .build();
        }
        return ec2AsyncClient;
    }

    /**
     * Deletes the specified S3 bucket and all the objects within it
asynchronously.
     *
     * @param s3AsyncClient the S3 asynchronous client to use for the operations
     * @param bucketName the name of the S3 bucket to be deleted
     * @return a {@link CompletableFuture} that completes with a {@link
WaiterResponse} containing the
     *         {@link HeadBucketResponse} when the bucket has been successfully
deleted
     * @throws CompletionException if there was an error deleting the bucket or
its objects
     */
    public CompletableFuture<WaiterResponse<HeadBucketResponse>>
deleteBucketAndObjectsAsync(S3AsyncClient s3AsyncClient, String bucketName) {
        ListObjectsV2Request listRequest = ListObjectsV2Request.builder()
            .bucket(bucketName)
            .build();

        return s3AsyncClient.listObjectsV2(listRequest)
            .thenCompose(listResponse -> {
                if (!listResponse.contents().isEmpty()) {
                    List<ObjectIdentifier> objectIdentifiers =
listResponse.contents().stream()
                        .map(s3Object ->
ObjectIdentifier.builder().key(s3Object.key()).build())
```

```
                        .collect(Collectors.toList());

                    DeleteObjectsRequest deleteRequest =
DeleteObjectsRequest.builder()
                        .bucket(bucketName)

.delete(Delete.builder().objects(objectIdentifiers).build())
                        .build();

                    return s3AsyncClient.deleteObjects(deleteRequest)
                        .thenAccept(deleteResponse -> {
                            if (!deleteResponse.errors().isEmpty()) {
                                deleteResponse.errors().forEach(error ->
                                    logger.error("Couldn't delete object " +
error.key() + ". Reason: " + error.message()));
                            }
                        });
                }
                return CompletableFuture.completedFuture(null);
            })
            .thenCompose(ignored -> {
                DeleteBucketRequest deleteBucketRequest =
DeleteBucketRequest.builder()
                    .bucket(bucketName)
                    .build();
                return s3AsyncClient.deleteBucket(deleteBucketRequest);
            })
            .thenCompose(ignored -> {
                S3AsyncWaiter waiter = s3AsyncClient.waiter();
                HeadBucketRequest headBucketRequest =
HeadBucketRequest.builder().bucket(bucketName).build();
                return waiter.waitUntilBucketNotExists(headBucketRequest);
            })
            .whenComplete((ignored, exception) -> {
                if (exception != null) {
                    Throwable cause = exception.getCause();
                    if (cause instanceof S3Exception) {
                        throw new CompletionException("Error deleting bucket: " +
bucketName, cause);
                    }
                    throw new CompletionException("Failed to delete bucket and
objects: " + bucketName, exception);
                }
                logger.info("Bucket deleted successfully: " + bucketName);
```

```
            });
    }

    /**
     *  Lists the objects in an S3 bucket asynchronously.
     *
     * @param s3Client the S3 async client to use for the operation
     * @param bucketName the name of the S3 bucket containing the objects to list
     * @return a {@link CompletableFuture} that contains the list of object keys
in the specified bucket
     */
    public CompletableFuture<List<String>> listObjectsAsync(S3AsyncClient
s3Client, String bucketName) {
        ListObjectsV2Request request = ListObjectsV2Request.builder()
            .bucket(bucketName)
            .build();

        return s3Client.listObjectsV2(request)
            .thenApply(response -> response.contents().stream()
                .map(S3Object::key)
                .toList())
            .whenComplete((result, exception) -> {
                if (exception != null) {
                    throw new CompletionException("Couldn't list objects in
bucket: " + bucketName, exception);
                }
            });
    }

    /**
     * Retrieves an object from an Amazon S3 bucket asynchronously.
     *
     * @param s3Client   the S3 async client to use for the operation
     * @param bucketName the name of the S3 bucket containing the object
     * @param keyName    the unique identifier (key) of the object to retrieve
     * @return a {@link CompletableFuture} that, when completed, contains the
object's content as a {@link ResponseBytes} of {@link GetObjectResponse}
     */
    public CompletableFuture<ResponseBytes<GetObjectResponse>>
getObjectAsync(S3AsyncClient s3Client, String bucketName, String keyName) {
        GetObjectRequest objectRequest = GetObjectRequest.builder()
            .key(keyName)
            .bucket(bucketName)
            .build();
```

```
        // Get the object asynchronously and transform it into a byte array
        return s3Client.getObject(objectRequest,
AsyncResponseTransformer.toBytes())
            .exceptionally(exception -> {
                Throwable cause = exception.getCause();
                if (cause instanceof NoSuchKeyException) {
                    throw new CompletionException("Failed to get the object.
Reason: " + ((S3Exception) cause).awsErrorDetails().errorMessage(), cause);
                }
                throw new CompletionException("Failed to get the object",
exception);
            });
    }

    /**
     * Asynchronously copies an object from one S3 bucket to another.
     *
     * @param s3Client           the S3 async client to use for the copy
operation
     * @param sourceBucket       the name of the source bucket
     * @param sourceKey          the key of the object to be copied in the source
bucket
     * @param destinationBucket  the name of the destination bucket
     * @param destinationKey     the key of the copied object in the destination
bucket
     * @return a {@link CompletableFuture} that completes when the copy operation
is finished
     */
    public CompletableFuture<Void> copyObjectAsync(S3AsyncClient s3Client, String
sourceBucket, String sourceKey, String destinationBucket, String destinationKey)
{
        CopyObjectRequest copyRequest = CopyObjectRequest.builder()
            .sourceBucket(sourceBucket)
            .sourceKey(sourceKey)
            .destinationBucket(destinationBucket)
            .destinationKey(destinationKey)
            .build();

        return s3Client.copyObject(copyRequest)
            .thenRun(() -> logger.info("Copied object '" + sourceKey + "' from
bucket '" + sourceBucket + "' to bucket '" + destinationBucket + "'"))
            .whenComplete((ignored, exception) -> {
                if (exception != null) {
```

```
                    Throwable cause = exception.getCause();
                    if (cause instanceof S3Exception) {
                        throw new CompletionException("Couldn't
copy object '" + sourceKey + "' from bucket '" + sourceBucket + "'
to bucket '" + destinationBucket + "'. Reason: " + ((S3Exception)
cause).awsErrorDetails().errorMessage(), cause);
                    }
                    throw new CompletionException("Failed to copy object",
exception);
                }
            });
    }

    /**
     * Asynchronously creates a session for the specified S3 bucket.
     *
     * @param s3Client   the S3 asynchronous client to use for creating the
session
     * @param bucketName the name of the S3 bucket for which to create the
session
     * @return a {@link CompletableFuture} that completes when the session is
created, or throws a {@link CompletionException} if an error occurs
     */
    public CompletableFuture<CreateSessionResponse>
createSessionAsync(S3AsyncClient s3Client, String bucketName) {
        CreateSessionRequest request = CreateSessionRequest.builder()
            .bucket(bucketName)
            .build();

        return s3Client.createSession(request)
            .whenComplete((response, exception) -> {
                if (exception != null) {
                    Throwable cause = exception.getCause();
                    if (cause instanceof S3Exception) {
                        throw new CompletionException("Couldn't create the
session. Reason: " + ((S3Exception) cause).awsErrorDetails().errorMessage(),
cause);
                    }
                    throw new CompletionException("Unexpected error occurred
while creating session", exception);
                }
                logger.info("Created session for bucket: " + bucketName);
            });
```

```
    }

    /**
     * Creates a new S3 directory bucket in a specified Zone (For example, a
     * specified Availability Zone in this code example).
     *
     * @param s3Client   The asynchronous S3 client used to create the bucket
     * @param bucketName The name of the bucket to be created
     * @param zone       The Availability Zone where the bucket will be created
     * @throws CompletionException if there's an error creating the bucket
     */
    public CompletableFuture<CreateBucketResponse>
createDirectoryBucketAsync(S3AsyncClient s3Client, String bucketName, String
zone) {
        logger.info("Creating bucket: " + bucketName);

        CreateBucketConfiguration bucketConfiguration =
CreateBucketConfiguration.builder()
            .location(LocationInfo.builder()
                .type(LocationType.AVAILABILITY_ZONE)
                .name(zone)
                .build())
            .bucket(BucketInfo.builder()
                .type(BucketType.DIRECTORY)
                .dataRedundancy(DataRedundancy.SINGLE_AVAILABILITY_ZONE)
                .build())
            .build();

        CreateBucketRequest bucketRequest = CreateBucketRequest.builder()
            .bucket(bucketName)
            .createBucketConfiguration(bucketConfiguration)
            .build();

        return s3Client.createBucket(bucketRequest)
            .whenComplete((response, exception) -> {
                if (exception != null) {
                    Throwable cause = exception.getCause();
                    if (cause instanceof BucketAlreadyExistsException) {
                        throw new CompletionException("The bucket already exists:
" + ((S3Exception) cause).awsErrorDetails().errorMessage(), cause);
                    }
                    throw new CompletionException("Unexpected error occurred
while creating bucket", exception);
                }
```

```
                logger.info("Bucket created successfully with location: " +
response.location());
            });
    }

    /**
     * Creates an S3 bucket asynchronously.
     *
     * @param s3Client    the S3 async client to use for the bucket creation
     * @param bucketName  the name of the S3 bucket to create
     * @return a {@link CompletableFuture} that completes with the {@link
WaiterResponse} containing the {@link HeadBucketResponse}
     *         when the bucket is successfully created
     * @throws CompletionException if there's an error creating the bucket
     */
    public CompletableFuture<WaiterResponse<HeadBucketResponse>>
createBucketAsync(S3AsyncClient s3Client, String bucketName) {
        CreateBucketRequest bucketRequest = CreateBucketRequest.builder()
            .bucket(bucketName)
            .build();

        return s3Client.createBucket(bucketRequest)
            .thenCompose(response -> {
                S3AsyncWaiter s3Waiter = s3Client.waiter();
                HeadBucketRequest bucketRequestWait = HeadBucketRequest.builder()
                    .bucket(bucketName)
                    .build();
                return s3Waiter.waitUntilBucketExists(bucketRequestWait);
            })
            .whenComplete((response, exception) -> {
                if (exception != null) {
                    Throwable cause = exception.getCause();
                    if (cause instanceof BucketAlreadyExistsException) {
                        throw new CompletionException("The S3 bucket exists: " +
cause.getMessage(), cause);
                    } else {
                        throw new CompletionException("Failed to create access
key: " + exception.getMessage(), exception);
                    }
                }
                logger.info(bucketName + " is ready");
            });
    }
```

```
    /**
     * Uploads an object to an Amazon S3 bucket asynchronously.
     *
     * @param s3Client     the S3 async client to use for the upload
     * @param bucketName   the destination S3 bucket name
     * @param bucketObject the name of the object to be uploaded
     * @param text         the content to be uploaded as the object
     */
    public CompletableFuture<PutObjectResponse> putObjectAsync(S3AsyncClient
s3Client, String bucketName, String bucketObject, String text) {
        PutObjectRequest objectRequest = PutObjectRequest.builder()
            .bucket(bucketName)
            .key(bucketObject)
            .build();

        return s3Client.putObject(objectRequest,
AsyncRequestBody.fromString(text))
            .whenComplete((response, exception) -> {
                if (exception != null) {
                    Throwable cause = exception.getCause();
                    if (cause instanceof NoSuchBucketException) {
                        throw new CompletionException("The S3 bucket does not
exist: " + cause.getMessage(), cause);
                    } else {
                        throw new CompletionException("Failed to create access
key: " + exception.getMessage(), exception);
                    }
                }
            });
    }

    /**
     * Creates an AWS IAM access key asynchronously for the specified user name.
     *
     * @param userName the name of the IAM user for whom to create the access key
     * @return a {@link CompletableFuture} that completes with the {@link
CreateAccessKeyResponse} containing the created access key
     */
    public CompletableFuture<CreateAccessKeyResponse> createAccessKeyAsync(String
userName) {
        CreateAccessKeyRequest request = CreateAccessKeyRequest.builder()
            .userName(userName)
            .build();
```

```
        return getIAMAsyncClient().createAccessKey(request)
            .whenComplete((response, exception) -> {
                if (response != null) {
                    logger.info("Access Key Created.");
                } else {
                    if (exception == null) {
                        Throwable cause = exception.getCause();
                        if (cause instanceof IamException) {
                            throw new CompletionException("IAM error while
creating access key: " + cause.getMessage(), cause);
                        } else {
                            throw new CompletionException("Failed to create
access key: " + exception.getMessage(), exception);
                        }
                    }
                }
            });
   }

   /**
    * Asynchronously selects an Availability Zone ID from the available EC2
zones.
    *
    * @return A {@link CompletableFuture} that resolves to the selected
Availability Zone ID.
    * @throws CompletionException if an error occurs during the request or
processing.
    */
   public CompletableFuture<String> selectAvailabilityZoneIdAsync() {
        DescribeAvailabilityZonesRequest zonesRequest =
DescribeAvailabilityZonesRequest.builder()
            .build();

        return getEc2AsyncClient().describeAvailabilityZones(zonesRequest)
            .thenCompose(response -> {
                List<AvailabilityZone> zonesList = response.availabilityZones();
                if (zonesList.isEmpty()) {
                    logger.info("No availability zones found.");
                    return CompletableFuture.completedFuture(null); // Return
null if no zones are found
                }

                List<String> zoneIds = zonesList.stream()
```

```
                    .map(AvailabilityZone::zoneId) // Get the zoneId (e.g.,
"usw2-az1")
                    .toList();

                return CompletableFuture.supplyAsync(() ->
promptUserForZoneSelection(zonesList, zoneIds))
                    .thenApply(selectedZone -> {
                        // Return only the selected Zone ID (e.g., "usw2-az1").
                        return selectedZone.zoneId();
                    });
            })
            .whenComplete((result, exception) -> {
                if (exception == null) {
                    if (result != null) {
                        logger.info("Selected Availability Zone ID: " + result);
                    } else {
                        logger.info("No availability zone selected.");
                    }
                } else {
                    Throwable cause = exception.getCause();
                    if (cause instanceof Ec2Exception) {
                        throw new CompletionException("EC2 error while selecting
availability zone: " + cause.getMessage(), cause);
                    }
                    throw new CompletionException("Failed to select availability
zone: " + exception.getMessage(), exception);
                }
            });
    }

    /**
     * Prompts the user to select an Availability Zone from the given list.
     *
     * @param zonesList the list of Availability Zones
     * @param zoneIds the list of zone IDs
     * @return the selected Availability Zone
     */
    private static AvailabilityZone
promptUserForZoneSelection(List<AvailabilityZone> zonesList, List<String>
zoneIds) {
        Scanner scanner = new Scanner(System.in);
        int index = -1;

        while (index < 0 || index >= zoneIds.size()) {
```

```
            logger.info("Select an availability zone:");
            IntStream.range(0, zoneIds.size()).forEach(i ->
                logger.info(i + ": " + zoneIds.get(i))
            );

            logger.info("Enter the number corresponding to your choice: ");
            if (scanner.hasNextInt()) {
                index = scanner.nextInt();
            } else {
                scanner.next();
            }
        }

        AvailabilityZone selectedZone = zonesList.get(index);
        logger.info("You selected: " + selectedZone.zoneId());
        return selectedZone;
    }

    /**
     * Asynchronously sets up a new VPC, including creating the VPC, finding the
associated route table, and
     * creating a VPC endpoint for the S3 service.
     *
     * @return a {@link CompletableFuture} that, when completed, contains a
AbstractMap with the
     *         VPC ID and VPC endpoint ID.
     */
    public CompletableFuture<AbstractMap.SimpleEntry<String, String>>
setupVPCAsync() {
        String cidr = "10.0.0.0/16";
        CreateVpcRequest vpcRequest = CreateVpcRequest.builder()
            .cidrBlock(cidr)
            .build();

        return getEc2AsyncClient().createVpc(vpcRequest)
            .thenCompose(vpcResponse -> {
                String vpcId = vpcResponse.vpc().vpcId();
                logger.info("VPC Created: {}", vpcId);

                Ec2AsyncWaiter waiter = getEc2AsyncClient().waiter();
                DescribeVpcsRequest request = DescribeVpcsRequest.builder()
                    .vpcIds(vpcId)
                    .build();
```

```
                return waiter.waitUntilVpcAvailable(request)
                    .thenApply(waiterResponse -> vpcId);
            })
            .thenCompose(vpcId -> {
                Filter filter = Filter.builder()
                    .name("vpc-id")
                    .values(vpcId)
                    .build();

                DescribeRouteTablesRequest describeRouteTablesRequest =
DescribeRouteTablesRequest.builder()
                    .filters(filter)
                    .build();

                return
getEc2AsyncClient().describeRouteTables(describeRouteTablesRequest)
                    .thenApply(routeTablesResponse -> {
                        if (routeTablesResponse.routeTables().isEmpty()) {
                            throw new CompletionException("No route tables found
for VPC: " + vpcId, null);
                        }
                        String routeTableId =
routeTablesResponse.routeTables().get(0).routeTableId();
                        logger.info("Route table found: {}", routeTableId);
                        return new AbstractMap.SimpleEntry<>(vpcId,
routeTableId);
                    });
            })
            .thenCompose(vpcAndRouteTable -> {
                String vpcId = vpcAndRouteTable.getKey();
                String routeTableId = vpcAndRouteTable.getValue();
                Region region =
getEc2AsyncClient().serviceClientConfiguration().region();
                String serviceName = String.format("com.amazonaws.%s.s3express",
region.id());

                CreateVpcEndpointRequest endpointRequest =
CreateVpcEndpointRequest.builder()
                    .vpcId(vpcId)
                    .routeTableIds(routeTableId)
                    .serviceName(serviceName)
                    .build();

                return getEc2AsyncClient().createVpcEndpoint(endpointRequest)
```

```
                    .thenApply(vpcEndpointResponse -> {
                        String vpcEndpointId =
 vpcEndpointResponse.vpcEndpoint().vpcEndpointId();
                        logger.info("VPC Endpoint created: {}", vpcEndpointId);
                        return new AbstractMap.SimpleEntry<>(vpcId,
 vpcEndpointId);
                    });
            })
            .exceptionally(exception -> {
                Throwable cause = exception.getCause() != null ?
 exception.getCause() : exception;
                if (cause instanceof Ec2Exception) {
                    logger.error("EC2 error during VPC setup: {}",
 cause.getMessage(), cause);
                    throw new CompletionException("EC2 error during VPC setup: "
 + cause.getMessage(), cause);
                }

                logger.error("VPC setup failed: {}", cause.getMessage(), cause);
                throw new CompletionException("VPC setup failed: " +
 cause.getMessage(), cause);
            });
    }

}
```

- For API details, see the following topics in *AWS SDK for Java 2.x API Reference*.
  - CopyObject
  - CreateBucket
  - DeleteBucket
  - DeleteObject
  - GetObject
  - ListObjects
  - PutObject

PHP

SDK for PHP

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Run a scenario demonstrating the basics of Amazon S3 directory buckets and S3 Express One Zone.

```
        echo "\n";
        echo "--------------------------------------\n";
        echo "Welcome to the Amazon S3 Express Basics demo using PHP!\n";
        echo "--------------------------------------\n";

        // Change these both of these values to use a different region/
availability zone.
        $region = "us-west-2";
        $az = "usw2-az1";

        $this->s3Service = new S3Service(new S3Client(['region' => $region]));
        $this->iamService = new IAMService(new IamClient(['region' => $region]));

        $uuid = uniqid();

        echo <<<INTRO
Let's get started! First, please note that S3 Express One Zone works best when
 working within the AWS infrastructure,
specifically when working in the same Availability Zone. To see the best results
 in this example, and when you implement
Directory buckets into your infrastructure, it is best to put your Compute
 resources in the same AZ as your Directory
bucket.\n
INTRO;
        pressEnter();
        // 1. Configure a gateway VPC endpoint. This is the recommended method to
 allow S3 Express One Zone traffic without
        // the need to pass through an internet gateway or NAT device.
        echo "\n";
```

```
        echo "1. First, we'll set up a new VPC and VPC Endpoint if this program
 is running in an EC2 instance in the same AZ as your Directory buckets will be.
\n";
        $ec2Choice = testable_readline("Are you running this in an EC2 instance
 located in the same AZ as your intended Directory buckets? Enter Y/y to setup a
 VPC Endpoint, or N/n/blank to skip this section.");
        if($ec2Choice == "Y" || $ec2Choice == "y") {
            echo "Great! Let's set up a VPC, retrieve the Route Table from it,
 and create a VPC Endpoint to connect the S3 Client to.\n";
            pressEnter();
            $this->ec2Service = new EC2Service(new Ec2Client(['region' =>
 $region]));
            $cidr = "10.0.0.0/16";
            $vpc = $this->ec2Service->createVpc($cidr);
            $this->resources['vpcId'] = $vpc['VpcId'];

            $this->ec2Service->waitForVpcAvailable($vpc['VpcId']);

            $routeTable = $this->ec2Service->describeRouteTables([], [
                [
                    'Name' => "vpc-id",
                    'Values' => [$vpc['VpcId']],
                ],
            ]);

            $serviceName = "com.amazonaws." . $this->ec2Service->getRegion() .
 ".s3express";
            $vpcEndpoint = $this->ec2Service->createVpcEndpoint($serviceName,
 $vpc['VpcId'], [$routeTable[0]]);
            $this->resources['vpcEndpointId'] = $vpcEndpoint['VpcEndpointId'];
        }else{
            echo "Skipping the VPC setup. Don't forget to use this in production!
\n";
        }

        // 2. Policies, user, and roles with CDK.
        echo "\n";
        echo "2. Policies, users, and roles with CDK.\n";
        echo "Now, we'll set up some policies, roles, and a user. This user will
 only have permissions to do S3 Express One Zone actions.\n";
        pressEnter();

        $this->cloudFormationClient = new CloudFormationClient([]);
        $stackName = "cfn-stack-s3-express-basics-" . uniqid();
```

```
        $file = file_get_contents(__DIR__ . "/../../../../resources/cfn/
s3_express_basics/s3_express_template.yml");
        $result = $this->cloudFormationClient->createStack([
            'StackName' => $stackName,
            'TemplateBody' => $file,
            'Capabilities' => ['CAPABILITY_IAM'],
        ]);
        $waiter = $this->cloudFormationClient->getWaiter("StackCreateComplete",
 ['StackName' => $stackName]);
        try {
            $waiter->promise()->wait();
        }catch(CloudFormationException $caught){
            echo "Error waiting for the CloudFormation stack to create: {$caught-
>getAwsErrorMessage()}\n";
            throw $caught;
        }
        $this->resources['stackName'] = $stackName;
        $stackInfo = $this->cloudFormationClient->describeStacks([
            'StackName' => $result['StackId'],
        ]);

        $expressUserName = "";
        $regularUserName = "";
        foreach($stackInfo['Stacks'][0]['Outputs'] as $output) {
            if ($output['OutputKey'] == "RegularUser") {
                $regularUserName = $output['OutputValue'];
            }
            if ($output['OutputKey'] == "ExpressUser") {
                $expressUserName = $output['OutputValue'];
            }
        }
        $regularKey = $this->iamService->createAccessKey($regularUserName);
        $regularCredentials = new Credentials($regularKey['AccessKeyId'],
 $regularKey['SecretAccessKey']);
        $expressKey = $this->iamService->createAccessKey($expressUserName);
        $expressCredentials = new Credentials($expressKey['AccessKeyId'],
 $expressKey['SecretAccessKey']);

        // 3. Create an additional client using the credentials with S3 Express
 permissions.
        echo "\n";
        echo "3. Create an additional client using the credentials with S3
 Express permissions.\n";
```

```
        echo "This client is created with the credentials associated with the
 user account with the S3 Express policy attached, so it can perform S3 Express
 operations.\n";
        pressEnter();
        $s3RegularClient = new S3Client([
            'Region' => $region,
            'Credentials' => $regularCredentials,
        ]);
        $s3RegularService = new S3Service($s3RegularClient);
        $s3ExpressClient = new S3Client([
            'Region' => $region,
            'Credentials' => $expressCredentials,
        ]);
        $s3ExpressService = new S3Service($s3ExpressClient);
        echo "All the roles and policies were created an attached to the user.
 Then, a new S3 Client and Service were created using that user's credentials.
\n";
        echo "We can now use this client to make calls to S3 Express operations.
 Keeping permissions in mind (and adhering to least-privilege) is crucial to S3
 Express.\n";
        pressEnter();

        // 4. Create two buckets.
        echo "\n";
        echo "3. Create two buckets.\n";
        echo "Now we will create a Directory bucket, which is the linchpin of the
 S3 Express One Zone service.\n";
        echo "Directory buckets behave in different ways from regular S3 buckets,
 which we will explore here.\n";
        echo "We'll also create a normal bucket, put an object into the normal
 bucket, and copy it over to the Directory bucket.\n";
        pressEnter();

        // Create a directory bucket. These are different from normal S3 buckets
 in subtle ways.
        $directoryBucketName = "s3-express-demo-directory-bucket-$uuid--$az--x-
s3";
        echo "Now, let's create the actual Directory bucket, as well as a regular
 bucket.\n";
        pressEnter();
        $s3ExpressService->createBucket($directoryBucketName, [
            'CreateBucketConfiguration' => [
                'Bucket' => [
```

```
                    'Type' => "Directory", // This is what causes S3 to create a
Directory bucket as opposed to a normal bucket.
                    'DataRedundancy' => "SingleAvailabilityZone",
                ],
                'Location' => [
                    'Name' => $az,
                    'Type' => "AvailabilityZone",
                ],
            ],
        ]);
        $this->resources['directoryBucketName'] = $directoryBucketName;

        // Create a normal bucket.
        $normalBucketName = "normal-bucket-$uuid";
        $s3RegularService->createBucket($normalBucketName);
        $this->resources['normalBucketName'] = $normalBucketName;
        echo "Great! Both buckets were created.\n";
        pressEnter();

        // 5. Create an object and copy it over.
        echo "\n";
        echo "5. Create an object and copy it over.\n";
        echo "We'll create a basic object consisting of some text and upload it
to the normal bucket.\n";
        echo "Next, we'll copy the object into the Directory bucket using the
regular client.\n";
        echo "This works fine, because Copy operations are not restricted for
Directory buckets.\n";
        pressEnter();

        $objectKey = "basic-text-object";
        $s3RegularService->putObject($normalBucketName, $objectKey, $args =
['Body' => "Look Ma, I'm a bucket!"]);
        $this->resources['objectKey'] = $objectKey;

        // Create a session to access the directory bucket. The SDK Client will
automatically refresh this as needed.
        $s3ExpressService->createSession($directoryBucketName);
        $s3ExpressService->copyObject($directoryBucketName, $objectKey,
"$normalBucketName/$objectKey");

        echo "It worked! It's important to remember the user permissions when
interacting with Directory buckets.\n";
```

```
        echo "Instead of validating permissions on every call as normal buckets
do, Directory buckets utilize the user credentials and session token to
validate.\n";
        echo "This allows for much faster connection speeds on every call. For
single calls, this is low, but for many concurrent calls, this adds up to a lot
of time saved.\n";
        pressEnter();

        // 6. Demonstrate performance difference.
        echo "\n";
        echo "6. Demonstrate performance difference.\n";
        $downloads = 1000;
        echo "Now, let's do a performance test. We'll download the same object
from each bucket $downloads times and compare the total time needed. Note: the
performance difference will be much more pronounced if this example is run in an
EC2 instance in the same AZ as the bucket.\n";
        $downloadChoice = testable_readline("If you would like to download each
object $downloads times, press enter. Otherwise, enter a custom amount and press
enter.");
        if($downloadChoice && is_numeric($downloadChoice) && $downloadChoice <
1000000){ // A million is enough. I promise.
            $downloads = $downloadChoice;
        }

        // Download the object $downloads times from each bucket and time it to
demonstrate the speed difference.
        $directoryStartTime = hrtime(true);
        for($i = 0; $i < $downloads; ++$i){
            $s3ExpressService->getObject($directoryBucketName, $objectKey);
        }
        $directoryEndTime = hrtime(true);
        $directoryTimeDiff = $directoryEndTime - $directoryStartTime;

        $normalStartTime = hrtime(true);
        for($i = 0; $i < $downloads; ++$i){
            $s3RegularService->getObject($normalBucketName, $objectKey);
        }
        $normalEndTime = hrtime(true);
        $normalTimeDiff = $normalEndTime - $normalStartTime;

        echo "The directory bucket took $directoryTimeDiff nanoseconds, while the
normal bucket took $normalTimeDiff.\n";
```

```
        echo "That's a difference of " . ($normalTimeDiff - $directoryTimeDiff) .
 " nanoseconds, or " . (($normalTimeDiff - $directoryTimeDiff)/1000000000) . "
 seconds.\n";
        pressEnter();

        // 7. Populate the buckets to show the lexicographical difference.
        echo "\n";
        echo "7. Populate the buckets to show the lexicographical difference.\n";
        echo "Now let's explore how Directory buckets store objects in a
 different manner to regular buckets.\n";
        echo "The key is in the name \"Directory!\"\n";
        echo "Where regular buckets store their key/value pairs in a flat manner,
 Directory buckets use actual directories/folders.\n";
        echo "This allows for more rapid indexing, traversing, and therefore
 retrieval times!\n";
        echo "The more segmented your bucket is, with lots of directories, sub-
directories, and objects, the more efficient it becomes.\n";
        echo "This structural difference also causes ListObjects to behave
 differently, which can cause unexpected results.\n";
        echo "Let's add a few more objects with layered directories as see how
 the output of ListObjects changes.\n";
        pressEnter();

        // Populate a few more files in each bucket so that we can use
 ListObjects and show the difference.
        $otherObject = "other/$objectKey";
        $altObject = "alt/$objectKey";
        $otherAltObject = "other/alt/$objectKey";
        $s3ExpressService->putObject($directoryBucketName, $otherObject);
        $s3RegularService->putObject($normalBucketName, $otherObject);
        $this->resources['otherObject'] = $otherObject;
        $s3ExpressService->putObject($directoryBucketName, $altObject);
        $s3RegularService->putObject($normalBucketName, $altObject);
        $this->resources['altObject'] = $altObject;
        $s3ExpressService->putObject($directoryBucketName, $otherAltObject);
        $s3RegularService->putObject($normalBucketName, $otherAltObject);
        $this->resources['otherAltObject'] = $otherAltObject;

        $listDirectoryBucket = $s3ExpressService-
>listObjects($directoryBucketName);
        $listNormalBucket = $s3RegularService->listObjects($normalBucketName);

        // Directory bucket content
        echo "Directory bucket content\n";
```

```
        foreach($listDirectoryBucket['Contents'] as $result){
            echo $result['Key'] . "\n";
        }

        // Normal bucket content
        echo "\nNormal bucket content\n";
        foreach($listNormalBucket['Contents'] as $result){
            echo $result['Key'] . "\n";
        }

        echo "Notice how the normal bucket lists objects in lexicographical
 order, while the directory bucket does not. This is because the normal bucket
 considers the whole \"key\" to be the object identifies, while the directory
 bucket actually creates directories and uses the object \"key\" as a path to the
 object.\n";
        pressEnter();

        echo "\n";
        echo "That's it for our tour of the basic operations for S3 Express One
 Zone.\n";
        $cleanUp = testable_readline("Would you like to delete all the resources
 created during this demo? Enter Y/y to delete all the resources.");
        if($cleanUp){
            $this->cleanUp();
        }



namespace S3;

use Aws\CommandInterface;
use Aws\Exception\AwsException;
use Aws\Result;
use Aws\S3\Exception\S3Exception;
use Aws\S3\S3Client;
use AwsUtilities\AWSServiceClass;
use DateTimeInterface;

class S3Service extends AWSServiceClass
{
    protected S3Client $client;
    protected bool $verbose;

    public function __construct(S3Client $client = null, $verbose = false)
```

```
    {
        if ($client) {
            $this->client = $client;
        } else {
            $this->client = new S3Client([
                'version' => 'latest',
                'region' => 'us-west-2',
            ]);
        }
        $this->verbose = $verbose;
    }

    public function setVerbose($verbose)
    {
        $this->verbose = $verbose;
    }

    public function isVerbose(): bool
    {
        return $this->verbose;
    }

    public function getClient(): S3Client
    {
        return $this->client;
    }

    public function setClient(S3Client $client)
    {
        $this->client = $client;
    }


    public function emptyAndDeleteBucket($bucketName, array $args = [])
    {
        try {
            $objects = $this->listAllObjects($bucketName, $args);
            $this->deleteObjects($bucketName, $objects, $args);
            if ($this->verbose) {
                echo "Deleted all objects and folders from $bucketName.\n";
            }
            $this->deleteBucket($bucketName, $args);
        } catch (AwsException $exception) {
            if ($this->verbose) {
```

```
                echo "Failed to delete $bucketName with error: {$exception-
>getMessage()}\n";
                echo "\nPlease fix error with bucket deletion before continuing.
\n";
            }
            throw $exception;
        }
    }



    public function createBucket(string $bucketName, array $args = [])
    {
        $parameters = array_merge(['Bucket' => $bucketName], $args);
        try {
            $this->client->createBucket($parameters);
            if ($this->verbose) {
                echo "Created the bucket named: $bucketName.\n";
            }
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to create $bucketName with error: {$exception-
>getMessage()}\n";
                echo "Please fix error with bucket creation before continuing.";
            }
            throw $exception;
        }
    }



    public function putObject(string $bucketName, string $key, array $args = [])
    {
        $parameters = array_merge(['Bucket' => $bucketName, 'Key' => $key],
 $args);
        try {
            $this->client->putObject($parameters);
            if ($this->verbose) {
                echo "Uploaded the object named: $key to the bucket named:
 $bucketName.\n";
            }
        } catch (AwsException $exception) {
            if ($this->verbose) {
```

```
                echo "Failed to create $key in $bucketName with error:
{$exception->getMessage()}\n";
                echo "Please fix error with object uploading before continuing.";
            }
            throw $exception;
        }
    }



    public function getObject(string $bucketName, string $key, array $args = []):
Result
    {
        $parameters = array_merge(['Bucket' => $bucketName, 'Key' => $key],
$args);
        try {
            $object = $this->client->getObject($parameters);
            if ($this->verbose) {
                echo "Downloaded the object named: $key to the bucket named:
$bucketName.\n";
            }
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to download $key from $bucketName with error:
{$exception->getMessage()}\n";
                echo "Please fix error with object downloading before
continuing.";
            }
            throw $exception;
        }
        return $object;
    }



    public function copyObject($bucketName, $key, $copySource, array $args = [])
    {
        $parameters = array_merge(['Bucket' => $bucketName, 'Key' => $key,
"CopySource" => $copySource], $args);
        try {
            $this->client->copyObject($parameters);
            if ($this->verbose) {
                echo "Copied the object from: $copySource in $bucketName to:
$key.\n";
```

```
            }
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to copy $copySource in $bucketName with error:
{$exception->getMessage()}\n";
                echo "Please fix error with object copying before continuing.";
            }
            throw $exception;
        }
    }



    public function listObjects(string $bucketName, $start = 0, $max = 1000,
array $args = [])
    {
        $parameters = array_merge(['Bucket' => $bucketName, 'Marker' => $start,
"MaxKeys" => $max], $args);
        try {
            $objects = $this->client->listObjectsV2($parameters);
            if ($this->verbose) {
                echo "Retrieved the list of objects from: $bucketName.\n";
            }
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to retrieve the objects from $bucketName with error:
{$exception->getMessage()}\n";
                echo "Please fix error with list objects before continuing.";
            }
            throw $exception;
        }
        return $objects;
    }



    public function listAllObjects($bucketName, array $args = [])
    {
        $parameters = array_merge(['Bucket' => $bucketName], $args);

        $contents = [];
        $paginator = $this->client->getPaginator("ListObjectsV2", $parameters);

        foreach ($paginator as $result) {
```

```
            if($result['KeyCount'] == 0){
                break;
            }
            foreach ($result['Contents'] as $object) {
                $contents[] = $object;
            }
        }
        return $contents;
    }



    public function deleteObjects(string $bucketName, array $objects, array $args
 = [])
    {
        $listOfObjects = array_map(
            function ($object) {
                return ['Key' => $object];
            },
            array_column($objects, 'Key')
        );
        if(!$listOfObjects){
            return;
        }

        $parameters = array_merge(['Bucket' => $bucketName, 'Delete' =>
 ['Objects' => $listOfObjects]], $args);
        try {
            $this->client->deleteObjects($parameters);
            if ($this->verbose) {
                echo "Deleted the list of objects from: $bucketName.\n";
            }
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to delete the list of objects from $bucketName with
 error: {$exception->getMessage()}\n";
                echo "Please fix error with object deletion before continuing.";
            }
            throw $exception;
        }
    }
```

```
    public function deleteBucket(string $bucketName, array $args = [])
    {
        $parameters = array_merge(['Bucket' => $bucketName], $args);
        try {
            $this->client->deleteBucket($parameters);
            if ($this->verbose) {
                echo "Deleted the bucket named: $bucketName.\n";
            }
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to delete $bucketName with error: {$exception-
>getMessage()}\n";
                echo "Please fix error with bucket deletion before continuing.";
            }
            throw $exception;
        }
    }



    public function deleteObject(string $bucketName, string $fileName, array
 $args = [])
    {
        $parameters = array_merge(['Bucket' => $bucketName, 'Key' => $fileName],
 $args);
        try {
            $this->client->deleteObject($parameters);
            if ($this->verbose) {
                echo "Deleted the object named: $fileName from $bucketName.\n";
            }
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to delete $fileName from $bucketName with error:
 {$exception->getMessage()}\n";
                echo "Please fix error with object deletion before continuing.";
            }
            throw $exception;
        }
    }



    public function listBuckets(array $args = [])
    {
```

```
        try {
            $buckets = $this->client->listBuckets($args);
            if ($this->verbose) {
                echo "Retrieved all " . count($buckets) . "\n";
            }
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to retrieve bucket list with error: {$exception-
>getMessage()}\n";
                echo "Please fix error with bucket lists before continuing.";
            }
            throw $exception;
        }
        return $buckets;
    }



    public function preSignedUrl(CommandInterface $command, DateTimeInterface|
int|string $expires, array $options = [])
    {
        $request = $this->client->createPresignedRequest($command, $expires,
 $options);
        try {
            $presignedUrl = (string)$request->getUri();
        } catch (AwsException $exception) {
            if ($this->verbose) {
                echo "Failed to create a presigned url: {$exception-
>getMessage()}\n";
                echo "Please fix error with presigned urls before continuing.";
            }
            throw $exception;
        }
        return $presignedUrl;
    }



    public function createSession(string $bucketName)
    {
        try{
            $result = $this->client->createSession([
                'Bucket' => $bucketName,
            ]);
```

```
            return $result;
        }catch(S3Exception $caught){
            if($caught->getAwsErrorType() == "NoSuchBucket"){
                echo "The specified bucket does not exist.";
            }
            throw $caught;
        }
    }

}
```

- For API details, see the following topics in *AWS SDK for PHP API Reference*.
  - CopyObject
  - CreateBucket
  - DeleteBucket
  - DeleteObject
  - GetObject
  - ListObjects
  - PutObject

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Run a scenario demonstrating the basics of Amazon S3 directory buckets and S3 Express One Zone.

```
class S3ExpressScenario:
    """Runs an interactive scenario that shows how to get started with S3
 Express."""
```

```
    def __init__(
        self,
        cloud_formation_resource: ServiceResource,
        ec2_client: client,
        iam_client: client,
    ):
        self.cloud_formation_resource = cloud_formation_resource
        self.ec2_client = ec2_client
        self.iam_client = iam_client
        self.region = ec2_client.meta.region_name
        self.stack = None
        self.vpc_id = None
        self.vpc_endpoint_id = None
        self.regular_bucket_name = None
        self.directory_bucket_name = None
        self.s3_express_wrapper = None
        self.s3_regular_wrapper = None

    def s3_express_scenario(self):
        """
        Runs the scenario.
        """
        print("")
        print_dashes()
        print("Welcome to the Amazon S3 Express Basics demo using Python (Boto
 3)!")
        print_dashes()
        print(
            """
Let's get started! First, please note that S3 Express One Zone works best when
 working within the AWS infrastructure,
specifically when working in the same Availability Zone. To see the best results
 in this example and when you implement
Directory buckets into your infrastructure, it is best to put your compute
 resources in the same AZ as your Directory
bucket.
    """
        )
        press_enter_to_continue()

        # Create an optional VPC and create 2 IAM users.
        express_user_name, regular_user_name = self.create_vpc_and_users()
```

```
        # Set up two S3 clients, one regular and one express, and two buckets,
 one regular and one express.
        self.setup_clients_and_buckets(express_user_name, regular_user_name)

        # Create an S3 session for the express S3 client and add objects to the
 buckets.
        bucket_object = self.create_session_and_add_objects()

        # Demonstrate performance differences between regular and express
 buckets.
        self.demonstrate_performance(bucket_object)

        # Populate the buckets to show the lexicographical difference between
 regular and express buckets.
        self.show_lexicographical_differences(bucket_object)

        print("")
        print("That's it for our tour of the basic operations for S3 Express One
 Zone.")

        if q.ask(
            "Would you like to delete all the resources created during this demo
 (y/n)? ",
            q.is_yesno,
        ):
            self.cleanup()

    def create_vpc_and_users(self) -> None:
        """
        Optionally create a VPC.
        Create two IAM users, one with S3 Express One Zone permissions and one
 without.
        """
        # Configure a gateway VPC endpoint. This is the recommended method to
 allow S3 Express One Zone traffic without
        # the need to pass through an internet gateway or NAT device.
        print(
            """
1. First, we'll set up a new VPC and VPC Endpoint if this program is running in
 an EC2 instance in the same AZ as your
Directory buckets will be. Are you running this in an EC2 instance located in the
 same AZ as your intended Directory buckets?
"""
        )
```

```
        if q.ask("Do you want to setup a VPC Endpoint? (y/n) ", q.is_yesno):
            print(
                "Great! Let's set up a VPC, retrieve the Route Table from it, and
 create a VPC Endpoint to connect the S3 Client to."
            )
            self.setup_vpc()
            press_enter_to_continue()
        else:
            print("Skipping the VPC setup. Don't forget to use this in
 production!")
        print(
            """
2. Policies, users, and roles with CDK.
Now, we'll set up some policies, roles, and a user. This user will only have
 permissions to do S3 Express One Zone actions.
            """
        )
        press_enter_to_continue()
        stack_name = f"cfn-stack-s3-express-basics--{uuid.uuid4()}"
        template_as_string = S3ExpressScenario.get_template_as_string()
        self.stack = self.deploy_cloudformation_stack(stack_name,
 template_as_string)
        regular_user_name = None
        express_user_name = None
        outputs = self.stack.outputs
        for output in outputs:
            if output.get("OutputKey") == "RegularUser":
                regular_user_name = output.get("OutputValue")
            elif output.get("OutputKey") == "ExpressUser":
                express_user_name = output.get("OutputValue")
        if not regular_user_name or not express_user_name:
            error_string = f"""
            Failed to retrieve required outputs from CloudFormation stack.
            'regular_user_name'={regular_user_name},
 'express_user_name'={express_user_name}
            """
            logger.error(error_string)
            raise ValueError(error_string)
        return express_user_name, regular_user_name

    def setup_clients_and_buckets(
        self, express_user_name: str, regular_user_name: str
    ) -> None:
        """
```

```
        Set up two S3 clients, one regular and one express, and two buckets, one
 regular and one express.
        :param express_user_name: The name of the user with S3 Express
 permissions.
        :param regular_user_name: The name of the user with regular S3
 permissions.
        """
        regular_credentials = self.create_access_key(regular_user_name)
        express_credentials = self.create_access_key(express_user_name)
        # 3. Create an additional client using the credentials with S3 Express
 permissions.
        print(
            """
3. Create an additional client using the credentials with S3 Express permissions.
 This client is created with the
credentials associated with the user account with the S3 Express policy attached,
 so it can perform S3 Express operations.
"""
        )
        press_enter_to_continue()
        s3_regular_client = self.create_s3__client_with_access_key_credentials(
            regular_credentials
        )
        self.s3_regular_wrapper = S3ExpressWrapper(s3_regular_client)
        s3_express_client = self.create_s3__client_with_access_key_credentials(
            express_credentials
        )
        self.s3_express_wrapper = S3ExpressWrapper(s3_express_client)
        print(
            """
All the roles and policies were created and attached to the user. Then a new S3
 Client were created using
that user's credentials. We can now use this client to make calls to S3 Express
 operations. Keeping permissions in mind
(and adhering to least-privilege) is crucial to S3 Express.
 """
        )
        press_enter_to_continue()
        # 4. Create two buckets.
        print(
            """
3. Create two buckets.
Now we will create a Directory bucket which is the linchpin of the S3 Express One
 Zone service. Directory buckets
```

```
behave in different ways from regular S3 buckets which we will explore here.
 We'll also create a normal bucket, put
an object into the normal bucket, and copy it over to the Directory bucket.
"""
        )

        # Create a directory bucket. These are different from normal S3 buckets
 in subtle ways.
        bucket_prefix = q.ask(
            "Enter a bucket name prefix that will be used for both buckets: ",
            q.re_match(r"[a-z0-9](?:[a-z0-9-\.]*)[a-z0-9]$"),
        )

        # Some availability zones are not supported for Directory buckets. We'll
 choose one that is supported.
        print(
            "Now, let's choose an availability zone for the Directory bucket.
 We'll choose one that is supported."
        )
        while True:
            availability_zone = self.select_availability_zone_id(self.region)
            # Construct the parts of a directory bucket name that is made unique
 with a UUID string.
            directory_bucket_suffix = f"--{availability_zone['ZoneId']}--x-s3"
            max_uuid_length = 63 - len(bucket_prefix) -
 len(directory_bucket_suffix) - 1
            bucket_uuid = str(uuid.uuid4()).replace("-", "")[:max_uuid_length]
            directory_bucket_name = (
                f"{bucket_prefix}-{bucket_uuid}{directory_bucket_suffix}"
            )
            regular_bucket_name = f"{bucket_prefix}-regular-{bucket_uuid}"
            configuration = {
                "Bucket": {
                    "Type": "Directory",
                    "DataRedundancy": "SingleAvailabilityZone",
                },
                "Location": {
                    "Name": availability_zone["ZoneId"],
                    "Type": "AvailabilityZone",
                },
            }
            press_enter_to_continue()
            print(
```

```
                "Now, let's create the actual Directory bucket, as well as a
 regular bucket."
            )
            press_enter_to_continue()
            try:
                self.s3_express_wrapper.create_bucket(
                    directory_bucket_name, configuration
                )
                break
            except ClientError as client_error:
                if client_error.response["Error"]["Code"] == "InvalidBucketName":
                    print(
                        f"Bucket '{directory_bucket_name}' is invalid. This may
 be because of selected availability zone."
                    )
                    if q.ask(
                        "Would you like to select a different availability zone?
 ",
                        q.is_yesno,
                    ):
                        continue
                    else:
                        raise
                else:
                    raise
        print(f"Created directory bucket, '{directory_bucket_name}'")
        self.directory_bucket_name = directory_bucket_name

        self.s3_regular_wrapper.create_bucket(regular_bucket_name)
        print(f"Created regular bucket, '{regular_bucket_name}'")
        self.regular_bucket_name = regular_bucket_name
        print("Great! Both buckets were created.")
        press_enter_to_continue()

    def create_session_and_add_objects(self) -> None:
        """
        Create a session for the express S3 client and add objects to the
 buckets.
        """
        print(
            """
5. Create an object and copy it over.
We'll create a basic object consisting of some text and upload it to the normal
 bucket. Next we'll copy the object
```

```
into the Directory bucket using the regular client. This works fine because copy
 operations are not restricted for
Directory buckets.
        """
        )
        press_enter_to_continue()
        bucket_object = "basic-text-object"
        self.s3_regular_wrapper.put_object(
            self.regular_bucket_name, bucket_object, "Look Ma, I'm a bucket!"
        )
        self.s3_express_wrapper.create_session(self.directory_bucket_name)
        self.s3_express_wrapper.copy_object(
            self.regular_bucket_name,
            bucket_object,
            self.directory_bucket_name,
            bucket_object,
        )
        print(
            """
It worked! It's important to remember the user permissions when interacting with
 Directory buckets. Instead of validating
permissions on every call as normal buckets do, Directory buckets utilize the
 user credentials and session token to validate.
This allows for much faster connection speeds on every call. For single calls,
 this is low, but for many concurrent calls
this adds up to a lot of time saved.
"""
        )
        press_enter_to_continue()
        return bucket_object

    def demonstrate_performance(self, bucket_object: str) -> None:
        """
        Demonstrate performance differences between regular and Directory
 buckets.
        :param bucket_object: The name of the object to download from each
 bucket.
        """
        print("")
        print("6. Demonstrate performance difference.")
        print(
            """
Now, let's do a performance test. We'll download the same object from each bucket
 'downloads' times
```

```
and compare the total time needed. Note: the performance difference will be much
 more pronounced if this
example is run in an EC2 instance in the same Availability Zone as the bucket.
"""
        )
        downloads = 1000
        print(
            f"The number of downloads of the same object for this example is set
 at {downloads}."
        )
        if q.ask("Would you like to download a different number? (y/n) ",
 q.is_yesno):
            max_downloads = 1000000
            downloads = q.ask(
                f"Enter a number between 1 and {max_downloads} for the number of
 downloads: ",
                q.is_int,
                q.in_range(1, max_downloads),
            )
        # Download the object 'downloads' times from each bucket and time it to
 demonstrate the speed difference.
        print("Downloading from the Directory bucket.")
        directory_time_start = time.time_ns()

        for index in range(downloads):
            if index % 10 == 0:
                print(f"Download {index} of {downloads}")

            self.s3_express_wrapper.get_object(
                self.directory_bucket_name, bucket_object
            )

        directory_time_difference = time.time_ns() - directory_time_start
        print("Downloading from the normal bucket.")
        normal_time_start = time.time_ns()

        for index in range(downloads):
            if index % 10 == 0:
                print(f"Download {index} of {downloads}")
            self.s3_regular_wrapper.get_object(self.regular_bucket_name,
 bucket_object)

        normal_time_difference = time.time_ns() - normal_time_start
        print(
```

```
            f"The directory bucket took {directory_time_difference} nanoseconds,
 while the normal bucket took {normal_time_difference}."
        )
        difference = normal_time_difference - directory_time_difference
        print(f"That's a difference of {difference} nanoseconds, or")
        print(f"{(difference) / 1000000000} seconds.")
        if difference < 0:
            print(
                "The directory buckets were slower. This can happen if you are
 not running on the cloud within a vpc."
            )
        press_enter_to_continue()

    def show_lexicographical_differences(self, bucket_object: str) -> None:
        """
        Show the lexicographical difference between Directory buckets and regular
 buckets.
        This is done by creating a few objects in each bucket and listing them to
 show the difference.
        :param bucket_object: The object to use for the listing operations.
        """
        print(
            """
7. Populate the buckets to show the lexicographical difference.
Now let's explore how Directory buckets store objects in a different manner to
 regular buckets. The key is in the name
"Directory". Where regular buckets store their key/value pairs in a flat manner,
 Directory buckets use actual
directories/folders. This allows for more rapid indexing, traversing, and
 therefore retrieval times! The more segmented
your bucket is, with lots of directories, sub-directories, and objects, the more
 efficient it becomes. This structural
difference also causes ListObjects to behave differently, which can cause
 unexpected results. Let's add a few more
objects with layered directories to see how the output of ListObjects changes.
        """
        )
        press_enter_to_continue()
        # Populate a few more files in each bucket so that we can use ListObjects
 and show the difference.
        other_object = f"other/{bucket_object}"
        alt_object = f"alt/{bucket_object}"
        other_alt_object = f"other/alt/{bucket_object}"
```

```
        self.s3_regular_wrapper.put_object(self.regular_bucket_name,
 other_object, "")
        self.s3_express_wrapper.put_object(self.directory_bucket_name,
 other_object, "")
        self.s3_regular_wrapper.put_object(self.regular_bucket_name, alt_object,
 "")
        self.s3_express_wrapper.put_object(self.directory_bucket_name,
 alt_object, "")
        self.s3_regular_wrapper.put_object(
            self.regular_bucket_name, other_alt_object, ""
        )
        self.s3_express_wrapper.put_object(
            self.directory_bucket_name, other_alt_object, ""
        )
        directory_bucket_objects = self.s3_express_wrapper.list_objects(
            self.directory_bucket_name
        )

        regular_bucket_objects = self.s3_regular_wrapper.list_objects(
            self.regular_bucket_name
        )

        print("Directory bucket content")
        for bucket_object in directory_bucket_objects:
            print(f"   {bucket_object['Key']}")
        print("Normal bucket content")
        for bucket_object in regular_bucket_objects:
            print(f"   {bucket_object['Key']}")
        print(
            """
Notice how the normal bucket lists objects in lexicographical order, while the
 directory bucket does not. This is
because the normal bucket considers the whole "key" to be the object identifier,
 while the directory bucket actually
creates directories and uses the object "key" as a path to the object.
            """
        )
        press_enter_to_continue()

    def cleanup(self) -> None:
        """
        Delete resources created by this scenario.
        """
        if self.directory_bucket_name is not None:
```

```
            self.s3_express_wrapper.delete_bucket_and_objects(
                self.directory_bucket_name
            )
            print(f"Deleted directory bucket, '{self.directory_bucket_name}'")
            self.directory_bucket_name = None

        if self.regular_bucket_name is not None:

self.s3_regular_wrapper.delete_bucket_and_objects(self.regular_bucket_name)
            print(f"Deleted regular bucket, '{self.regular_bucket_name}'")
            self.regular_bucket_name = None

        if self.stack is not None:
            self.destroy_cloudformation_stack(self.stack)
            self.stack = None

        self.tear_done_vpc()

    def create_access_key(self, user_name: str) -> dict[str, any]:
        """
        Creates an access key for the user.
        :param user_name: The name of the user.
        :return: The access key for the user.
        """
        try:
            access_key = self.iam_client.create_access_key(UserName=user_name)
            return access_key["AccessKey"]
        except ClientError as client_error:
            logging.error(
                "Couldn't create the access key. Here's why: %s",
                client_error.response["Error"]["Message"],
            )
            raise

    def create_s3__client_with_access_key_credentials(
        self, access_key: dict[str, any]
    ) -> client:
        """
        Creates an S3 client with access key credentials.
        :param access_key: The access key for the user.
        :return: The S3 Express One Zone client.
        """
        try:
            s3_express_client = boto3.client(
```

```
                "s3",
                aws_access_key_id=access_key["AccessKeyId"],
                aws_secret_access_key=access_key["SecretAccessKey"],
                region_name=self.region,
            )
            return s3_express_client
        except ClientError as client_error:
            logging.error(
                "Couldn't create the S3 Express One Zone client. Here's why: %s",
                client_error.response["Error"]["Message"],
            )
            raise

    def select_availability_zone_id(self, region: str) -> dict[str, any]:
        """
        Selects an availability zone.
        :param region: The region to select the availability zone from.
        :return: The availability zone dictionary.
        """
        try:
            response = self.ec2_client.describe_availability_zones(
                Filters=[{"Name": "region-name", "Values": [region]}]
            )
            availability_zones = response["AvailabilityZones"]
            zone_names = [zone["ZoneName"] for zone in availability_zones]
            index = q.choose("Select an availability zone: ", zone_names)
            return availability_zones[index]
        except ClientError as client_error:
            logging.error(
                "Couldn't describe availability zones. Here's why: %s",
                client_error.response["Error"]["Message"],
            )
            raise

    def deploy_cloudformation_stack(
        self, stack_name: str, cfn_template: str
    ) -> ServiceResource:
        """
        Deploys prerequisite resources used by the scenario. The resources are
        defined in the associated `cfn_template.yaml` AWS CloudFormation script
and are deployed
        as a CloudFormation stack, so they can be easily managed and destroyed.

        :param stack_name: The name of the CloudFormation stack.
```

```
        :param cfn_template: The CloudFormation template as a string.
        :return: The CloudFormation stack resource.
        """
        print(f"Deploying CloudFormation stack: {stack_name}.")
        stack = self.cloud_formation_resource.create_stack(
            StackName=stack_name,
            TemplateBody=cfn_template,
            Capabilities=["CAPABILITY_NAMED_IAM"],
        )
        print(f"CloudFormation stack creation started: {stack_name}")
        print("Waiting for CloudFormation stack creation to complete...")
        waiter = self.cloud_formation_resource.meta.client.get_waiter(
            "stack_create_complete"
        )
        waiter.wait(StackName=stack.name)
        stack.load()
        print("CloudFormation stack creation complete.")

        return stack

    def destroy_cloudformation_stack(self, stack: ServiceResource) -> None:
        """
        Destroys the resources managed by the CloudFormation stack, and the
CloudFormation
        stack itself.

        :param stack: The CloudFormation stack that manages the example
resources.
        """
        try:
            print(
                f"CloudFormation stack '{stack.name}' is being deleted. This may
take a few minutes."
            )
            stack.delete()
            waiter = self.cloud_formation_resource.meta.client.get_waiter(
                "stack_delete_complete"
            )
            waiter.wait(StackName=stack.name)
            print(f"CloudFormation stack '{stack.name}' has been deleted.")
        except ClientError as client_error:
            logging.error(
                "Couldn't delete the CloudFormation stack. Here's why: %s",
                client_error.response["Error"]["Message"],
```

```
            )

    @staticmethod
    def get_template_as_string() -> str:
        """
        Returns a string containing this scenario's CloudFormation template.
        """
        script_directory = os.path.dirname(os.path.abspath(__file__))
        template_file_path = os.path.join(script_directory,
 "s3_express_template.yaml")
        file = open(template_file_path, "r")
        return file.read()

    def setup_vpc(self):
        cidr = "10.0.0.0/16"
        try:
            response = self.ec2_client.create_vpc(CidrBlock=cidr)
            self.vpc_id = response["Vpc"]["VpcId"]

            waiter = self.ec2_client.get_waiter("vpc_available")
            waiter.wait(VpcIds=[self.vpc_id])
            print(f"Created vpc {self.vpc_id}")

        except ClientError as client_error:
            logging.error(
                "Couldn't create the vpc. Here's why: %s",
                client_error.response["Error"]["Message"],
            )
            raise
        try:
            response = self.ec2_client.describe_route_tables(
                Filters=[{"Name": "vpc-id", "Values": [self.vpc_id]}]
            )
            route_table_id = response["RouteTables"][0]["RouteTableId"]
            service_name = f"com.amazonaws.
{self.ec2_client.meta.region_name}.s3express"

            response = self.ec2_client.create_vpc_endpoint(
                VpcId=self.vpc_id,
                RouteTableIds=[route_table_id],
                ServiceName=service_name,
            )
            self.vpc_endpoint_id = response["VpcEndpoint"]["VpcEndpointId"]
            print(f"Created vpc endpoint {self.vpc_endpoint_id}")
```

```
        except ClientError as client_error:
            logging.error(
                "Couldn't create the vpc endpoint. Here's why: %s",
                client_error.response["Error"]["Message"],
            )
            raise

    def tear_done_vpc(self) -> None:
        if self.vpc_endpoint_id is not None:
            try:
                self.ec2_client.delete_vpc_endpoints(
                    VpcEndpointIds=[self.vpc_endpoint_id]
                )
                print(f"Deleted vpc endpoint {self.vpc_endpoint_id}.")
                self.vpc_endpoint_id = None
            except ClientError as client_error:
                logging.error(
                    "Couldn't delete the vpc endpoint %s. Here's why: %s",
                    self.vpc_endpoint_id,
                    client_error.response["Error"]["Message"],
                )
        if self.vpc_id is not None:
            try:
                self.ec2_client.delete_vpc(VpcId=self.vpc_id)
                print(f"Deleted vpc {self.vpc_id}")
                self.vpc_id = None
            except ClientError as client_error:
                logging.error(
                    "Couldn't delete the vpc %s. Here's why: %s",
                    self.vpc_id,
                    client_error.response["Error"]["Message"],
                )
```

A wrapper class for Amazon S3 Express SDK functions.

```
class S3ExpressWrapper:
    """Encapsulates Amazon S3 Express One Zone actions using the client
 interface."""
```

```
    def __init__(self, s3_client: Any) -> None:
        """
        Initializes the S3ExpressWrapper with an S3 client.

        :param s3_client: A Boto3 Amazon S3 client. This client provides low-
level
                            access to AWS S3 services.
        """
        self.s3_client = s3_client

    @classmethod
    def from_client(cls) -> "S3ExpressWrapper":
        """
        Creates an S3ExpressWrapper instance with a default s3 client.

        :return: An instance of S3ExpressWrapper initialized with the default S3
 client.
        """
        s3_client = boto3.client("s3")
        return cls(s3_client)


    def create_bucket(
        self, bucket_name: str, bucket_configuration: dict[str, any] = None
    ) -> None:
        """
        Creates a bucket.
        :param bucket_name: The name of the bucket.
        :param bucket_configuration: The optional configuration for the bucket.
        """
        try:
            params = {"Bucket": bucket_name}
            if bucket_configuration:
                params["CreateBucketConfiguration"] = bucket_configuration

            self.s3_client.create_bucket(**params)
        except ClientError as client_error:
            # Do not log InvalidBucketName error because it is logged elsewhere.
            if client_error.response["Error"]["Code"] != "InvalidBucketName":
                logging.error(
                    "Couldn't create the bucket %s. Here's why: %s",
                    bucket_name,
                    client_error.response["Error"]["Message"],
                )
```

```
            raise

    def delete_bucket_and_objects(self, bucket_name: str) -> None:
        """
        Deletes a bucket and its objects.
         :param bucket_name: The name of the bucket.
        """
        try:
            # Delete the objects in the bucket first. This is required for a
bucket to be deleted.
            paginator = self.s3_client.get_paginator("list_objects_v2")
            page_iterator = paginator.paginate(Bucket=bucket_name)
            for page in page_iterator:
                if "Contents" in page:
                    delete_keys = {
                        "Objects": [{"Key": obj["Key"]} for obj in
page["Contents"]]
                    }
                    response = self.s3_client.delete_objects(
                        Bucket=bucket_name, Delete=delete_keys
                    )
                    if "Errors" in response:
                        for error in response["Errors"]:
                            logging.error(
                                "Couldn't delete object %s. Here's why: %s",
                                error["Key"],
                                error["Message"],
                            )

            self.s3_client.delete_bucket(Bucket=bucket_name)
        except ClientError as client_error:
            logging.error(
                "Couldn't delete the bucket %s. Here's why: %s",
                bucket_name,
                client_error.response["Error"]["Message"],
            )

    def put_object(self, bucket_name: str, object_key: str, content: str) ->
None:
        """
        Puts an object into a bucket.
        :param bucket_name: The name of the bucket.
        :param object_key: The key of the object.
        :param content: The content of the object.
```

```
        """
        try:
            self.s3_client.put_object(Body=content, Bucket=bucket_name,
Key=object_key)
        except ClientError as client_error:
            logging.error(
                "Couldn't put the object %s into bucket %s. Here's why: %s",
                object_key,
                bucket_name,
                client_error.response["Error"]["Message"],
            )
            raise

    def list_objects(self, bucket: str) -> list[str]:
        """
        Lists objects in a bucket.
        :param bucket: The name of the bucket.
        :return: The list of objects in the bucket.
        """
        try:
            response = self.s3_client.list_objects_v2(Bucket=bucket)
            return response.get("Contents", [])
        except ClientError as client_error:
            logging.error(
                "Couldn't list objects in bucket %s. Here's why: %s",
                bucket,
                client_error.response["Error"]["Message"],
            )
            raise

    def copy_object(
        self,
        source_bucket: str,
        source_key: str,
        destination_bucket: str,
        destination_key: str,
    ) -> None:
        """
        Copies an object from one bucket to another.
        :param source_bucket: The source bucket.
        :param source_key: The source key.
        :param destination_bucket: The destination bucket.
        :param destination_key: The destination key.
        :return: None
```

```
        """
        try:
            self.s3_client.copy_object(
                CopySource={"Bucket": source_bucket, "Key": source_key},
                Bucket=destination_bucket,
                Key=destination_key,
            )
        except ClientError as client_error:
            logging.error(
                "Couldn't copy object %s from bucket %s to bucket %s. Here's why:
%s",
                source_key,
                source_bucket,
                destination_bucket,
                client_error.response["Error"]["Message"],
            )
            raise

    def create_session(self, bucket_name: str) -> None:
        """
        Creates an express session.
        :param bucket_name: The name of the bucket.
        """
        try:
            self.s3_client.create_session(Bucket=bucket_name)
        except ClientError as client_error:
            logging.error(
                "Couldn't create the express session for bucket %s. Here's why:
%s",
                bucket_name,
                client_error.response["Error"]["Message"],
            )
            raise


    def get_object(self, bucket_name: str, object_key: str) -> None:
        """
        Gets an object from a bucket.
        :param bucket_name: The name of the bucket.
        :param object_key: The key of the object.
        """
        try:
            self.s3_client.get_object(Bucket=bucket_name, Key=object_key)
        except ClientError as client_error:
```

```
            logging.error(
                "Couldn't get the object %s from bucket %s. Here's why: %s",
                object_key,
                bucket_name,
                client_error.response["Error"]["Message"],
            )
            raise
```

- For API details, see the following topics in *AWS SDK for Python (Boto3) API Reference*.
  - CopyObject
  - CreateBucket
  - DeleteBucket
  - DeleteObject
  - GetObject
  - ListObjects
  - PutObject

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Actions for S3 Directory Buckets using AWS SDKs

The following code examples demonstrate how to perform individual S3 Directory Buckets actions with AWS SDKs. Each example includes a link to GitHub, where you can find instructions for setting up and running the code.

These excerpts call the S3 Directory Buckets API and are code excerpts from larger programs that must be run in context. You can see actions in context in Scenarios for S3 Directory Buckets using AWS SDKs .

The following examples include only the most commonly used actions. For a complete list, see the Amazon S3 Directory Buckets API Reference.

Examples

- Use AbortMultipartUpload with an AWS SDK
- Use CompleteMultipartUpload with an AWS SDK
- Use CopyObject with an AWS SDK
- Use CreateBucket with an AWS SDK
- Use CreateMultipartUpload with an AWS SDK
- Use CreateSession with an AWS SDK
- Use DeleteBucket with an AWS SDK
- Use DeleteBucketEncryption with an AWS SDK
- Use DeleteBucketPolicy with an AWS SDK
- Use DeleteObject with an AWS SDK
- Use DeleteObjects with an AWS SDK
- Use GetBucketEncryption with an AWS SDK
- Use GetBucketPolicy with an AWS SDK
- Use GetObject with an AWS SDK
- Use GetObjectAttributes with an AWS SDK
- Use HeadBucket with an AWS SDK
- Use HeadObject with an AWS SDK
- Use ListDirectoryBuckets with an AWS SDK
- Use ListMultipartUploads with an AWS SDK
- Use ListObjectsV2 with an AWS SDK
- Use ListParts with an AWS SDK
- Use PutBucketEncryption with an AWS SDK
- Use PutBucketPolicy with an AWS SDK
- Use PutObject with an AWS SDK
- Use UploadPart with an AWS SDK
- Use UploadPartCopy with an AWS SDK

Use `AbortMultipartUpload` with an AWS SDK

The following code example shows how to use `AbortMultipartUpload`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Abort a multipart upload in a directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.AbortMultipartUploadRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static
 com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucketMultipartUpload;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;


    /**
     * Aborts a specific multipart upload for the specified S3 directory bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     * @param objectKey  The key (name) of the object to be uploaded
     * @param uploadId   The upload ID of the multipart upload to abort
     * @return True if the multipart upload is successfully aborted, false
 otherwise
     */
    public static boolean abortDirectoryBucketMultipartUpload(S3Client s3Client,
 String bucketName,
            String objectKey, String uploadId) {
        logger.info("Aborting multipart upload: {} for bucket: {}", uploadId,
 bucketName);
        try {
            // Abort the multipart upload
```

```
            AbortMultipartUploadRequest abortMultipartUploadRequest =
AbortMultipartUploadRequest.builder()
                    .bucket(bucketName)
                    .key(objectKey)
                    .uploadId(uploadId)
                    .build();

            s3Client.abortMultipartUpload(abortMultipartUploadRequest);
            logger.info("Aborted multipart upload: {} for object: {}", uploadId,
objectKey);
            return true;
        } catch (S3Exception e) {
            logger.error("Failed to abort multipart upload: {} - Error code: {}",
e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            return false;
        }
    }
```

- For API details, see AbortMultipartUpload in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `CompleteMultipartUpload` with an AWS SDK

The following code example shows how to use `CompleteMultipartUpload`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Complete a multipart upload in a directory bucket.

```
import com.example.s3.util.S3DirectoryBucketUtils;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.CompleteMultipartUploadRequest;
import software.amazon.awssdk.services.s3.model.CompleteMultipartUploadResponse;
import software.amazon.awssdk.services.s3.model.CompletedMultipartUpload;
import software.amazon.awssdk.services.s3.model.CompletedPart;
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.io.IOException;
import java.nio.file.Path;
import java.util.List;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static
 com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucketMultipartUpload;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static
 com.example.s3.util.S3DirectoryBucketUtils.deleteAllObjectsInDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.getFilePath;
import static
 com.example.s3.util.S3DirectoryBucketUtils.multipartUploadForDirectoryBucket;


    /**
     * This method completes the multipart upload request by collating all the
     * upload parts.
     *
     * @param s3Client    The S3 client used to interact with S3
     * @param bucketName  The name of the directory bucket
     * @param objectKey   The key (name) of the object to be uploaded
     * @param uploadId    The upload ID used to track the multipart upload
     * @param uploadParts The list of completed parts
     * @return True if the multipart upload is successfully completed, false
     *         otherwise
     */
    public static boolean completeDirectoryBucketMultipartUpload(S3Client
 s3Client, String bucketName, String objectKey,
            String uploadId, List<CompletedPart> uploadParts) {
```

```
        try {
            CompletedMultipartUpload completedMultipartUpload =
CompletedMultipartUpload.builder()
                    .parts(uploadParts)
                    .build();
            CompleteMultipartUploadRequest completeMultipartUploadRequest =
CompleteMultipartUploadRequest.builder()
                    .bucket(bucketName)
                    .key(objectKey)
                    .uploadId(uploadId)
                    .multipartUpload(completedMultipartUpload)
                    .build();

            CompleteMultipartUploadResponse response =
s3Client.completeMultipartUpload(completeMultipartUploadRequest);
            logger.info("Multipart upload completed. ETag: {}", response.eTag());
            return true;
        } catch (S3Exception e) {
            logger.error("Failed to complete multipart upload: {} - Error code:
{}", e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            return false;
        }
    }
```

- For API details, see CompleteMultipartUpload in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `CopyObject` with an AWS SDK

The following code example shows how to use `CopyObject`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Learn the basics

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Copy an object from a directory bucket to a directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.CopyObjectRequest;
import software.amazon.awssdk.services.s3.model.CopyObjectResponse;
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.nio.file.Path;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static
 com.example.s3.util.S3DirectoryBucketUtils.deleteAllObjectsInDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.getFilePath;
import static
 com.example.s3.util.S3DirectoryBucketUtils.putDirectoryBucketObject;

    /**
     * Copies an object from one S3 general purpose bucket to one S3 directory
     * bucket.
     *
     * @param s3Client     The S3 client used to interact with S3
     * @param sourceBucket The name of the source bucket
     * @param objectKey    The key (name) of the object to be copied
     * @param targetBucket The name of the target bucket
     */
    public static void copyDirectoryBucketObject(S3Client s3Client, String
 sourceBucket, String objectKey,
```

```
            String targetBucket) {
        logger.info("Copying object: {} from bucket: {} to bucket: {}",
objectKey, sourceBucket, targetBucket);

        try {
            // Create a CopyObjectRequest
            CopyObjectRequest copyReq = CopyObjectRequest.builder()
                    .sourceBucket(sourceBucket)
                    .sourceKey(objectKey)
                    .destinationBucket(targetBucket)
                    .destinationKey(objectKey)
                    .build();

            // Copy the object
            CopyObjectResponse copyRes = s3Client.copyObject(copyReq);
            logger.info("Successfully copied {} from bucket {} into bucket {}.
CopyObjectResponse: {}",
                    objectKey, sourceBucket, targetBucket,
copyRes.copyObjectResult().toString());

        } catch (S3Exception e) {
            logger.error("Failed to copy object: {} - Error code: {}",
e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            throw e;
        }
    }
```

- For API details, see CopyObject in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `CreateBucket` with an AWS SDK

The following code example shows how to use `CreateBucket`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Learn the basics

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create an S3 directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.BucketInfo;
import software.amazon.awssdk.services.s3.model.BucketType;
import software.amazon.awssdk.services.s3.model.CreateBucketConfiguration;
import software.amazon.awssdk.services.s3.model.CreateBucketRequest;
import software.amazon.awssdk.services.s3.model.CreateBucketResponse;
import software.amazon.awssdk.services.s3.model.DataRedundancy;
import software.amazon.awssdk.services.s3.model.LocationInfo;
import software.amazon.awssdk.services.s3.model.LocationType;
import software.amazon.awssdk.services.s3.model.S3Exception;

import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;

    /**
     * Creates a new S3 directory bucket in a specified Zone (For example, a
     * specified Availability Zone in this code example).
     *
     * @param s3Client   The S3 client used to create the bucket
     * @param bucketName The name of the bucket to be created
     * @param zone       The region where the bucket will be created
     * @throws S3Exception if there's an error creating the bucket
     */
    public static void createDirectoryBucket(S3Client s3Client, String
 bucketName, String zone) throws S3Exception {
        logger.info("Creating bucket: {}", bucketName);
```

```
        CreateBucketConfiguration bucketConfiguration =
CreateBucketConfiguration.builder()
                .location(LocationInfo.builder()
                        .type(LocationType.AVAILABILITY_ZONE)
                        .name(zone).build())
                .bucket(BucketInfo.builder()
                        .type(BucketType.DIRECTORY)
                        .dataRedundancy(DataRedundancy.SINGLE_AVAILABILITY_ZONE)
                        .build())
                .build();
        try {
            CreateBucketRequest bucketRequest = CreateBucketRequest.builder()
                    .bucket(bucketName)
                    .createBucketConfiguration(bucketConfiguration).build();
            CreateBucketResponse response = s3Client.createBucket(bucketRequest);
            logger.info("Bucket created successfully with location: {}",
response.location());
        } catch (S3Exception e) {
            logger.error("Error creating bucket: {} - Error code: {}",
e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            throw e;
        }
    }
```

- For API details, see CreateBucket in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `CreateMultipartUpload` with an AWS SDK

The following code example shows how to use `CreateMultipartUpload`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create a multipart upload in a directory bucket.

```
import com.example.s3.util.S3DirectoryBucketUtils;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.CreateMultipartUploadRequest;
import software.amazon.awssdk.services.s3.model.CreateMultipartUploadResponse;
import software.amazon.awssdk.services.s3.model.S3Exception;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;

    /**
     * This method creates a multipart upload request that generates a unique
 upload
     * ID used to track
     * all the upload parts.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     * @param objectKey  The key (name) of the object to be uploaded
     * @return The upload ID used to track the multipart upload
     */
    public static String createDirectoryBucketMultipartUpload(S3Client s3Client,
 String bucketName, String objectKey) {
        logger.info("Creating multipart upload for object: {} in bucket: {}",
 objectKey, bucketName);

        try {
            // Create a CreateMultipartUploadRequest
```

```
            CreateMultipartUploadRequest createMultipartUploadRequest =
CreateMultipartUploadRequest.builder()
                    .bucket(bucketName)
                    .key(objectKey)
                    .build();

            // Initiate the multipart upload
            CreateMultipartUploadResponse response =
s3Client.createMultipartUpload(createMultipartUploadRequest);
            String uploadId = response.uploadId();
            logger.info("Multipart upload initiated. Upload ID: {}", uploadId);
            return uploadId;

        } catch (S3Exception e) {
            logger.error("Failed to create multipart upload: {} - Error code:
{}", e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            throw e;
        }
    }
```

- For API details, see CreateMultipartUpload in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `CreateSession` with an AWS SDK

The following code example shows how to use `CreateSession`.

Python

SDK for Python (Boto3)

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

```
class S3ExpressWrapper:
    """Encapsulates Amazon S3 Express One Zone actions using the client
 interface."""

    def __init__(self, s3_client: Any) -> None:
        """
        Initializes the S3ExpressWrapper with an S3 client.

        :param s3_client: A Boto3 Amazon S3 client. This client provides low-
level
                              access to AWS S3 services.
        """
        self.s3_client = s3_client

    @classmethod
    def from_client(cls) -> "S3ExpressWrapper":
        """
        Creates an S3ExpressWrapper instance with a default s3 client.

        :return: An instance of S3ExpressWrapper initialized with the default S3
 client.
        """
        s3_client = boto3.client("s3")
        return cls(s3_client)


    def create_session(self, bucket_name: str) -> None:
        """
        Creates an express session.
        :param bucket_name: The name of the bucket.
        """
        try:
            self.s3_client.create_session(Bucket=bucket_name)
        except ClientError as client_error:
            logging.error(
                "Couldn't create the express session for bucket %s. Here's why:
 %s",
                bucket_name,
                client_error.response["Error"]["Message"],
            )
            raise
```

- For API details, see CreateSession in *AWS SDK for Python (Boto3) API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteBucket` with an AWS SDK

The following code example shows how to use `DeleteBucket`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Learn the basics

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete an S3 directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.DeleteBucketRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;

    /**
     * Deletes the specified S3 directory bucket.
```

```
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket to delete
     */
    public static void deleteDirectoryBucket(S3Client s3Client, String
bucketName) {
        logger.info("Deleting bucket: {}", bucketName);

        try {
            // Create a DeleteBucketRequest
            DeleteBucketRequest deleteBucketRequest =
DeleteBucketRequest.builder()
                    .bucket(bucketName)
                    .build();

            // Delete the bucket
            s3Client.deleteBucket(deleteBucketRequest);
            logger.info("Successfully deleted bucket: {}", bucketName);

        } catch (S3Exception e) {
            logger.error("Failed to delete bucket: {} - Error code: {}",
e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            throw e;
        }
    }
```

- For API details, see DeleteBucket in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteBucketEncryption` with an AWS SDK

The following code example shows how to use `DeleteBucketEncryption`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete the encryption configuration for a directory bucket.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.DeleteBucketEncryptionRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;

    /**
     * Deletes the encryption configuration from an S3 bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     */
    public static void deleteDirectoryBucketEncryption(S3Client s3Client, String
 bucketName) {
        DeleteBucketEncryptionRequest deleteRequest =
 DeleteBucketEncryptionRequest.builder()
                .bucket(bucketName)
                .build();

        try {
            s3Client.deleteBucketEncryption(deleteRequest);
            logger.info("Bucket encryption deleted for bucket: {}", bucketName);
        } catch (S3Exception e) {
            logger.error("Failed to delete bucket encryption: {} - Error code:
 {}", e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
```

```
            throw e;
        }
    }
```

- For API details, see DeleteBucketEncryption in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteBucketPolicy` with an AWS SDK

The following code example shows how to use `DeleteBucketPolicy`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete a bucket policy for a directory bucket.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.DeleteBucketPolicyRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.getAwsAccountId;
import static
 com.example.s3.util.S3DirectoryBucketUtils.putDirectoryBucketPolicy;

import org.slf4j.Logger;
```

```
import org.slf4j.LoggerFactory;


    /**
     * Deletes the bucket policy for the specified S3 directory bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     */
    public static void deleteDirectoryBucketPolicy(S3Client s3Client, String
 bucketName) {
        logger.info("Deleting policy for bucket: {}", bucketName);

        try {
            // Create a DeleteBucketPolicyRequest
            DeleteBucketPolicyRequest deletePolicyReq =
 DeleteBucketPolicyRequest.builder()
                    .bucket(bucketName)
                    .build();

            // Delete the bucket policy
            s3Client.deleteBucketPolicy(deletePolicyReq);
            logger.info("Successfully deleted bucket policy");

        } catch (S3Exception e) {
            logger.error("Failed to delete bucket policy: {} - Error code: {}",
 e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            throw e;
        }
    }
```

- For API details, see DeleteBucketPolicy in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteObject` with an AWS SDK

The following code example shows how to use `DeleteObject`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Learn the basics

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete an object in a directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.DeleteObjectRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.nio.file.Path;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.getFilePath;
import static
 com.example.s3.util.S3DirectoryBucketUtils.putDirectoryBucketObject;




    /**
     * Deletes an object from the specified S3 directory bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
```

```
     * @param objectKey  The key (name) of the object to be deleted
     */
    public static void deleteDirectoryBucketObject(S3Client s3Client, String
bucketName, String objectKey) {
        logger.info("Deleting object: {} from bucket: {}", objectKey,
bucketName);

        try {
            // Create a DeleteObjectRequest
            DeleteObjectRequest deleteObjectRequest =
DeleteObjectRequest.builder()
                    .bucket(bucketName)
                    .key(objectKey)
                    .build();

            // Delete the object
            s3Client.deleteObject(deleteObjectRequest);
            logger.info("Object {} has been deleted", objectKey);

        } catch (S3Exception e) {
            logger.error("Failed to delete object: {} - Error code: {}",
e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            throw e;
        }
    }
```

- For API details, see DeleteObject in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `DeleteObjects` with an AWS SDK

The following code example shows how to use `DeleteObjects`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Delete multiple objects in a directory bucket.

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.Delete;
import software.amazon.awssdk.services.s3.model.DeleteObjectsRequest;
import software.amazon.awssdk.services.s3.model.DeleteObjectsResponse;
import software.amazon.awssdk.services.s3.model.ObjectIdentifier;
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.net.URISyntaxException;
import java.nio.file.Path;
import java.nio.file.Paths;
import java.util.List;

import org.slf4j.Logger;
import org.slf4j.LoggerFactory;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.getFilePath;
import static
 com.example.s3.util.S3DirectoryBucketUtils.putDirectoryBucketObject;


    /**
     * Deletes multiple objects from the specified S3 directory bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     * @param objectKeys The list of keys (names) of the objects to be deleted
```

```
     */
    public static void deleteDirectoryBucketObjects(S3Client s3Client, String
bucketName, List<String> objectKeys) {
        logger.info("Deleting objects from bucket: {}", bucketName);

        try {
            // Create a list of ObjectIdentifier.
            List<ObjectIdentifier> identifiers = objectKeys.stream()
                    .map(key -> ObjectIdentifier.builder().key(key).build())
                    .toList();

            Delete delete = Delete.builder()
                    .objects(identifiers)
                    .build();

            DeleteObjectsRequest deleteObjectsRequest =
DeleteObjectsRequest.builder()
                    .bucket(bucketName)
                    .delete(delete)
                    .build();

            DeleteObjectsResponse deleteObjectsResponse =
s3Client.deleteObjects(deleteObjectsRequest);
            deleteObjectsResponse.deleted().forEach(deleted ->
logger.info("Deleted object: {}", deleted.key()));

        } catch (S3Exception e) {
            logger.error("Failed to delete objects: {} - Error code: {}",
e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            throw e;
        }
    }
```

- For API details, see DeleteObjects in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketEncryption` with an AWS SDK

The following code example shows how to use `GetBucketEncryption`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Get the encryption configuration of a directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.GetBucketEncryptionRequest;
import software.amazon.awssdk.services.s3.model.GetBucketEncryptionResponse;
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.services.s3.model.ServerSideEncryptionRule;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;

    /**
     * Retrieves the encryption configuration for an S3 directory bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     * @return The type of server-side encryption applied to the bucket (e.g.,
     *         AES256, aws:kms)
     */
    public static String getDirectoryBucketEncryption(S3Client s3Client, String
 bucketName) {
        try {
            // Create a GetBucketEncryptionRequest
```

```
            GetBucketEncryptionRequest getRequest =
GetBucketEncryptionRequest.builder()
                    .bucket(bucketName)
                    .build();

            // Retrieve the bucket encryption configuration
            GetBucketEncryptionResponse response =
s3Client.getBucketEncryption(getRequest);
            ServerSideEncryptionRule rule =
response.serverSideEncryptionConfiguration().rules().get(0);

            String encryptionType =
rule.applyServerSideEncryptionByDefault().sseAlgorithmAsString();
            logger.info("Bucket encryption algorithm: {}", encryptionType);
            logger.info("KMS Customer Managed Key ID: {}",
rule.applyServerSideEncryptionByDefault().kmsMasterKeyID());
            logger.info("Bucket Key Enabled: {}", rule.bucketKeyEnabled());

            return encryptionType;
        } catch (S3Exception e) {
            logger.error("Failed to get bucket encryption: {} - Error code: {}",
e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            throw e;
        }
    }
```

- For API details, see GetBucketEncryption in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetBucketPolicy` with an AWS SDK

The following code example shows how to use `GetBucketPolicy`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Get the policy of a directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.GetBucketPolicyRequest;
import software.amazon.awssdk.services.s3.model.GetBucketPolicyResponse;
import software.amazon.awssdk.services.s3.model.S3Exception;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.getAwsAccountId;
import static
 com.example.s3.util.S3DirectoryBucketUtils.putDirectoryBucketPolicy;

    /**
     * Retrieves the bucket policy for the specified S3 directory bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     * @return The bucket policy text
     */
    public static String getDirectoryBucketPolicy(S3Client s3Client, String
 bucketName) {
        logger.info("Getting policy for bucket: {}", bucketName);

        try {
            // Create a GetBucketPolicyRequest
            GetBucketPolicyRequest policyReq = GetBucketPolicyRequest.builder()
                    .bucket(bucketName)
```

```
                    .build();

            // Retrieve the bucket policy
            GetBucketPolicyResponse response =
s3Client.getBucketPolicy(policyReq);

            // Print and return the policy text
            String policyText = response.policy();
            logger.info("Bucket policy: {}", policyText);
            return policyText;

        } catch (S3Exception e) {
            logger.error("Failed to get bucket policy: {} - Error code: {}",
e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            throw e;
        }
    }
```

- For API details, see GetBucketPolicy in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetObject` with an AWS SDK

The following code example shows how to use `GetObject`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code examples:

- Learn the basics
- Create a presigned URL to get an object

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Get an object from a directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.core.ResponseBytes;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.GetObjectRequest;
import software.amazon.awssdk.services.s3.model.GetObjectResponse;
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.nio.charset.StandardCharsets;
import java.nio.file.Path;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static
 com.example.s3.util.S3DirectoryBucketUtils.deleteAllObjectsInDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.getFilePath;
import static
 com.example.s3.util.S3DirectoryBucketUtils.putDirectoryBucketObject;

    /**
     * Retrieves an object from the specified S3 directory bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     * @param objectKey  The key (name) of the object to be retrieved
     * @return The retrieved object as a ResponseInputStream
     */
```

```
   public static boolean getDirectoryBucketObject(S3Client s3Client, String
bucketName, String objectKey) {
       logger.info("Retrieving object: {} from bucket: {}", objectKey,
bucketName);

       try {
           // Create a GetObjectRequest
           GetObjectRequest objectRequest = GetObjectRequest.builder()
                   .key(objectKey)
                   .bucket(bucketName)
                   .build();

           // Retrieve the object as bytes
           ResponseBytes<GetObjectResponse> objectBytes =
s3Client.getObjectAsBytes(objectRequest);
           byte[] data = objectBytes.asByteArray();

           // Print object contents to console
           String objectContent = new String(data, StandardCharsets.UTF_8);
           logger.info("Object contents: \n{}", objectContent);

           return true;

       } catch (S3Exception e) {
           logger.error("Failed to retrieve object: {} - Error code: {}",
e.awsErrorDetails().errorMessage(),
                   e.awsErrorDetails().errorCode(), e);
           return false;
       }
   }
```

- For API details, see GetObject in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `GetObjectAttributes` with an AWS SDK

The following code example shows how to use `GetObjectAttributes`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Get an object attributes from a directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.GetObjectAttributesRequest;
import software.amazon.awssdk.services.s3.model.GetObjectAttributesResponse;
import software.amazon.awssdk.services.s3.model.ObjectAttributes;
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.nio.file.Path;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static
 com.example.s3.util.S3DirectoryBucketUtils.deleteAllObjectsInDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.getFilePath;
import static
 com.example.s3.util.S3DirectoryBucketUtils.putDirectoryBucketObject;

    /**
     * Retrieves attributes for an object in the specified S3 directory bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     * @param objectKey  The key (name) of the object to retrieve attributes for
     * @return True if the object attributes are successfully retrieved, false
     *         otherwise
     */
```

```
   public static boolean getDirectoryBucketObjectAttributes(S3Client s3Client,
String bucketName, String objectKey) {
       logger.info("Retrieving attributes for object: {} from bucket: {}",
objectKey, bucketName);

       try {
           // Create a GetObjectAttributesRequest
           GetObjectAttributesRequest getObjectAttributesRequest =
GetObjectAttributesRequest.builder()
                   .bucket(bucketName)
                   .key(objectKey)
                   .objectAttributes(ObjectAttributes.E_TAG,
ObjectAttributes.STORAGE_CLASS,
                           ObjectAttributes.OBJECT_SIZE)
                   .build();

           // Retrieve the object attributes
           GetObjectAttributesResponse response =
s3Client.getObjectAttributes(getObjectAttributesRequest);
           logger.info("Attributes for object {}:", objectKey);
           logger.info("ETag: {}", response.eTag());
           logger.info("Storage Class: {}", response.storageClass());
           logger.info("Object Size: {}", response.objectSize());
           return true;

       } catch (S3Exception e) {
           logger.error("Failed to retrieve object attributes: {} - Error code:
{}",
                   e.awsErrorDetails().errorMessage(),
e.awsErrorDetails().errorCode(), e);
           return false;
       }
   }
```

- For API details, see GetObjectAttributes in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use HeadBucket with an AWS SDK

The following code example shows how to use HeadBucket.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Checks if the specified S3 directory bucket exists and is accessible.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.HeadBucketRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;

    /**
     * Checks if the specified S3 directory bucket exists and is accessible.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket to check
     * @return True if the bucket exists and is accessible, false otherwise
     */
    public static boolean headDirectoryBucket(S3Client s3Client, String
 bucketName) {
        logger.info("Checking if bucket exists: {}", bucketName);

        try {
            // Create a HeadBucketRequest
            HeadBucketRequest headBucketRequest = HeadBucketRequest.builder()
                    .bucket(bucketName)
```

```
                    .build();
            // If the bucket doesn't exist, the following statement throws
 NoSuchBucketException,
            // which is a subclass of S3Exception.
            s3Client.headBucket(headBucketRequest);
            logger.info("Amazon S3 directory bucket: \"{}\" found.", bucketName);
            return true;

        } catch (S3Exception e) {
            logger.error("Failed to access bucket: {} - Error code: {}",
 e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            throw e;
        }
    }
```

- For API details, see HeadBucket in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `HeadObject` with an AWS SDK

The following code example shows how to use `HeadObject`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Get metadata of an object in a directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
```

```
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.HeadObjectRequest;
import software.amazon.awssdk.services.s3.model.HeadObjectResponse;
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.nio.file.Path;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static
 com.example.s3.util.S3DirectoryBucketUtils.deleteAllObjectsInDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.getFilePath;
import static
 com.example.s3.util.S3DirectoryBucketUtils.putDirectoryBucketObject;

    /**
     * Retrieves metadata for an object in the specified S3 directory bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     * @param objectKey  The key (name) of the object to retrieve metadata for
     * @return True if the object exists, false otherwise
     */
    public static boolean headDirectoryBucketObject(S3Client s3Client, String
 bucketName, String objectKey) {
        logger.info("Retrieving metadata for object: {} from bucket: {}",
 objectKey, bucketName);

        try {
            // Create a HeadObjectRequest
            HeadObjectRequest headObjectRequest = HeadObjectRequest.builder()
                    .bucket(bucketName)
                    .key(objectKey)
                    .build();

            // Retrieve the object metadata
            HeadObjectResponse response = s3Client.headObject(headObjectRequest);
            logger.info("Amazon S3 object: \"{}\" found in bucket: \"{}\" with
 ETag: \"{}\"", objectKey, bucketName,
                    response.eTag());
            logger.info("Content-Type: {}", response.contentType());
            logger.info("Content-Length: {}", response.contentLength());
```

```
            logger.info("Last Modified: {}", response.lastModified());
            return true;

        } catch (S3Exception e) {
            logger.error("Failed to retrieve object metadata: {} - Error code:
 {}", e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            return false;
        }
    }
```

- For API details, see HeadObject in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `ListDirectoryBuckets` with an AWS SDK

The following code example shows how to use `ListDirectoryBuckets`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

List all directory buckets.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.Bucket;
import software.amazon.awssdk.services.s3.model.ListDirectoryBucketsRequest;
import software.amazon.awssdk.services.s3.model.ListDirectoryBucketsResponse;
```

```
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.util.List;
import java.util.UUID;
import java.util.stream.Collectors;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;

    /**
    * Lists all S3 directory buckets and no general purpose buckets.
    *
    * @param s3Client The S3 client used to interact with S3
    * @return A list of bucket names
    */
   public static List<String> listDirectoryBuckets(S3Client s3Client) {
       logger.info("Listing all directory buckets");

       try {
           // Create a ListBucketsRequest
           ListDirectoryBucketsRequest listDirectoryBucketsRequest =
ListDirectoryBucketsRequest.builder().build();

           // Retrieve the list of buckets
           ListDirectoryBucketsResponse response =
s3Client.listDirectoryBuckets(listDirectoryBucketsRequest);

           // Extract bucket names
           List<String> bucketNames = response.buckets().stream()
                   .map(Bucket::name)
                   .collect(Collectors.toList());

           return bucketNames;
       } catch (S3Exception e) {
           logger.error("Failed to list buckets: {} - Error code: {}",
e.awsErrorDetails().errorMessage(),
                   e.awsErrorDetails().errorCode());
           throw e;
       }
   }
```

- For API details, see ListDirectoryBuckets in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `ListMultipartUploads` with an AWS SDK

The following code example shows how to use `ListMultipartUploads`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

List multipart uploads in a directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.ListMultipartUploadsRequest;
import software.amazon.awssdk.services.s3.model.ListMultipartUploadsResponse;
import software.amazon.awssdk.services.s3.model.MultipartUpload;
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.io.IOException;
import java.nio.file.Path;
import java.util.List;

import static
 com.example.s3.util.S3DirectoryBucketUtils.abortDirectoryBucketMultipartUploads;
import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static
 com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucketMultipartUpload;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.getFilePath;
```

```
import static
 com.example.s3.util.S3DirectoryBucketUtils.multipartUploadForDirectoryBucket;


    /**
     * Lists multipart uploads for the specified S3 directory bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     * @return A list of MultipartUpload objects representing the multipart
 uploads
     */
    public static List<MultipartUpload>
 listDirectoryBucketMultipartUploads(S3Client s3Client, String bucketName) {
        logger.info("Listing in-progress multipart uploads for bucket: {}",
 bucketName);

        try {
            // Create a ListMultipartUploadsRequest
            ListMultipartUploadsRequest listMultipartUploadsRequest =
 ListMultipartUploadsRequest.builder()
                    .bucket(bucketName)
                    .build();

            // List the multipart uploads
            ListMultipartUploadsResponse response =
 s3Client.listMultipartUploads(listMultipartUploadsRequest);
            List<MultipartUpload> uploads = response.uploads();
            for (MultipartUpload upload : uploads) {
                logger.info("In-progress multipart upload: Upload ID: {}, Key:
 {}, Initiated: {}", upload.uploadId(),
                        upload.key(), upload.initiated());
            }
            return uploads;

        } catch (S3Exception e) {
            logger.error("Failed to list multipart uploads: {} - Error code: {}",
 e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode());
            return List.of(); // Return an empty list if an exception is thrown
        }
    }
```

- For API details, see ListMultipartUploads in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `ListObjectsV2` with an AWS SDK

The following code example shows how to use `ListObjectsV2`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

List objects in a directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.ListObjectsV2Request;
import software.amazon.awssdk.services.s3.model.ListObjectsV2Response;
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.services.s3.model.S3Object;

import java.nio.file.Path;
import java.util.List;
import java.util.stream.Collectors;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static
 com.example.s3.util.S3DirectoryBucketUtils.deleteAllObjectsInDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
```

```
import static com.example.s3.util.S3DirectoryBucketUtils.getFilePath;
import static
 com.example.s3.util.S3DirectoryBucketUtils.putDirectoryBucketObject;

    /**
     * Lists objects in the specified S3 directory bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     * @return A list of object keys in the bucket
     */
    public static List<String> listDirectoryBucketObjectsV2(S3Client s3Client,
 String bucketName) {
        logger.info("Listing objects in bucket: {}", bucketName);

        try {
            // Create a ListObjectsV2Request
            ListObjectsV2Request listObjectsV2Request =
 ListObjectsV2Request.builder()
                    .bucket(bucketName)
                    .build();

            // Retrieve the list of objects
            ListObjectsV2Response response =
 s3Client.listObjectsV2(listObjectsV2Request);

            // Extract and return the object keys
            return response.contents().stream()
                    .map(S3Object::key)
                    .collect(Collectors.toList());

        } catch (S3Exception e) {
            logger.error("Failed to list objects: {} - Error code: {}",
 e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode());
            throw e;
        }
    }
```

- For API details, see ListObjectsV2 in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `ListParts` with an AWS SDK

The following code example shows how to use `ListParts`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

List parts of a multipart upload in a directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.ListPartsRequest;
import software.amazon.awssdk.services.s3.model.ListPartsResponse;
import software.amazon.awssdk.services.s3.model.Part;
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.io.IOException;
import java.nio.file.Path;
import java.util.List;

import static
 com.example.s3.util.S3DirectoryBucketUtils.abortDirectoryBucketMultipartUploads;
import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static
 com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucketMultipartUpload;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.getFilePath;
```

```
import static
 com.example.s3.util.S3DirectoryBucketUtils.multipartUploadForDirectoryBucket;

    /**
     * Lists the parts of a multipart upload for the specified S3 directory
 bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     * @param objectKey  The key (name) of the object being uploaded
     * @param uploadId   The upload ID used to track the multipart upload
     * @return A list of Part representing the parts of the multipart upload
     */
    public static List<Part> listDirectoryBucketMultipartUploadParts(S3Client
 s3Client, String bucketName,
            String objectKey, String uploadId) {
        logger.info("Listing parts for object: {} in bucket: {}", objectKey,
 bucketName);

        try {
            // Create a ListPartsRequest
            ListPartsRequest listPartsRequest = ListPartsRequest.builder()
                    .bucket(bucketName)
                    .uploadId(uploadId)
                    .key(objectKey)
                    .build();

            // List the parts of the multipart upload
            ListPartsResponse response = s3Client.listParts(listPartsRequest);
            List<Part> parts = response.parts();
            for (Part part : parts) {
                logger.info("Uploaded part: Part number = \"{}\", etag = {}",
 part.partNumber(), part.eTag());
            }
            return parts;

        } catch (S3Exception e) {
            logger.error("Failed to list parts: {} - Error code: {}",
 e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode());
            return List.of(); // Return an empty list if an exception is thrown
        }
    }
```

- For API details, see ListParts in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutBucketEncryption` with an AWS SDK

The following code example shows how to use `PutBucketEncryption`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Set bucket encryption to a directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.kms.KmsClient;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.PutBucketEncryptionRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.services.s3.model.ServerSideEncryption;
import software.amazon.awssdk.services.s3.model.ServerSideEncryptionByDefault;
import
 software.amazon.awssdk.services.s3.model.ServerSideEncryptionConfiguration;
import software.amazon.awssdk.services.s3.model.ServerSideEncryptionRule;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createKmsClient;
import static com.example.s3.util.S3DirectoryBucketUtils.createKmsKey;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
```

```
import static com.example.s3.util.S3DirectoryBucketUtils.scheduleKeyDeletion;

    /**
     * Sets the default encryption configuration for an S3 bucket as SSE-KMS.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     * @param kmsKeyId   The ID of the customer-managed KMS key
     */
    public static void putDirectoryBucketEncryption(S3Client s3Client, String
 bucketName, String kmsKeyId) {
        // Define the default encryption configuration to use SSE-KMS. For
 directory
        // buckets, AWS managed KMS keys aren't supported. Only customer-managed
 keys
        // are supported.
        ServerSideEncryptionByDefault encryptionByDefault =
 ServerSideEncryptionByDefault.builder()
                .sseAlgorithm(ServerSideEncryption.AWS_KMS)
                .kmsMasterKeyID(kmsKeyId)
                .build();

        // Create a server-side encryption rule to apply the default encryption
        // configuration. For directory buckets, the bucketKeyEnabled field is
 enforced
        // to be true.
        ServerSideEncryptionRule rule = ServerSideEncryptionRule.builder()
                .bucketKeyEnabled(true)
                .applyServerSideEncryptionByDefault(encryptionByDefault)
                .build();

        // Create the server-side encryption configuration for the bucket
        ServerSideEncryptionConfiguration encryptionConfiguration =
 ServerSideEncryptionConfiguration.builder()
                .rules(rule)
                .build();

        // Create the PutBucketEncryption request
        PutBucketEncryptionRequest putRequest =
 PutBucketEncryptionRequest.builder()
                .bucket(bucketName)
                .serverSideEncryptionConfiguration(encryptionConfiguration)
                .build();
```

```
        // Set the bucket encryption
        try {
            s3Client.putBucketEncryption(putRequest);
            logger.info("SSE-KMS Bucket encryption configuration set for the
directory bucket: {}", bucketName);
        } catch (S3Exception e) {
            logger.error("Failed to set bucket encryption: {} - Error code: {}",
e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode());
            throw e;
        }
    }
```

- For API details, see PutBucketEncryption in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutBucketPolicy` with an AWS SDK

The following code example shows how to use `PutBucketPolicy`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Apply a bucket policy to a directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.PutBucketPolicyRequest;
```

```
import software.amazon.awssdk.services.s3.model.S3Exception;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.getAwsAccountId;

    /**
     * Sets the following bucket policy for the specified S3 directory bucket.
     *<pre>
     * {
     *     "Version": "2012-10-17",
     *     "Statement": [
     *         {
     *             "Sid": "AdminPolicy",
     *             "Effect": "Allow",
     *             "Principal": {
     *                 "AWS": "arn:aws:iam::<ACCOUNT_ID>:root"
     *             },
     *             "Action": "s3express:*",
     *             "Resource": "arn:aws:s3express:us-west-2:<ACCOUNT_ID>:bucket/
<DIR_BUCKET_NAME>
     *         }
     *     ]
     * }
     * </pre>
     * This policy grants all S3 directory bucket actions to identities in the
 same account as the bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     * @param policyText The policy text to be applied
     */
    public static void putDirectoryBucketPolicy(S3Client s3Client, String
 bucketName, String policyText) {
        logger.info("Setting policy on bucket: {}", bucketName);
        logger.info("Policy: {}", policyText);

        try {
            PutBucketPolicyRequest policyReq = PutBucketPolicyRequest.builder()
                    .bucket(bucketName)
                    .policy(policyText)
                    .build();
```

```
            s3Client.putBucketPolicy(policyReq);
            logger.info("Bucket policy set successfully!");

        } catch (S3Exception e) {
            logger.error("Failed to set bucket policy: {} - Error code: {}",
 e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode(), e);
            throw e;
        }
    }
```

- For API details, see PutBucketPolicy in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `PutObject` with an AWS SDK

The following code example shows how to use `PutObject`.

Action examples are code excerpts from larger programs and must be run in context. You can see this action in context in the following code example:

- Learn the basics

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Put an object into a directory bucket.

```
import org.slf4j.Logger;
```

```
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.awscore.exception.AwsErrorDetails;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.PutObjectRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;

import java.io.UncheckedIOException;
import java.nio.file.Path;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static
 com.example.s3.util.S3DirectoryBucketUtils.deleteAllObjectsInDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.getFilePath;

    /**
     * Puts an object into the specified S3 directory bucket.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     * @param objectKey  The key (name) of the object to be placed in the bucket
     * @param filePath   The path of the file to be uploaded
     */
    public static void putDirectoryBucketObject(S3Client s3Client, String
 bucketName, String objectKey, Path filePath) {
        logger.info("Putting object: {} into bucket: {}", objectKey, bucketName);

        try {
            // Create a PutObjectRequest
            PutObjectRequest putObj = PutObjectRequest.builder()
                    .bucket(bucketName)
                    .key(objectKey)
                    .build();

            // Upload the object
            s3Client.putObject(putObj, filePath);
            logger.info("Successfully placed {} into bucket {}", objectKey,
 bucketName);

        } catch (UncheckedIOException e) {
            throw S3Exception.builder().message("Failed to read the file: " +
 e.getMessage()).cause(e)
```

```
                    .awsErrorDetails(AwsErrorDetails.builder()
                            .errorCode("ClientSideException:FailedToReadFile")
                            .errorMessage(e.getMessage())
                            .build())
                    .build();
        } catch (S3Exception e) {
            logger.error("Failed to put object: {}", e.getMessage(), e);
            throw e;
        }
    }
```

- For API details, see PutObject in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `UploadPart` with an AWS SDK

The following code example shows how to use `UploadPart`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Upload part of a multipart upload for a directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.core.sync.RequestBody;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.CompletedPart;
import software.amazon.awssdk.services.s3.model.S3Exception;
```

```
import software.amazon.awssdk.services.s3.model.UploadPartRequest;
import software.amazon.awssdk.services.s3.model.UploadPartResponse;

import java.io.IOException;
import java.io.RandomAccessFile;
import java.nio.ByteBuffer;
import java.nio.file.Path;
import java.util.ArrayList;
import java.util.List;

import static
 com.example.s3.util.S3DirectoryBucketUtils.abortDirectoryBucketMultipartUploads;
import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static
 com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucketMultipartUpload;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static
 com.example.s3.util.S3DirectoryBucketUtils.deleteAllObjectsInDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.getFilePath;

    /**
     * This method creates part requests and uploads individual parts to S3.
     * While it uses the UploadPart API to upload a single part, it does so
     * sequentially to handle multiple parts of a file, returning all the
 completed
     * parts.
     *
     * @param s3Client   The S3 client used to interact with S3
     * @param bucketName The name of the directory bucket
     * @param objectKey  The key (name) of the object to be uploaded
     * @param uploadId   The upload ID used to track the multipart upload
     * @param filePath   The path to the file to be uploaded
     * @return A list of uploaded parts
     * @throws IOException if an I/O error occurs
     */
    public static List<CompletedPart> multipartUploadForDirectoryBucket(S3Client
 s3Client, String bucketName,
            String objectKey, String uploadId, Path filePath) throws IOException
 {
        logger.info("Uploading parts for object: {} in bucket: {}", objectKey,
 bucketName);

        int partNumber = 1;
```

```
        List<CompletedPart> uploadedParts = new ArrayList<>();
        ByteBuffer bb = ByteBuffer.allocate(1024 * 1024 * 5); // 5 MB byte buffer

        // Read the local file, break down into chunks and process
        try (RandomAccessFile file = new RandomAccessFile(filePath.toFile(),
"r")) {
            long fileSize = file.length();
            int position = 0;

            // Sequentially upload parts of the file
            while (position < fileSize) {
                file.seek(position);
                int read = file.getChannel().read(bb);

                bb.flip(); // Swap position and limit before reading from the
buffer
                UploadPartRequest uploadPartRequest = UploadPartRequest.builder()
                        .bucket(bucketName)
                        .key(objectKey)
                        .uploadId(uploadId)
                        .partNumber(partNumber)
                        .build();

                UploadPartResponse partResponse = s3Client.uploadPart(
                        uploadPartRequest,
                        RequestBody.fromByteBuffer(bb));

                // Build the uploaded part
                CompletedPart uploadedPart = CompletedPart.builder()
                        .partNumber(partNumber)
                        .eTag(partResponse.eTag())
                        .build();

                // Add the uploaded part to the list
                uploadedParts.add(uploadedPart);

                // Log to indicate the part upload is done
                logger.info("Uploaded part number: {} with ETag: {}", partNumber,
partResponse.eTag());

                bb.clear();
                position += read;
                partNumber++;
            }
```

```
        } catch (S3Exception e) {
            logger.error("Failed to list parts: {} - Error code: {}",
 e.awsErrorDetails().errorMessage(),
                    e.awsErrorDetails().errorCode());
            throw e;
        }
        return uploadedParts;
    }
```

- For API details, see UploadPart in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Use `UploadPartCopy` with an AWS SDK

The following code example shows how to use `UploadPartCopy`.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Create copy parts based on source object size and copy over individual parts to a directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.CompletedPart;
import software.amazon.awssdk.services.s3.model.HeadObjectRequest;
import software.amazon.awssdk.services.s3.model.HeadObjectResponse;
import software.amazon.awssdk.services.s3.model.S3Exception;
```

```
import software.amazon.awssdk.services.s3.model.UploadPartCopyRequest;
import software.amazon.awssdk.services.s3.model.UploadPartCopyResponse;

import java.io.IOException;
import java.nio.file.Path;
import java.util.ArrayList;
import java.util.List;

import static
 com.example.s3.util.S3DirectoryBucketUtils.abortDirectoryBucketMultipartUploads;
import static
 com.example.s3.util.S3DirectoryBucketUtils.completeDirectoryBucketMultipartUpload;
import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static
 com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucketMultipartUpload;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static
 com.example.s3.util.S3DirectoryBucketUtils.deleteAllObjectsInDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.getFilePath;
import static
 com.example.s3.util.S3DirectoryBucketUtils.multipartUploadForDirectoryBucket;

    /**
     * Creates copy parts based on source object size and copies over individual
     * parts.
     *
     * @param s3Client          The S3 client used to interact with S3
     * @param sourceBucket      The name of the source bucket
     * @param sourceKey         The key (name) of the source object
     * @param destinationBucket The name of the destination bucket
     * @param destinationKey    The key (name) of the destination object
     * @param uploadId          The upload ID used to track the multipart upload
     * @return A list of completed parts
     */
    public static List<CompletedPart>
 multipartUploadCopyForDirectoryBucket(S3Client s3Client, String sourceBucket,
            String sourceKey, String destinationBucket, String destinationKey,
 String uploadId) {
        // Get the object size to track the end of the copy operation
        HeadObjectRequest headObjectRequest = HeadObjectRequest.builder()
                .bucket(sourceBucket)
                .key(sourceKey)
                .build();
```

```
        HeadObjectResponse headObjectResponse =
s3Client.headObject(headObjectRequest);
        long objectSize = headObjectResponse.contentLength();

        logger.info("Source Object size: {}", objectSize);

        // Copy the object using 20 MB parts
        long partSize = 20 * 1024 * 1024; // 20 MB
        long bytePosition = 0;
        int partNum = 1;
        List<CompletedPart> uploadedParts = new ArrayList<>();

        while (bytePosition < objectSize) {
            long lastByte = Math.min(bytePosition + partSize - 1, objectSize -
1);
            logger.info("Part Number: {}, Byte Position: {}, Last Byte: {}",
partNum, bytePosition, lastByte);

            try {
                UploadPartCopyRequest uploadPartCopyRequest =
UploadPartCopyRequest.builder()
                        .sourceBucket(sourceBucket)
                        .sourceKey(sourceKey)
                        .destinationBucket(destinationBucket)
                        .destinationKey(destinationKey)
                        .uploadId(uploadId)
                        .copySourceRange("bytes=" + bytePosition + "-" +
lastByte)
                        .partNumber(partNum)
                        .build();
                UploadPartCopyResponse uploadPartCopyResponse =
s3Client.uploadPartCopy(uploadPartCopyRequest);

                CompletedPart part = CompletedPart.builder()
                        .partNumber(partNum)
                        .eTag(uploadPartCopyResponse.copyPartResult().eTag())
                        .build();
                uploadedParts.add(part);

                bytePosition += partSize;
                partNum++;
            } catch (S3Exception e) {
                logger.error("Failed to copy part number {}: {} - Error code:
{}", partNum,
```

```
                        e.awsErrorDetails().errorMessage(),
e.awsErrorDetails().errorCode());
                throw e;
            }
        }

        return uploadedParts;
    }
```

- For API details, see UploadPartCopy in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Scenarios for S3 Directory Buckets using AWS SDKs

The following code examples show you how to implement common scenarios in S3 Directory Buckets with AWS SDKs. These scenarios show you how to accomplish specific tasks by calling multiple functions within S3 Directory Buckets or combined with other AWS services. Each scenario includes a link to the complete source code, where you can find instructions on how to set up and run the code.

Scenarios target an intermediate level of experience to help you understand service actions in context.

Examples

- Create a presigned URL for Amazon S3 directory buckets to get an object using an AWS SDK

Create a presigned URL for Amazon S3 directory buckets to get an object using an AWS SDK

The following code example shows how to create a presigned URL for S3 directory buckets and get an object.

Java

SDK for Java 2.x

> **Note**
>
> There's more on GitHub. Find the complete example and learn how to set up and run in the AWS Code Examples Repository.

Generate a presigned GET URL for accessing an object in an S3 directory bucket.

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import software.amazon.awssdk.regions.Region;
import software.amazon.awssdk.services.s3.S3Client;
import software.amazon.awssdk.services.s3.model.GetObjectRequest;
import software.amazon.awssdk.services.s3.model.S3Exception;
import software.amazon.awssdk.services.s3.presigner.S3Presigner;
import
 software.amazon.awssdk.services.s3.presigner.model.GetObjectPresignRequest;
import
 software.amazon.awssdk.services.s3.presigner.model.PresignedGetObjectRequest;

import java.nio.file.Path;
import java.time.Duration;

import static com.example.s3.util.S3DirectoryBucketUtils.createDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Client;
import static com.example.s3.util.S3DirectoryBucketUtils.createS3Presigner;
import static
 com.example.s3.util.S3DirectoryBucketUtils.deleteAllObjectsInDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.deleteDirectoryBucket;
import static com.example.s3.util.S3DirectoryBucketUtils.getFilePath;
import static
 com.example.s3.util.S3DirectoryBucketUtils.putDirectoryBucketObject;


    /**
     * Generates a presigned URL for accessing an object in the specified S3
     * directory bucket.
     *
```

```
    * @param s3Presigner The S3 presigner client used to generate the presigned
URL
    * @param bucketName  The name of the directory bucket
    * @param objectKey   The key (name) of the object to access
    * @return A presigned URL for accessing the specified object
    */
   public static String generatePresignedGetURLForDirectoryBucket(S3Presigner
s3Presigner, String bucketName,
           String objectKey) {
       logger.info("Generating presigned URL for object: {} in bucket: {}",
objectKey, bucketName);

       try {
           // Create a GetObjectRequest
           GetObjectRequest getObjectRequest = GetObjectRequest.builder()
                   .bucket(bucketName)
                   .key(objectKey)
                   .build();

           // Create a GetObjectPresignRequest
           GetObjectPresignRequest getObjectPresignRequest =
GetObjectPresignRequest.builder()
                   .signatureDuration(Duration.ofMinutes(10)) // Presigned URL
valid for 10 minutes
                   .getObjectRequest(getObjectRequest)
                   .build();

           // Generate the presigned URL
           PresignedGetObjectRequest presignedGetObjectRequest =
s3Presigner.presignGetObject(getObjectPresignRequest);

           // Get the presigned URL
           String presignedURL = presignedGetObjectRequest.url().toString();
           logger.info("Presigned URL: {}", presignedURL);
           return presignedURL;

       } catch (S3Exception e) {
           logger.error("Failed to generate presigned URL: {} - Error code: {}",
e.awsErrorDetails().errorMessage(),
                   e.awsErrorDetails().errorCode(), e);
           throw e;
       }
   }
```

- For API details, see GetObject in *AWS SDK for Java 2.x API Reference*.

For a complete list of AWS SDK developer guides and code examples, see Developing with Amazon S3 using the AWS SDKs. This topic also includes information about getting started and details about previous SDK versions.

Authenticating Requests (AWS Signature Version 4)

Topics

- Authentication Methods
- Introduction to Signing Requests
- Authenticating Requests: Using the Authorization Header (AWS Signature Version 4)
- Authenticating Requests: Using Query Parameters (AWS Signature Version 4)
- Examples: Signature Calculations in AWS Signature Version 4
- Authenticating Requests: Browser-Based Uploads Using POST (AWS Signature Version 4)
- Amazon S3 Signature Version 4 Authentication Specific Policy Keys

Every interaction with Amazon S3 is either authenticated or anonymous. This section explains request authentication with the AWS Signature Version 4 algorithm.

> **Note**
>
> If you use the AWS SDKs (see Sample Code and Libraries) to send your requests, you don't need to read this section because the SDK clients authenticate your requests by using access keys that you provide. Unless you have a good reason not to, you should always use the AWS SDKs. In Regions that support both signature versions, you can request AWS SDKs to use specific signature version. For more information, see Sending authenticated requests using the AWS SDKs. You need to read this section only if you are implementing the AWS Signature Version 4 algorithm in your custom client.

Authentication with AWS Signature Version 4 provides some or all of the following, depending on how you choose to sign your request:

- **Verification of the identity of the requester** – Authenticated requests require a signature that you create by using your access keys (access key ID, secret access key). For information about getting access keys, see Understanding and Getting Your Security Credentials in the *AWS General Reference*. If you are using temporary security credentials, the signature calculations also require a security token. For more information, see Requesting Temporary Security Credentials in the *IAM User Guide*.

- **In-transit data protection** – In order to prevent tampering with a request while it is in transit, you use some of the request elements to calculate the request signature. Upon receiving the request, Amazon S3 calculates the signature by using the same request elements. If any request component received by Amazon S3 does not match the component that was used to calculate the signature, Amazon S3 will reject the request.
- **Protect against reuse of the signed portions of the request** – The signed portions (using AWS Signatures) of requests are valid within 15 minutes of the timestamp in the request. An unauthorized party who has access to a signed request can modify the unsigned portions of the request without affecting the request's validity in the 15 minute window. Because of this, we recommend that you maximize protection by signing request headers and body, making HTTPS requests to Amazon S3, and by using the `s3:x-amz-content-sha256` condition key (see Amazon S3 Signature Version 4 Authentication Specific Policy Keys) in AWS policies to require users to sign Amazon S3 request bodies.

> **Note**
>
> Amazon S3 supports Signature Version 4, a protocol for authenticating inbound API requests to AWS services, in all AWS Regions. At this time, AWS Regions created before January 30, 2014 will continue to support the previous protocol, Signature Version 2. Any new Regions after January 30, 2014 will support only Signature Version 4 and therefore all requests to those Regions must be made with Signature Version 4. For more information about AWS Signature Version 2, see Signing and Authenticating REST Requests in the *Amazon Simple Storage Service User Guide*.

Authentication Methods

You can express authentication information by using one of the following methods:

- **HTTP Authorization header** – Using the HTTP `Authorization` header is the most common method of authenticating an Amazon S3 request. All of the Amazon S3 REST operations (except for browser-based uploads using POST requests) require this header. For more information about the `Authorization` header value, and how to calculate signature and related options, see Authenticating Requests: Using the Authorization Header (AWS Signature Version 4).

- **Query string parameters** – You can use a query string to express a request entirely in a URL. In this case, you use query parameters to provide request information, including the authentication information. Because the request signature is part of the URL, this type of URL is often referred to as a presigned URL. You can use presigned URLs to embed clickable links, which can be valid for up to seven days, in HTML. For more information, see Authenticating Requests: Using Query Parameters (AWS Signature Version 4).

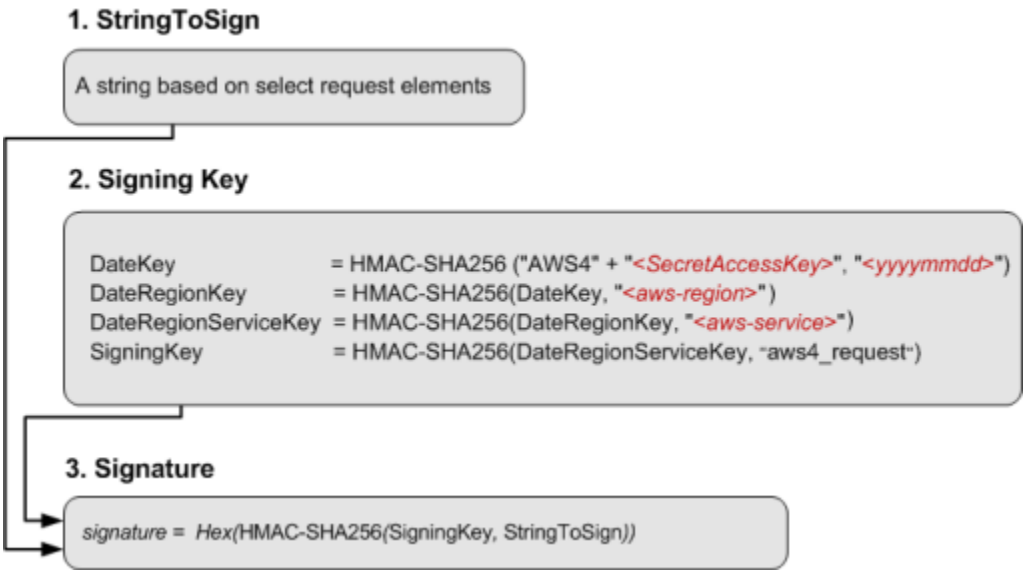
Amazon S3 also supports browser-based uploads that use HTTP POST requests. With an HTTP POST request, you can upload content to Amazon S3 directly from the browser. For information about authenticating POST requests, see Browser-Based Uploads Using POST (AWS Signature Version 4).

Introduction to Signing Requests

Authentication information that you send in a request must include a signature. To calculate a signature, you first concatenate select request elements to form a string, referred to as the *string to sign*. You then use a signing key to calculate the hash-based message authentication code (HMAC) of the string to sign.

In AWS Signature Version 4, you don't use your secret access key to sign the request. Instead, you first use your secret access key to derive a signing key. The derived signing key is specific to the date, service, and Region. For more information about how to derive a signing key in different programming languages, see Examples of how to derive a signing key for Signature Version 4.

The following diagram illustrates the general process of computing a signature.



The string to sign depends on the request type. For example, when you use the HTTP Authorization header or the query parameters for authentication, you use a varying combination of request elements to create the string to sign. For an HTTP POST request, the POST policy in the request is the string you sign. For more information about computing string to sign, follow links provided at the end of this section.

For signing key, the diagram shows series of calculations, where result of each step you feed into the next step. The final step is the signing key.

Upon receiving an authenticated request, Amazon S3 servers re-create the signature by using the authentication information that is contained in the request. If the signatures match, Amazon S3 processes your request; otherwise, the request is rejected.

For more information about authenticating requests, see the following topics:

- Authenticating Requests: Using the Authorization Header (AWS Signature Version 4)
- Authenticating Requests: Using Query Parameters (AWS Signature Version 4)
- Browser-Based Uploads Using POST (AWS Signature Version 4)

Authenticating Requests: Using the Authorization Header (AWS Signature Version 4)

Topics

- Overview

- Signature Calculations for the Authorization Header: Transferring Payload in a Single Chunk (AWS Signature Version 4)
- Signature Calculations for the Authorization Header: Transferring Payload in Multiple Chunks (Chunked Upload) (AWS Signature Version 4)
- Signature calculations for trailing headers (chunked uploads) (AWS Signature Version 4)

Overview

Using the HTTP `Authorization` header is the most common method of providing authentication information. Except for POST requests and requests that are signed by using query parameters, all Amazon S3 operations use the `Authorization` request header to provide authentication information.

The following is an example of the `Authorization` header value. Line breaks are added to this example for readability:

```
Authorization: AWS4-HMAC-SHA256
Credential=AKIAIOSFODNN7EXAMPLE/20130524/us-east-1/s3/aws4_request,
SignedHeaders=host;range;x-amz-date,
Signature=fe5f80f77d5fa3beca038a248ff027d0445342fe2855ddc963176630326f1024
```

The following table describes the various components of the `Authorization` header value in the preceding example:

Component	Description
`AWS4-HMAC-SHA256`	The algorithm that was used to calculate the signature. You must provide this value when you use AWS Signature Version 4 for authentication. The string specifies AWS Signature Version 4 (`AWS4`) and the signing algorithm (`HMAC-SHA256`).
`Credential`	

Component	Description
	Your access key ID and the scope information, which includes the date, Region, and service that were used to calculate the signature. This string has the following form: `<your-access-key-id> /<date>/<aws-region> /<aws-service> /aws4_request` Where: • `<date>` value is specified using `YYYYMMDD` format. • `<aws-service>` value is `s3` when sending request to Amazon S3.
`SignedHeaders`	A semicolon-separated list of request headers that you used to compute `Signature`. The list includes header names only, and the header names must be in lowercase. For example: `host;range;x-amz-date`
`Signature`	The 256-bit signature expressed as 64 lowercase hexadecimal characters. For example: `fe5f80f77d5fa3beca038a248ff027d0445342fe2855ddc963176630326f1024` Note that the signature calculations vary depending on the option you choose to transfer the payload.

The signature calculations vary depending on the method you choose to transfer the request payload. S3 supports the following options:

- **Transfer payload in a single chunk** – In this case, you have the following signature calculation options:

  - **Signed payload option** – You can optionally compute the entire payload checksum and include it in signature calculation. This provides added security but you need to read your payload twice or buffer it in memory.

    For example, in order to upload a file, you need to read the file first to compute a payload hash for signature calculation and again for transmission when you create the request. For smaller payloads, this approach might be preferable. However, for large files, reading the file twice can be inefficient, so you might want to upload data in chunks instead.

    We recommend you include payload checksum for added security.
  - **Unsigned payload option** – Do not include payload checksum in signature calculation.

  For step-by-step instructions to calculate signature and construct the Authorization header value, see Signature Calculations for the Authorization Header: Transferring Payload in a Single Chunk (AWS Signature Version 4).
- **Transfer payload in multiple chunks (chunked upload)** – In this case you transfer payload in chunks. You can transfer a payload in chunks regardless of the payload size.

  You can break up your payload into chunks. These can be fixed or variable-size chunks. By uploading data in chunks, you avoid reading the entire payload to calculate the signature. Instead, for the first chunk, you calculate a seed signature that uses only the request headers. The second chunk contains the signature for the first chunk, and each subsequent chunk contains the signature for the chunk that precedes it. At the end of the upload, you send a final chunk with 0 bytes of data that contains the signature of the last chunk of the payload. For more information, see Signature Calculations for the Authorization Header: Transferring Payload in Multiple Chunks (Chunked Upload) (AWS Signature Version 4).

When signing your requests, you can use either AWS Signature Version 4 or AWS Signature Version 4A. The key difference between the two is determined by how the signature is calculated. With AWS Signature Version 4A, the signature does not include Region-specific information and is calculated using the `AWS4-ECDSA-P256-SHA256` algorithm.

In addition to these options, you have the option of including a trailer with your request. In order to include a trailer with your request, you need to specify that in the header by setting `x-amz-content-sha256` to the appropriate value. If you are using a trailing header, you must include `x-amz-trailer` in the header and specify the trailing header names as a string in a comma-separated list. All trailing headers are written after the final chunk. If you're uploading the data in multiple chunks, you must send a final chunk with 0 bytes of data before sending the trailing header.

When you send a request, you must tell Amazon S3 which of the preceding options you have chosen in your signature calculation, by adding the `x-amz-content-sha256` header with one of the following values:

Header value	Description
Actual payload checksum value	This value is the actual checksum of your object and is only possible when you are uploading the data in a single chunk.
UNSIGNED-PAYLOAD	Use this when you are uploading the object as a single unsigned chunk.
STREAMING-UNSIGNED-PAYLOAD-TRAILER	Use this when sending an unsigned payload over multiple chunks. In this case you also have a trailing header after the chunk is uploaded.
STREAMING-AWS4-HMAC-SHA256-PAYLOAD	Use this when sending a payload over multiple chunks, and the chunks are signed using `AWS4-HMAC-SHA256`. This produces a SigV4 signature.
STREAMING-AWS4-HMAC-SHA256-PAYLOAD-TRAILER	Use this when sending a payload over multiple chunks, and the chunks are signed using `AWS4-HMAC-SHA256`. This produces a SigV4 signature. In addition, the digest for the chunks is included as a trailing header.
STREAMING-AWS4-ECDSA-P256-SHA256-PAYLOAD	Use this when sending a payload over multiple chunks, and the chunks are signed using `AWS4-ECDSA-P256-SHA256`. This produces a SigV4A signature.

Header value	Description
STREAMING-AWS4-ECDSA-P256-SHA256-PAYLOAD-TRAILER	Use this when sending a payload over multiple chunks, and the chunks are signed using `AWS4-ECDSA-P256-SHA256` . This produces a SigV4A signature. In addition, the digest for the chunks is included as a trailing header.

Upon receiving the request, Amazon S3 re-creates the string to sign using information in the `Authorization` header and the `date` header. It then verifies with authentication service the signatures match. The request date can be specified by using either the HTTP `Date` or the `x-amz-date` header. If both headers are present, `x-amz-date` takes precedence.

If the signatures match, Amazon S3 processes your request; otherwise, your request will fail.

For more information, see the following topics:

Signature Calculations for the Authorization Header: Transferring Payload in a Single Chunk (AWS Signature Version 4)

Signature Calculations for the Authorization Header: Transferring Payload in Multiple Chunks (Chunked Upload) (AWS Signature Version 4)

Signature calculations for trailing headers (chunked uploads) (AWS Signature Version 4)

Signature Calculations for the Authorization Header: Transferring Payload in a Single Chunk (AWS Signature Version 4)

When using the `Authorization` header to authenticate requests, the header value includes, among other things, a signature. The signature calculations vary depending on the choice you make for transferring the payload (Overview). This section explains signature calculations when you choose to transfer the payload in a single chunk. The example section (see Examples: Signature Calculations) shows signature calculations and resulting `Authorization` headers that you can use as a test suite to verify your code.

> **Important**
>
> When transferring payload in a single chunk, you can optionally choose to include the payload hash in the signature calculations, referred as *signed payload* (if you don't include

it, the payload is considered *unsigned*). The signing procedure discussed in the following section applies to both, but note the following differences:

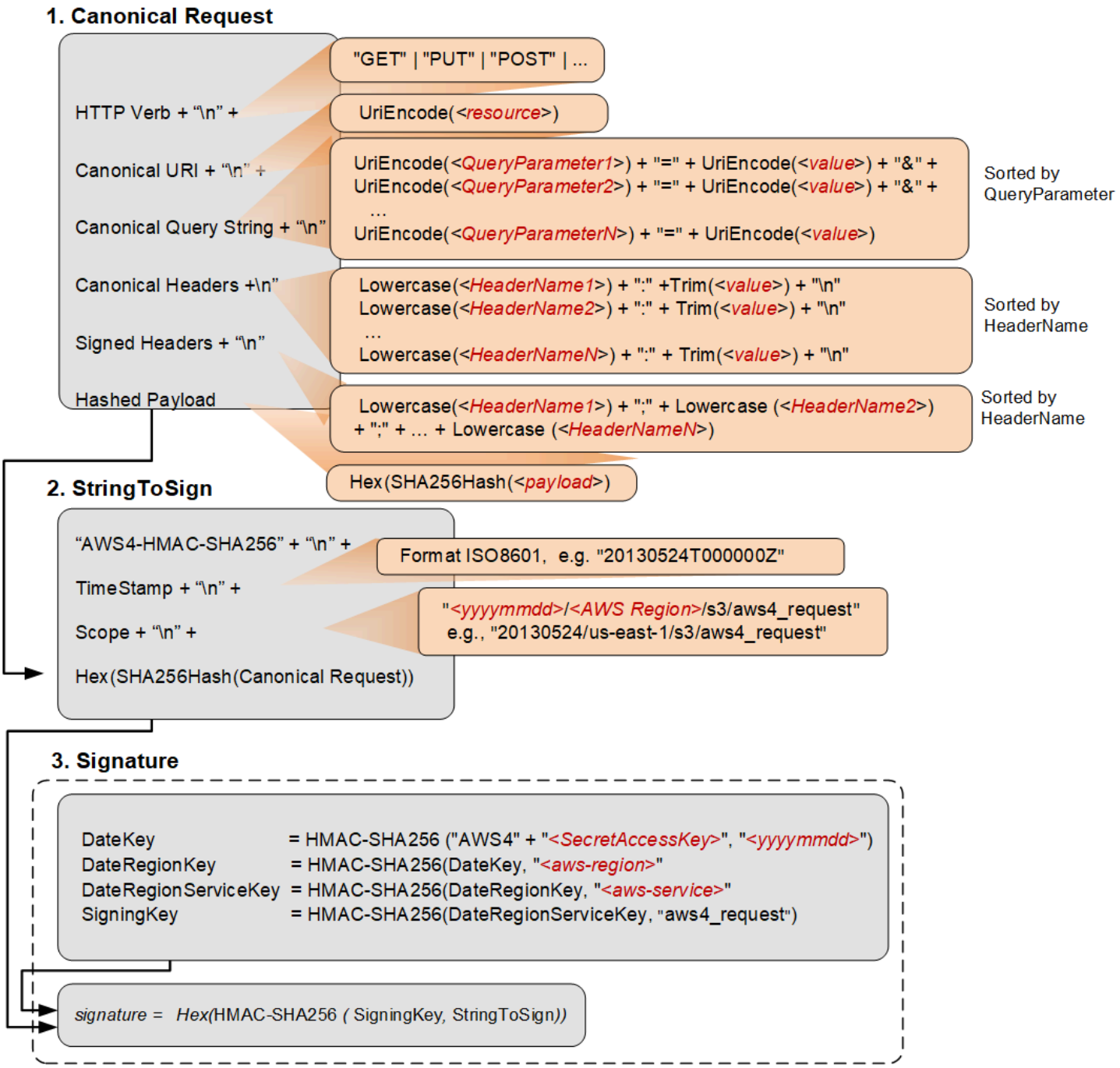
- **Signed payload option** – You include the payload hash when constructing the canonical request (that then becomes part of StringToSign, as explained in the signature calculation section). You also specify the same value as the `x-amz-content-sha256` header value when sending the request to S3.
- **Unsigned payload option** – You include the literal string `UNSIGNED-PAYLOAD` when constructing a canonical request, and set the same value as the `x-amz-content-sha256` header value when sending the request to Amazon S3.

When you send your request to Amazon S3, the `x-amz-content-sha256` header value informs Amazon S3 whether the payload is signed or not. Amazon S3 can then create the signature accordingly for verification.
In both cases, because the `x-amz-content-sha256` header value is already part of your `HashedPayload`, you are not required to include the `x-amz-content-sha256` header as a canonical header.

Calculating a Signature

To calculate a signature, you first need a string to sign. You then calculate a `HMAC-SHA256` hash of the string to sign by using a signing key. The following diagram illustrates the process, including the various components of the string that you create for signing

When Amazon S3 receives an authenticated request, it computes the signature and then compares it with the signature that you provided in the request. For that reason, you must compute the signature by using the same method that is used by Amazon S3. The process of putting a request in an agreed-upon form for signing is called canonicalization.



The following table describes the functions that are shown in the diagram. You need to implement code for these functions.

Function	Description
`Lowercase()`	Convert the string to lowercase.

Function	Description
`Hex()`	Lowercase base 16 encoding.
`SHA256Hash()`	Secure Hash Algorithm (SHA) cryptographic hash function.
`HMAC-SHA256()`	Computes HMAC by using the SHA256 algorithm with the signing key provided. This is the final signature.
`Trim()`	Remove any leading or trailing whitespace.

Function	Description
`UriEncode()`	URI encode every byte. UriEncode() must enforce the following rules: • URI encode every byte except the unreserved characters: 'A'-'Z', 'a'-'z', '0'-'9', '-', '.', '_', and '~'. • The space character is a reserved character and must be encoded as "%20" (and not as "+"). • Each URI encoded byte is formed by a '%' and the two-digit hexadecimal value of the byte. • Letters in the hexadecimal value must be uppercase, for example "%1A". • Encode the forward slash character, '/', everywhere except in the object key name. For example, if the object key name is `photos/Jan/sample.jpg` , the forward slash in the key name is not encoded. **Important** The standard UriEncode functions provided by your development platform may not work because of differences in implementation and related ambiguity in the underlying RFCs. We recommend that you write your own custom UriEncode function to ensure that your encoding will work. To see an example of a UriEncode function in Java, see Java Utilities on the GitHub website.

Task 1: Create a Canonical Request

This section provides an overview of creating a canonical request.

The following is the canonical request format that Amazon S3 uses to calculate a signature. For signatures to match, you must create a canonical request in this format:

```
<HTTPMethod>\n
<CanonicalURI>\n
<CanonicalQueryString>\n
<CanonicalHeaders>\n
<SignedHeaders>\n
<HashedPayload>
```

Where:

- *HTTPMethod* is one of the HTTP methods, for example GET, PUT, HEAD, and DELETE.
- *CanonicalURI* is the URI-encoded version of the absolute path component of the URI—everything starting with the "/" that follows the domain name and up to the end of the string or to the question mark character ('?') if you have query string parameters. The URI in the following example, `/examplebucket/myphoto.jpg`, is the absolute path and you don't encode the "/" in the absolute path:

  ```
  http://s3.amazonaws.com/examplebucket/myphoto.jpg
  ```

  > **Note**
  >
  > You do not normalize URI paths for requests to Amazon S3. For example, you may have a bucket with an object named "my-object//example//photo.user". Normalizing the path changes the object name in the request to "my-object/example/photo.user". This is an incorrect path for that object.

- *CanonicalQueryString* specifies the URI-encoded query string parameters. You URI-encode name and values individually. You must also sort the parameters in the canonical query string alphabetically by key name. The sorting occurs after encoding. The query string in the following URI example is `prefix=somePrefix&marker=someMarker&max-keys=20`:

  ```
  http://s3.amazonaws.com/examplebucket?prefix=somePrefix&marker=someMarker&max-keys=20
  ```

The canonical query string is as follows (line breaks are added to this example for readability):

```
UriEncode("marker")+"="+UriEncode("someMarker")+"&"+
UriEncode("max-keys")+"="+UriEncode("20") + "&" +
UriEncode("prefix")+"="+UriEncode("somePrefix")
```

When a request targets a subresource, the corresponding query parameter value will be an empty string (""). For example, the following URI identifies the `ACL` subresource on the `examplebucket` bucket:

```
http://s3.amazonaws.com/examplebucket?acl
```

The CanonicalQueryString in this case is as follows:

```
UriEncode("acl") + "=" + ""
```

If the URI does not include a '?', there is no query string in the request, and you set the canonical query string to an empty string (""). You will still need to include the "\n".

- *`CanonicalHeaders`* is a list of request headers with their values. Individual header name and value pairs are separated by the newline character ("\n"). Header names must be in lowercase. You must sort the header names alphabetically to construct the string, as shown in the following example:

```
Lowercase(<HeaderName1>)+":"+Trim(<value>)+"\n"
Lowercase(<HeaderName2>)+":"+Trim(<value>)+"\n"
...
Lowercase(<HeaderNameN>)+":"+Trim(<value>)+"\n"
```

The `Lowercase()` and `Trim()` functions used in this example are described in the preceding section.

The *`CanonicalHeaders`* list must include the following:

- HTTP `host` header.

- If the `Content-MD5` header is present in the request, you must add it to the *`CanonicalHeaders`* list.
- Any `x-amz-*` headers that you plan to include in your request must also be added. For example, if you are using temporary security credentials, you need to include `x-amz-security-token` in your request. You must add this header in the list of *`CanonicalHeaders`*.

> **Note**
>
> - The `x-amz-content-sha256` header is required for all AWS Signature Version 4 requests. It provides a hash of the request payload. However, you are not required to include the `x-amz-content-sha256` as a canonical header because S3 will automatically use its value when calculating the payload hash sent in the request.
> - If there is no payload, you must provide the hash of an empty string.
> - If you do not want S3 to check against the hash of the request, you can use the literal string `"UNSIGNED-PAYLOAD"` instead.

The following are example `CanonicalHeaders` strings. The header names are in lowercase and sorted.

Example Example 1

```
host:s3.amazonaws.com
x-amz-content-sha256:e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
x-amz-date:20130708T220855Z
```

Example Example 2

```
host:s3.amazonaws.com
x-amz-content-sha256:UNSIGNED-PAYLOAD
x-amz-date:20130708T220855Z
```

Example Example 3

```
host:s3.amazonaws.com
x-amz-date:20130708T220855Z
```

> **Note**
>
> For the purpose of calculating an authorization signature, the host header and all `x-amz-*` headers, excluding `x-amz-content-sha256`, are required. However, in order to prevent data tampering, you should consider including all the headers in the signature calculation.
>
> Signing the `x-amz-content-sha256` header is optional because S3 will use its value when calculating the received request payload hash.

- *`SignedHeaders`* is an alphabetically sorted, semicolon-separated list of lowercase request header names. The request headers in the list are the same headers that you included in the `CanonicalHeaders` string. In the previous examples, the value of *`SignedHeaders`* would be as follows:

  Example Examples 1 and 2

  ```
  host;x-amz-content-sha256;x-amz-date
  ```

  Example Example 3

  ```
  host;x-amz-date
  ```

- *`HashedPayload`* is the hexadecimal value of the SHA256 hash of the request payload.

  ```
  Hex(SHA256Hash(<payload>)
  ```

  If there is no payload in the request, you compute a hash of the empty string as follows:

  ```
  Hex(SHA256Hash(""))
  ```

  The hash returns the following value:

  ```
  e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
  ```

For example, when you upload an object by using a PUT request, you provide object data in the body. When you retrieve an object by using a GET request, you compute the empty string hash.

Task 2: Create a String to Sign

This section provides an overview of creating a string to sign. For step-by-step instructions, see Task 2: Create a String to Sign in the *AWS General Reference*.

The string to sign is a concatenation of the following strings:

```
"AWS4-HMAC-SHA256" + "\n" +
timeStampISO8601Format + "\n" +
<Scope> + "\n" +
Hex(SHA256Hash(<CanonicalRequest>))
```

The constant string `AWS4-HMAC-SHA256` specifies the hash algorithm that you are using, HMAC-SHA256. The `timeStamp` is the current UTC time in ISO 8601 format (for example, `20130524T000000Z`).

`Scope` binds the resulting signature to a specific date, an AWS Region, and a service. Thus, your resulting signature will work only in the specific Region and for a specific service. The signature is valid for seven days after the specified date.

```
date.Format(<YYYYMMDD>) + "/" + <region> + "/" + <service> + "/aws4_request"
```

For Amazon S3, the service string is `s3`. For a list of *`region`* strings, see Regions and Endpoints in the *AWS General Reference*. The Region column in this table provides the list of valid Region strings.

The following scope restricts the resulting signature to the `us-east-1` Region and Amazon S3.

```
20130606/us-east-1/s3/aws4_request
```

> **Note**
>
> `Scope` must use the same date that you use to compute the signing key, as discussed in the following section.

Task 3: Calculate Signature

In AWS Signature Version 4, instead of using your AWS access keys to sign a request, you first create a signing key that is scoped to a specific Region and service. For more information about signing keys, see Introduction to Signing Requests.

```
DateKey              = HMAC-SHA256("AWS4"+"<SecretAccessKey>", "<YYYYMMDD>")
DateRegionKey        = HMAC-SHA256(<DateKey>, "<aws-region>")
DateRegionServiceKey = HMAC-SHA256(<DateRegionKey>, "<aws-service>")
SigningKey           = HMAC-SHA256(<DateRegionServiceKey>, "aws4_request")
```

> **Note**
>
> Some use cases can process signature keys for up to 7 days. For more information see Share an Object with Others.

For a list of Region strings, see Regions and Endpoints in the *AWS General Reference*.

Using a signing key enables you to keep your AWS credentials in one safe place. For example, if you have multiple servers that communicate with Amazon S3, you share the signing key with those servers; you don't have to keep a copy of your secret access key on each server. Signing key is valid for up to seven days. So each time you calculate signing key you will need to share the signing key with your servers. For more information, see Authenticating Requests (AWS Signature Version 4).

The final signature is the HMAC-SHA256 hash of the string to sign, using the signing key as the key.

```
HMAC-SHA256(SigningKey, StringToSign)
```

For step-by-step instructions on creating a signature, see Task 3: Create a Signature in the *AWS General Reference*.

Examples: Signature Calculations

You can use the examples in this section as a reference to check signature calculations in your code. The calculations shown in the examples use the following data:

- Example access keys.

Parameter	Value
AWSAccessKeyId	AKIAIOSFODNN7EXAMPLE
AWSSecret AccessKey	wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY

- Request timestamp of 20130524T000000Z (`Fri, 24 May 2013 00:00:00 GMT`).
- Bucket name `examplebucket`.
- The bucket is assumed to be in the US East (N. Virginia) Region. The credential `Scope` and the `Signing Key` calculations use `us-east-1` as the Region specifier. For information about other Regions, see Regions and Endpoints in the *AWS General Reference*.
- You can use either path-style or virtual hosted–style requests. The following examples show how to sign a virtual hosted–style request, for example:

```
https://examplebucket.s3.amazonaws.com/photos/photo1.jpg
```

For more information, see Virtual Hosting of Buckets in the *Amazon Simple Storage Service User Guide*.

Example: GET Object

The following example gets the first 10 bytes of an object (test.txt) from `examplebucket`. For more information about the API action, see GetObject.

```
GET /test.txt HTTP/1.1
Host: examplebucket.s3.amazonaws.com
Authorization: SignatureToBeCalculated
Range: bytes=0-9
x-amz-content-sha256:e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
x-amz-date: 20130524T000000Z
```

Because this GET request does not provide any body content, the `x-amz-content-sha256` value can either be the hash of the empty request body or the literal string `"UNSIGNED-PAYLOAD"`. The

following steps show signature calculations and construction of the `Authorization` header using the hash of an empty string.

1. **StringToSign**

   a. **CanonicalRequest**

```
GET
/test.txt

host:examplebucket.s3.amazonaws.com
range:bytes=0-9
x-amz-content-
sha256:e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
x-amz-date:20130524T000000Z

host;range;x-amz-content-sha256;x-amz-date
e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
```

   In the canonical request string, the last line is the hash of the empty request body. The third line is empty because there are no query parameters in the request.

   b. **StringToSign**

```
AWS4-HMAC-SHA256
20130524T000000Z
20130524/us-east-1/s3/aws4_request
7344ae5b7ee6c3e7e6b0fe0640412a37625d1fbfff95c48bbb2dc43964946972
```

2. **SigningKey**

```
signing key = HMAC-SHA256(HMAC-SHA256(HMAC-SHA256(HMAC-SHA256("AWS4" +
 "<YourSecretAccessKey>","20130524"),"us-east-1"),"s3"),"aws4_request")
```

3. **Signature**

```
f0e8bdb87c964420e857bd35b5d6ed310bd44f0170aba48dd91039c6036bdb41
```

4. **Authorization header**

   The resulting `Authorization` header is as follows:

```
AWS4-HMAC-SHA256 Credential=AKIAIOSFODNN7EXAMPLE/20130524/us-east-1/
s3/aws4_request,SignedHeaders=host;range;x-amz-content-sha256;x-amz-
date,Signature=f0e8bdb87c964420e857bd35b5d6ed310bd44f0170aba48dd91039c6036bdb41
```

Example: PUT Object

This example PUT request creates an object (`test$file.text`) in `examplebucket` . The example assumes the following:

- You are requesting `REDUCED_REDUNDANCY` as the storage class by adding the `x-amz-storage-class` request header. For information about storage classes, see Storage Classes in the *Amazon Simple Storage Service User Guide*.
- The content of the uploaded file is a string, `"Welcome to Amazon S3."` The value of `x-amz-content-sha256` in the request is based on this string.

For information about the API action, see PutObject.

```
PUT test$file.text HTTP/1.1
Host: examplebucket.s3.amazonaws.com
Date: Fri, 24 May 2013 00:00:00 GMT
Authorization: SignatureToBeCalculated
x-amz-date: 20130524T000000Z
x-amz-storage-class: REDUCED_REDUNDANCY
x-amz-content-sha256: 44ce7dd67c959e0d3524ffac1771dfbba87d2b6b4b4e99e42034a8b803f8b072

<Payload>
```

The following steps show signature calculations.

1. **StringToSign**

   a. **CanonicalRequest**

```
PUT
/test%24file.text

date:Fri, 24 May 2013 00:00:00 GMT
host:examplebucket.s3.amazonaws.com
x-amz-content-
sha256:44ce7dd67c959e0d3524ffac1771dfbba87d2b6b4b4e99e42034a8b803f8b072
x-amz-date:20130524T000000Z
x-amz-storage-class:REDUCED_REDUNDANCY

date;host;x-amz-content-sha256;x-amz-date;x-amz-storage-class
44ce7dd67c959e0d3524ffac1771dfbba87d2b6b4b4e99e42034a8b803f8b072
```

   In the canonical request, the third line is empty because there are no query parameters in the request. The `x-amz-content-sha256` canonical header may optionally be signed since its payload hash is already provided at the bottom of the request. The last line is the hash of the body, which should be the same as the `x-amz-content-sha256 header` value sent to S3 in the HTTP request.

   b. **StringToSign**

```
AWS4-HMAC-SHA256
20130524T000000Z
20130524/us-east-1/s3/aws4_request
9e0e90d9c76de8fa5b200d8c849cd5b8dc7a3be3951ddb7f6a76b4158342019d
```

2. **SigningKey**

```
signing key = HMAC-SHA256(HMAC-SHA256(HMAC-SHA256(HMAC-SHA256("AWS4" +
 "<YourSecretAccessKey>","20130524"),"us-east-1"),"s3"),"aws4_request")
```

3. **Signature**

```
98ad721746da40c64f1a55b78f14c238d841ea1380cd77a1b5971af0ece108bd
```

4. **Authorization header**

   The resulting `Authorization` header is as follows:

```
AWS4-HMAC-SHA256 Credential=AKIAIOSFODNN7EXAMPLE/20130524/us-east-1/s3/
aws4_request,SignedHeaders=date;host;x-amz-content-sha256;x-amz-date;x-amz-storage-
class,Signature=98ad721746da40c64f1a55b78f14c238d841ea1380cd77a1b5971af0ece108bd
```

Example: GET Bucket Lifecycle

The following GET request retrieves the lifecycle configuration of `examplebucket`. For information about the API action, see GetBucketLifecycleConfiguration.

```
GET ?lifecycle HTTP/1.1
Host: examplebucket.s3.amazonaws.com
Authorization: SignatureToBeCalculated
x-amz-date: 20130524T000000Z
x-amz-content-sha256:e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
```

Because the request does not provide any body content, the `x-amz-content-sha256` header value is the hash of the empty request body. The following steps show signature calculations.

1. **StringToSign**

   a. **CanonicalRequest**

```
GET
/
lifecycle=
host:examplebucket.s3.amazonaws.com
x-amz-content-
sha256:e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
x-amz-date:20130524T000000Z

host;x-amz-content-sha256;x-amz-date
```

```
e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
```

In the canonical request, the last line is the hash of the empty request body.

b. **StringToSign**

```
AWS4-HMAC-SHA256
20130524T000000Z
20130524/us-east-1/s3/aws4_request
9766c798316ff2757b517bc739a67f6213b4ab36dd5da2f94eaebf79c77395ca
```

2. **SigningKey**

```
signing key = HMAC-SHA256(HMAC-SHA256(HMAC-SHA256(HMAC-SHA256("AWS4" +
 "<YourSecretAccessKey>","20130524"),"us-east-1"),"s3"),"aws4_request")
```

3. **Signature**

```
fea454ca298b7da1c68078a5d1bdbfbbe0d65c699e0f91ac7a200a0136783543
```

4. **Authorization header**

The resulting `Authorization` header is as follows:

```
AWS4-HMAC-SHA256 Credential=AKIAIOSFODNN7EXAMPLE/20130524/us-east-1/
s3/aws4_request,SignedHeaders=host;x-amz-content-sha256;x-amz-
date,Signature=fea454ca298b7da1c68078a5d1bdbfbbe0d65c699e0f91ac7a200a0136783543
```

Example: Get Bucket (List Objects)

The following example retrieves a list of objects from `examplebucket` bucket. For information about the API action, see ListObjects.

```
GET ?max-keys=2&prefix=J HTTP/1.1
Host: examplebucket.s3.amazonaws.com
```

```
Authorization: SignatureToBeCalculated
x-amz-date: 20130524T000000Z
x-amz-content-sha256:e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
```

Because the request does not provide a body, the value of `x-amz-content-sha256` is the hash of the empty request body. The following steps show signature calculations.

1. **StringToSign**

   a. **CanonicalRequest**

   ```
   GET
   /
   max-keys=2&prefix=J
   host:examplebucket.s3.amazonaws.com
   x-amz-content-
   sha256:e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
   x-amz-date:20130524T000000Z

   host;x-amz-content-sha256;x-amz-date
   e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
   ```

   In the canonical string, the last line is the hash of the empty request body.

   b. **StringToSign**

   ```
   AWS4-HMAC-SHA256
   20130524T000000Z
   20130524/us-east-1/s3/aws4_request
   df57d21db20da04d7fa30298dd4488ba3a2b47ca3a489c74750e0f1e7df1b9b7
   ```

2. **SigningKey**

   ```
   signing key = HMAC-SHA256(HMAC-SHA256(HMAC-SHA256(HMAC-SHA256("AWS4" +
    "<YourSecretAccessKey>","20130524"),"us-east-1"),"s3"),"aws4_request")
   ```

3. **Signature**

```
34b48302e7b5fa45bde8084f4b7868a86f0a534bc59db6670ed5711ef69dc6f7
```

4. **Authorization header**

   The resulting `Authorization` header is as follows:

```
AWS4-HMAC-SHA256 Credential=AKIAIOSFODNN7EXAMPLE/20130524/us-east-1/
s3/aws4_request,SignedHeaders=host;x-amz-content-sha256;x-amz-
date,Signature=34b48302e7b5fa45bde8084f4b7868a86f0a534bc59db6670ed5711ef69dc6f7
```

Signature Calculations for the Authorization Header: Transferring Payload in Multiple Chunks (Chunked Upload) (AWS Signature Version 4)

As described in the Overview, when authenticating requests using the `Authorization` header, you have an option of uploading the payload in chunks. You can send data in fixed size or variable size chunks. This section describes the signature calculation process in chunked upload, how you create the chunk body, and how the delayed signing works where you first upload the chunk, and send its signature in the subsequent chunk. The example section (see Example: PUT Object) shows signature calculations and resulting `Authorization` headers that you can use as a test suite to verify your code.

> **Note**
>
> When transferring data in a series of chunks, you must do one of the following:
>
> - Explicitly specify the total content length (object length in bytes plus metadata in each chunk) using the `Content-Length` HTTP header. To do this, you must pre-compute the total length of the payload, including the metadata that you send in each chunk, before starting your request.
> - Specify the `Transfer-Encoding` HTTP header. If you include the `Transfer-Encoding` header and specify any value other than `identity`, you must omit the `Content-Length` header.
>
> For all requests, you must include the `x-amz-decoded-content-length` header, specifying the size of the object in bytes.

Each chunk signature calculation includes the signature of the previous chunk. To begin, you create a *seed* signature using only the headers. You use the seed signature in the signature calculation of the first chunk. For each subsequent chunk, you create a chunk signature that includes the signature of the previous chunk. Thus, the chunk signatures are chained together; that is, the signature of chunk *n* is a function *F(chunk n, signature(chunk n-1))*. The chaining ensures that you send the chunks in the correct order.

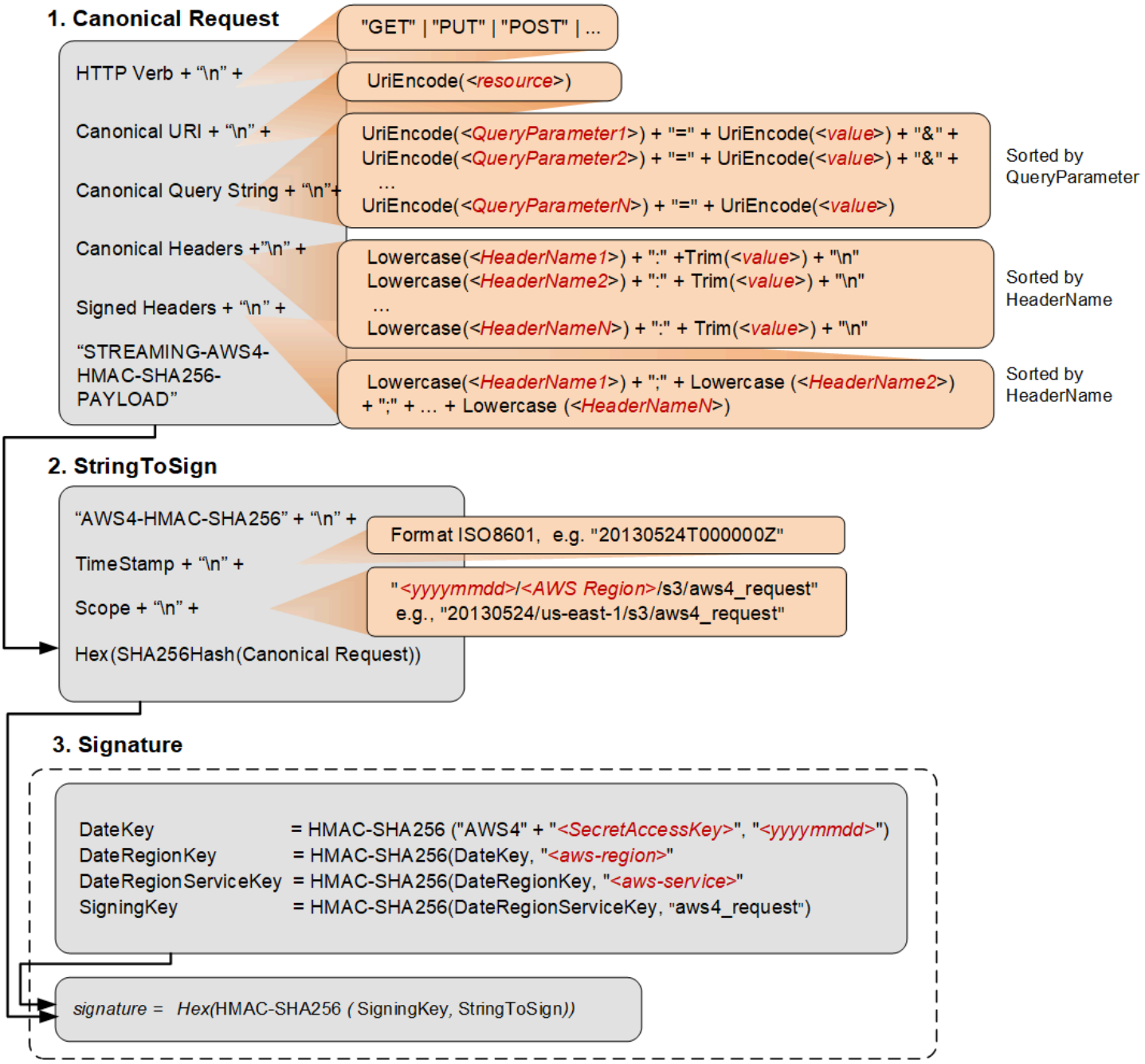
To perform a chunked upload, do the following:

1. Decide the payload chunk size. You need this when you write the code.

   The chunk size must be at least 8 KB. We recommend a chunk size of a least 64 KB for better performance. This chunk size applies to all chunks except the last one. The last chunk you send can be smaller than 8 KB. If your payload is small and can fit into one chunk, then it can be smaller than the 8 KB.
2. Create the seed signature for inclusion in the first chunk. For more information, see Calculating the Seed Signature.
3. Create the first chunk and stream it. For more information, see Defining the Chunk Body.
4. For each subsequent chunk, calculate the chunk signature that includes the previous signature in the string you sign, construct the chunk, and send it. For more information, see Defining the Chunk Body.
5. Send the final additional chunk, which is the same as the other chunks in the construction, but it has zero data bytes. For more information, see Defining the Chunk Body.

Calculating the Seed Signature

The following diagram illustrates the process of calculating the seed signature.



The following table describes the functions that are shown in the diagram. You need to implement code for these functions.

Function	Description
`Lowercase()`	Convert the string to lowercase.
`Hex()`	Lowercase base 16 encoding.

Function	Description
`SHA256Hash()`	Secure Hash Algorithm (SHA) cryptographic hash function.
`HMAC-SHA256()`	Computes HMAC by using the SHA256 algorithm with the signing key provided. This is the final signature.
`Trim()`	Remove any leading or trailing whitespace.

Function	Description
`UriEncode()`	URI encode every byte. UriEncode() must enforce the following rules: • URI encode every byte except the unreserved characters: 'A'-'Z', 'a'-'z', '0'-'9', '-', '.', '_', and '~'. • The space character is a reserved character and must be encoded as "%20" (and not as "+"). • Each URI encoded byte is formed by a '%' and the two-digit hexadecimal value of the byte. • Letters in the hexadecimal value must be uppercase, for example "%1A". • Encode the forward slash character, '/', everywhere except in the object key name. For example, if the object key name is `photos/Jan/sample.jpg` , the forward slash in the key name is not encoded. **Important** The standard UriEncode functions provided by your development platform may not work because of differences in implementation and related ambiguity in the underlying RFCs. We recommend that you write your own custom UriEncode function to ensure that your encoding will work. To see an example of a UriEncode function in Java, see Java Utilities on the GitHub website.

For information about the signing process, see Signature Calculations for the Authorization Header: Transferring Payload in a Single Chunk (AWS Signature Version 4). The process is the same, except that the creation of `CanonicalRequest` differs as follows:

- In addition to the request headers you plan to add, you must include the following headers:

Header	Description
`x-amz-content-sha256`	This header is required for all AWS Signature Version 4 requests. Set the value to `STREAMING-AWS4-HMAC-SHA256-PAYLOAD` to indicate that the signature covers only headers and that there is no payload.
`Content-Encoding`	Set the value to `aws-chunked` . Amazon S3 supports multiple content encoding values. You can specify your custom content-encoding when using the Signature Version 4 streaming API. For example: `Content-Encoding : aws-chunked,gzip` Amazon S3 stores the resulting object without the `aws-chunked` value in the `content-encoding` header. If `aws-chunked` is the only value that you pass in the `content-encoding` header, S3 considers the `content-encoding` header empty and does not return this header when your retrieve the object.
`x-amz-decoded-content-length`	Set the value to the length, in bytes, of the data to be chunked, without counting any metadata. For example, if you are uploading a 4 GB file, set the value to 4294967296. This is the raw size of the object to be uploaded (data you want to store in Amazon S3).

Header	Description
`Content-Length`	Set the value to the actual size of the transmitted HTTP body, which includes the length of your data (value set for `x-amz-decoded-content-length`), plus chunk metadata. Each chunk has metadata, such as the signature of the previous chunk. Chunk calculations are discussed in the following section. If you include the `Transfer-Encoding` header and specify any value other than `identity`, you must not include the `Content-Length` header.

You send the first chunk with the seed signature. You must construct the chunk as described in the following section.

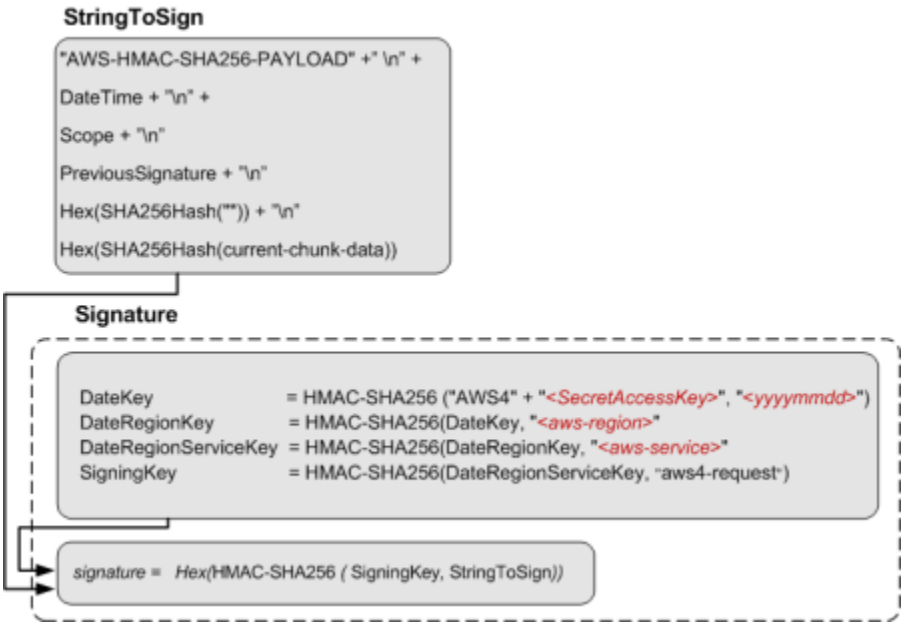
Defining the Chunk Body

All chunks include some metadata. Each chunk must conform to the following structure:

```
string(IntHexBase(chunk-size)) + ";chunk-signature=" + signature + \r\n + chunk-data +
 \r\n
```

Where:

- `IntHexBase()` is a function that you write to convert an integer chunk-size to hexadecimal. For example, if chunk-size is 65536, hexadecimal string is "10000".
- *`chunk-size`* is the size, in bytes, of the chunk-data, without metadata. For example, if you are uploading a 65 KB object and using a chunk size of 64 KB, you upload the data in three chunks: the first would be 64 KB, the second 1 KB, and the final chunk with 0 bytes.
- *`signature`* For each chunk, you calculate the signature using the following string to sign. For the first chunk, you use the seed-signature as the previous signature.



The size of the final chunk data that you send is 0, although the chunk body still contains metadata, including the signature of the previous chunk.

Example: PUT Object

You can use the examples in this section as a reference to check signature calculations in your code. Before you review the examples, note the following:

- The signature calculations in these examples use the following example security credentials.

Parameter	Value
`AWSAccessKeyId`	`AKIAIOSFODNN7EXAMPLE`
`AWSSecretAccessKey`	`wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY`

- All examples use the request timestamp 20130524T000000Z (`Fri, 24 May 2013 00:00:00 GMT`).
- All examples use `examplebucket` as the bucket name.

- The bucket is assumed to be in the US East (N. Virginia) Region, and the credential `Scope` and the `Signing Key` calculations use `us-east-1` as the Region specifier. For more information, see Regions and Endpoints in the *Amazon Web Services General Reference*.
- You can use either path style or virtual-hosted style requests. The following examples use virtual-hosted style requests, for example:

  ```
  https://examplebucket.s3.amazonaws.com/photos/photo1.jpg
  ```

  For more information, see Virtual Hosting of Buckets in the *Amazon Simple Storage Service User Guide*.

The following example sends a PUT request to upload an object. The signature calculations assume the following:

- You are uploading a 65 KB text file, and the file content is a one-character string made up of the letter 'a'.
- The chunk size is 64 KB. As a result, the payload is uploaded in three chunks, 64 KB, 1 KB, and the final chunk with 0 bytes of chunk data.
- The resulting object has the key name `chunkObject.txt`.
- You are requesting `REDUCED_REDUNDANCY` as the storage class by adding the `x-amz-storage-class` request header.

For information about the API action, see PutObject. The general request syntax is as follows:

```
PUT /examplebucket/chunkObject.txt HTTP/1.1
Host: s3.amazonaws.com
x-amz-date: 20130524T000000Z
x-amz-storage-class: REDUCED_REDUNDANCY
Authorization: SignatureToBeCalculated
x-amz-content-sha256: STREAMING-AWS4-HMAC-SHA256-PAYLOAD
Content-Encoding: aws-chunked
x-amz-decoded-content-length: 66560
Content-Length: 66824
<Payload>
```

The following steps show signature calculations.

1. **Seed signature — Create String to Sign**

   a. **CanonicalRequest**

```
PUT
/examplebucket/chunkObject.txt

content-encoding:aws-chunked
content-length:66824
host:s3.amazonaws.com
x-amz-content-sha256:STREAMING-AWS4-HMAC-SHA256-PAYLOAD
x-amz-date:20130524T000000Z
x-amz-decoded-content-length:66560
x-amz-storage-class:REDUCED_REDUNDANCY

content-encoding;content-length;host;x-amz-content-sha256;x-amz-date;x-amz-
decoded-content-length;x-amz-storage-class
STREAMING-AWS4-HMAC-SHA256-PAYLOAD
```

   In the canonical request, the third line is empty because there are no query parameters in the request. The last line is the constant string provided as the value of the hashed Payload, which should be same as the value of `x-amz-content-sha256 header`.

   b. **StringToSign**

```
AWS4-HMAC-SHA256
20130524T000000Z
20130524/us-east-1/s3/aws4_request
cee3fed04b70f867d036f722359b0b1f2f0e5dc0efadbc082b76c4c60e316455
```

   > **Note**
   >
   > For information about each of line in the string to sign, see the diagram that explains seed signature calculation.

2. **SigningKey**

```
signing key = HMAC-SHA256(HMAC-SHA256(HMAC-SHA256(HMAC-SHA256("AWS4" +
 "<YourSecretAccessKey>","20130524"),"us-east-1"),"s3"),"aws4_request")
```

3. **Seed Signature**

```
4f232c4386841ef735655705268965c44a0e4690baa4adea153f7db9fa80a0a9
```

4. **Authorization header**

   The resulting Authorization header is as follows:

```
AWS4-HMAC-SHA256 Credential=AKIAIOSFODNN7EXAMPLE/20130524/us-east-1/s3/
aws4_request,SignedHeaders=content-encoding;content-length;host;x-amz-
content-sha256;x-amz-date;x-amz-decoded-content-length;x-amz-storage-
class,Signature=4f232c4386841ef735655705268965c44a0e4690baa4adea153f7db9fa80a0a9
```

5. **Chunk 1: (65536 bytes, with value 97 for letter 'a')**

   a. Chunk string to sign:

```
AWS4-HMAC-SHA256-PAYLOAD
20130524T000000Z
20130524/us-east-1/s3/aws4_request
4f232c4386841ef735655705268965c44a0e4690baa4adea153f7db9fa80a0a9
e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
bf718b6f653bebc184e1479f1935b8da974d701b893afcf49e701f3e2f9f9c5a
```

> **Note**
>
> For information about each line in the string to sign, see the preceding diagram that shows various components of the string to sign (for example, the last three lines are, `previous-signature`, `hash("")`, and `hash(current-chunk-data)`).

   b. Chunk signature:

```
ad80c730a21e5b8d04586a2213dd63b9a0e99e0e2307b0ade35a65485a288648
```

c. Chunk data sent:

```
10000;chunk-
signature=ad80c730a21e5b8d04586a2213dd63b9a0e99e0e2307b0ade35a65485a288648
<65536-bytes>
```

6. **Chunk 2: (1024 bytes, with value 97 for letter 'a')**

a. Chunk string to sign:

```
AWS4-HMAC-SHA256-PAYLOAD
20130524T000000Z
20130524/us-east-1/s3/aws4_request
ad80c730a21e5b8d04586a2213dd63b9a0e99e0e2307b0ade35a65485a288648
e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
2edc986847e209b4016e141a6dc8716d3207350f416969382d431539bf292e4a
```

b. Chunk signature:

```
0055627c9e194cb4542bae2aa5492e3c1575bbb81b612b7d234b86a503ef5497
```

c. Chunk data sent:

```
400;chunk-
signature=0055627c9e194cb4542bae2aa5492e3c1575bbb81b612b7d234b86a503ef5497
<1024 bytes>
```

7. **Chunk 3: (0 byte data)**

a. Chunk string to sign:

```
AWS4-HMAC-SHA256-PAYLOAD
20130524T000000Z
20130524/us-east-1/s3/aws4_request
0055627c9e194cb4542bae2aa5492e3c1575bbb81b612b7d234b86a503ef5497
e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
```

b. Chunk signature:

```
b6c6ea8a5354eaf15b3cb7646744f4275b71ea724fed81ceb9323e279d449df9
```

c. Chunk data sent:

```
0;chunk-
signature=b6c6ea8a5354eaf15b3cb7646744f4275b71ea724fed81ceb9323e279d449df9
```

Signature calculations for trailing headers (chunked uploads) (AWS Signature Version 4)

When authenticating requests using the `Authorization` header, you can also upload the payload in chunks. When you send the data for the object in chunks, you also have the option of including trailing headers. (For more information, see Signature Calculations for the Authorization Header: Transferring Payload in Multiple Chunks (Chunked Upload) (AWS Signature Version 4).) This section describes the steps you need to take when you want to include a trailing header at the end of your multiple chunk upload.

> **Important**
>
> When you are including trailing headers, you must send the following in your initial header:
>
> - You must set `x-amz-content-sha256` to an appropriate value that indicates a trailer will be included. To see the acceptable values for `x-amz-content-sha256`, see Authenticating Requests: Using the Authorization Header (AWS Signature Version 4).
> - You must set `x-amz-trailer` to indicate the contents your are including in your trailing header.

Trailing headers are only sent after the chunks have been uploaded. Previous chunks are sent as normal and signed as described in the previous sections, including sending the final chunk with a payload of 0 bytes. The trailing headers are included as their own chunk and sent after the final chunk with a payload of 0 bytes. For example, if your data ended with a 100 KB chunk, you would send the following:

- Previous data chunks
- 100 KB final chunk of the object
- 0 bytes chunk signifying the end of the object
- Trailing headers chunk

Examples: Checking signature calculations

You can use the examples in this section as a reference to check signature calculations in your code. Before you review the examples, note the following:

- The signature calculations in these examples use the following example security credentials.

Parameter	Value
`AWSAccessKeyId`	`AKIAIOSFODNN7EXAMPLE`
`AWSSecretAccessKey`	`wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY`

- All examples use the request timestamp 20130524T000000Z (`Fri, 24 May 2013 00:00:00 GMT`).
- All examples use `examplebucket` as the bucket name.
- The bucket is assumed to be in the US East (N. Virginia) Region, and the credential `Scope` and the `Signing Key` calculations use `us-east-1` as the Region specifier. For more information, see Regions and endpoints in the *Amazon Web Services General Reference*.
- You can use either path style or virtual-hosted style requests. The following examples use virtual-hosted style requests, for example:

  ```
  https://examplebucket.s3.amazonaws.com/photos/photo1.jpg
  ```

  For more information, see Virtual Hosting of Buckets in the *Amazon Simple Storage Service User Guide*.

The following example sends a PUT request to upload an object. The signature calculations assume the following:

- You are uploading a 65 KB text file, and the file content is a one-character string made up of the letter 'a'.
- The chunk size is 64 KB. As a result, the payload is uploaded in three chunks, 64 KB, 1 KB, and the final chunk with 0 bytes of chunk data.
- The resulting object has the key name `chunkObject.txt`.
- You are requesting `REDUCED_REDUNDANCY` as the storage class by adding the `x-amz-storage-class` request header.
- The transfer is including a CRC32C checksum value as a trailing header.

For information about the API action, see PutObject. The general request syntax is as follows:

```
PUT /examplebucket/chunkObject.txt HTTP/1.1
Host: s3.amazonaws.com
x-amz-date: 20130524T000000Z
x-amz-storage-class: REDUCED_REDUNDANCY
Authorization: SignatureToBeCalculated
x-amz-content-sha256: STREAMING-AWS4-HMAC-SHA256-PAYLOAD-TRAILER
Content-Encoding: aws-chunked
x-amz-decoded-content-length: 66560
x-amz-trailer: x-amz-checksum-crc32c
Content-Length: 66824
<Payload>
```

The following steps show signature calculations.

1. **Seed signature — Create String to Sign**

   a. **CanonicalRequest**

   ```
   PUT
   /examplebucket/chunkObject.txt

   content-encoding:aws-chunked
   host:s3.amazonaws.com
   x-amz-content-sha256:STREAMING-AWS4-HMAC-SHA256-PAYLOAD-TRAILER
   x-amz-date:20130524T000000Z
   x-amz-decoded-content-length:66560
   x-amz-storage-class:REDUCED_REDUNDANCY
   x-amz-trailer:x-amz-checksum-crc32c

   content-encoding;host;x-amz-content-sha256;x-amz-date;x-amz-decoded-content-
   length;x-amz-storage-class;x-amz-trailer
   STREAMING-AWS4-HMAC-SHA256-PAYLOAD-TRAILER
   ```

   In the canonical request, the third line is empty because there are no query parameters in the request. The last line is the constant string provided as the value of the hashed Payload, which should be same as the value of `x-amz-content-sha256 header`.

   b. **StringToSign**

```
AWS4-HMAC-SHA256
20130524T000000Z
20130524/us-east-1/s3/aws4_request
44d48b8c2f70eae815a0198cc73d7a546a73a93359c070abbaa5e6c7de112559
```

> **Note**
>
> For information about each of line in the string to sign, see the diagram that explains seed signature calculation.

2. **SigningKey**

```
signing key = HMAC-SHA256(HMAC-SHA256(HMAC-SHA256(HMAC-SHA256("AWS4" +
 "<YourSecretAccessKey>","20130524"),"us-east-1"),"s3"),"aws4_request")
```

3. **Seed Signature**

```
106e2a8a18243abcf37539882f36619c00e2dfc72633413f02d3b74544bfeb8e
```

4. **Authorization header**

   The resulting Authorization header is as follows:

```
AWS4-HMAC-SHA256 Credential=AKIAIOSFODNN7EXAMPLE/20130524/us-east-1/s3/
aws4_request,SignedHeaders=content-encoding;content-length;host;x-amz-
content-sha256;x-amz-date;x-amz-decoded-content-length;x-amz-storage-
class,Signature=106e2a8a18243abcf37539882f36619c00e2dfc72633413f02d3b74544bfeb8e
```

5. **Chunk 1: (65536 bytes, with value 97 for letter 'a')**

   a. Chunk string to sign:

```
AWS4-HMAC-SHA256-PAYLOAD
20130524T000000Z
```

```
20130524/us-east-1/s3/aws4_request
106e2a8a18243abcf37539882f36619c00e2dfc72633413f02d3b74544bfeb8e
e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
bf718b6f653bebc184e1479f1935b8da974d701b893afcf49e701f3e2f9f9c5a
```

> **Note**
>
> For information about each line in the string to sign, see the diagram in the preceding topic (Calculating the Seed Signature) that shows various components of the string to sign. For example, the last three lines consist of the following:
>
> - *previous-signature*
> - hash("")
> - hash(*current-chunk-data*)

b. Chunk signature:

```
b474d8862b1487a5145d686f57f013e54db672cee1c953b3010fb58501ef5aa2
```

c. Chunk data sent:

```
10000;chunk-
signature=b474d8862b1487a5145d686f57f013e54db672cee1c953b3010fb58501ef5aa2
<65536-bytes>
```

6. **Chunk 2: (1024 bytes, with value 97 for letter 'a')**

a. Chunk string to sign:

```
AWS4-HMAC-SHA256-PAYLOAD
20130524T000000Z
20130524/us-east-1/s3/aws4_request
b474d8862b1487a5145d686f57f013e54db672cee1c953b3010fb58501ef5aa2
e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
2edc986847e209b4016e141a6dc8716d3207350f416969382d431539bf292e4a
```

b. Chunk signature:

```
1c1344b170168f8e65b41376b44b20fe354e373826ccbbe2c1d40a8cae51e5c7
```

c. Chunk data sent:

```
400;chunk-
signature=1c1344b170168f8e65b41376b44b20fe354e373826ccbbe2c1d40a8cae51e5c7
<1024-bytes>
```

7. **Chunk 3: (0 byte data)**

a. Chunk string to sign:

```
AWS4-HMAC-SHA256-PAYLOAD
20130524T000000Z
20130524/us-east-1/s3/aws4_request
1c1344b170168f8e65b41376b44b20fe354e373826ccbbe2c1d40a8cae51e5c7
e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855
```

b. Chunk signature:

```
2ca2aba2005185cf7159c6277faf83795951dd77a3a99e6e65d5c9f85863f992
```

c. Chunk data sent:

```
0;chunk-
signature=2ca2aba2005185cf7159c6277faf83795951dd77a3a99e6e65d5c9f85863f992
```

8. **Chunk 4: Trailing headers**

a. Trailer chunk string to sign:

```
AWS4-HMAC-SHA256-TRAILER
20130524T000000Z
20130524/us-east-1/s3/aws4_request
2ca2aba2005185cf7159c6277faf83795951dd77a3a99e6e65d5c9f85863f992
1e376db7e1a34a8ef1c4bcee131a2d60a1cb62503747488624e10995f448d774
```

> **Note**
>
> The last two lines are `previous-signature` (the 0 byte data chunk signature), hash(*`trailing-checksum-header-name`*:*`base64-encoded-trailing-checksum-value`*\n).

The hash is calculated as follows with no whitespace:

- The trailing checksum header name
- A colon (`:`)
- The base64-encoded trailing checksum value
- A newline character (\n).

In this example, where we are using the `crc32c` hash algorithm, with the base64-encoded checksum value `s008/Q==`, we can represent the computation as follows: `hash('x-amz-checksum-crc32c:s008/Q==\n')`.

b. Chunk signature:

```
d81f82fc3505edab99d459891051a732e8730629a2e4a59689829ca17fe2e435
```

c. Chunk data sent:

```
x-amz-checksum-crc32c:s008/Q==
x-amz-trailer-
signature:d81f82fc3505edab99d459891051a732e8730629a2e4a59689829ca17fe2e435
```

Authenticating Requests: Using Query Parameters (AWS Signature Version 4)

As described in the authentication overview (see Authentication Methods), you can provide authentication information using query string parameters. Using query parameters to authenticate requests is useful when you want to express a request entirely in a URL. This method is also referred as presigning a URL.

A use case scenario for presigned URLs is that you can grant temporary access to your Amazon S3 resources. For example, you can embed a presigned URL on your website or alternatively use it in command line client (such as Curl) to download objects.

> **Note**
>
> You can also use the AWS CLI to create presigned URLs. For more information, see `presign` in the *AWS CLI Command Reference*.

The following is an example presigned URL.

```
https://examplebucket.s3.amazonaws.com/test.txt
?X-Amz-Algorithm=AWS4-HMAC-SHA256
&X-Amz-Credential=<your-access-key-id>/20130721/us-east-1/s3/aws4_request
&X-Amz-Date=20130721T201207Z
&X-Amz-Expires=86400
&X-Amz-SignedHeaders=host
&X-Amz-Signature=<signature-value>
```

In the example URL, note the following:

- The line feeds are added for readability.
- The `X-Amz-Credential` value in the URL shows the "/" character only for readability. In practice, it should be encoded as `%2F`. For example:

  ```
  &X-Amz-Credential=<your-access-key-id>%2F20130721%2Fus-east-1%2Fs3%2Faws4_request
  ```

The following table describes the query parameters in the URL that provide authentication information.

Query String Parameter Name	Example Value
`X-Amz-Algorithm`	Identifies the version of AWS Signature and the algorithm that you used to calculate the signature. For AWS Signature Version 4, you set this parameter value to `AWS4-HMAC-SHA256`. This string identifies AWS Signature

Query String Parameter Name	Example Value
	Version 4 (AWS4) and the HMAC-SHA256 algorithm (HMAC-SHA256).

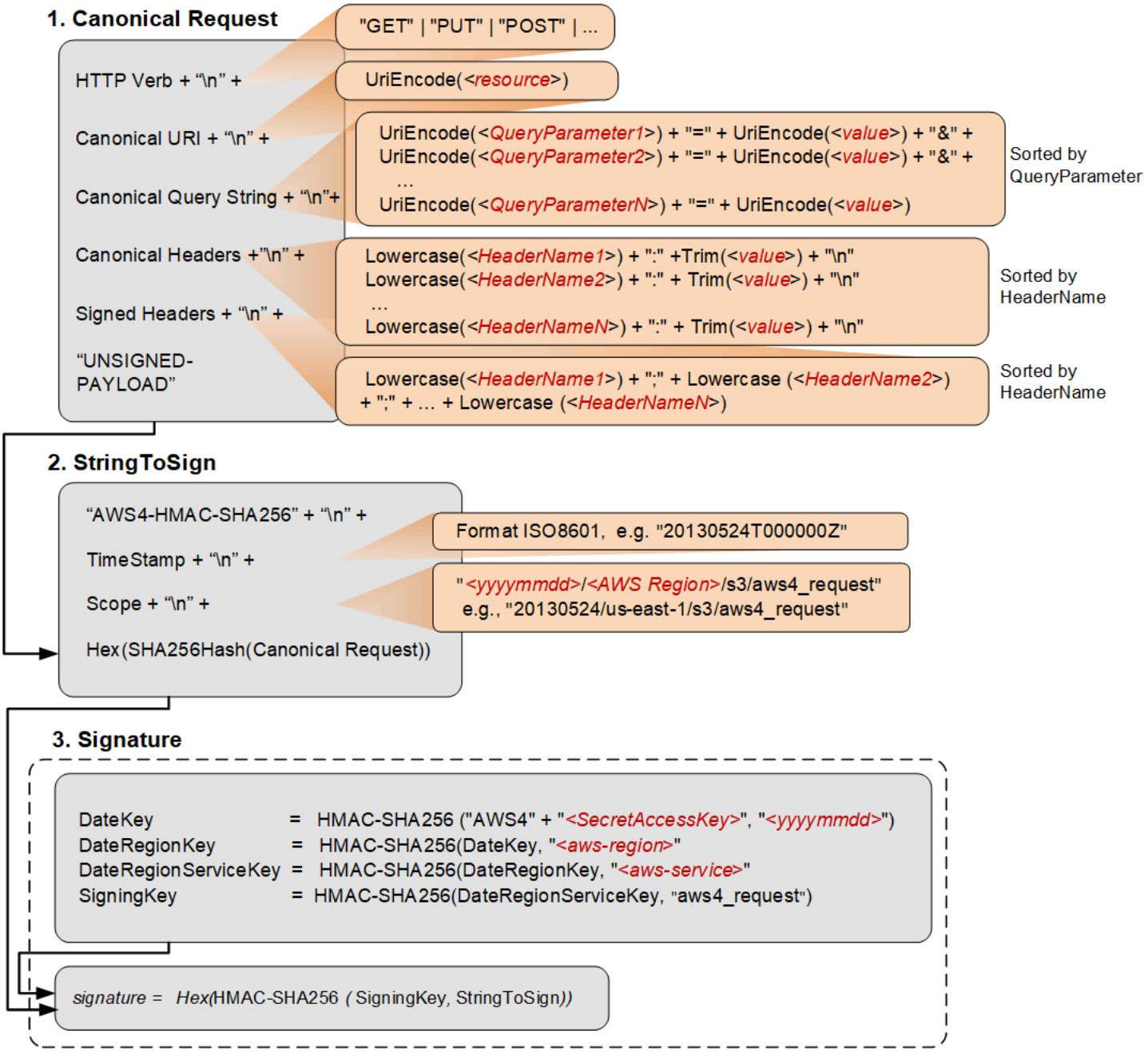
`X-Amz-Credential`	In addition to your access key ID, this parameter also provides scope (AWS Region and service) for which the signature is valid. This value must match the scope you use in signature calculations, discussed in the following section. The general form for this parameter value is as follows:
	
	`<your-access-key-id> /<date>/<AWS Region>/<AWS-service> /aws4_request`
	
	For example:
	
	`AKIAIOSFODNN7EXAMPLE/20130721/us-east-1/s3/aws4_request`
	
	For Amazon S3, the *`AWS-service`* string is `s3`. For a list of S3 `AWS-region` strings, see Regions and Endpoints in the *AWS General Reference*.

`X-Amz-Date`	The date and time format must follow the ISO 8601 standard, and must be formatted with the "*`yyyyMMdd`*T*`HHmmss`*Z" format. For example if the date and time was "08/01/2016 15:32:41.982-700" then it must first be converted to UTC (Coordinated Universal Time) and then submitted as "20160801T223241Z".

Query String Parameter Name	Example Value
`X-Amz-Expires`	Provides the time period, in seconds, for which the generated presigned URL is valid. For example, `86400` (24 hours). This value is an integer. The minimum value you can set is 1, and the maximum is 604800 (seven days). A presigned URL can be valid for a maximum of seven days because the signing key you use in signature calculation is valid for up to seven days.
`X-Amz-SignedHeaders`	Lists the headers that you used to calculate the signature. The following headers are required in the signature calculations: • The HTTP `host` header. • Any `x-amz-*` headers that you plan to add to the request. **Note** For added security, you should sign all the request headers that you plan to include in your request.
`X-Amz-Signature`	Provides the signature to authenticate your request. This signature must match the signature Amazon S3 calculates; otherwise, Amazon S3 denies the request. For example, `733255ef022bec3f2a8701cd61d4b371f3f28c9f193a1f02279211d48d5193d7` Signature calculations are described in the following section.
`X-Amz-Security-Token`	Optional credential parameter if using credentials sourced from the STS service.

Calculating a Signature

The following diagram illustrates the signature calculation process.



The following table describes the functions that are shown in the diagram. You need to implement code for these functions.

Function	Description
`Lowercase()`	Convert the string to lowercase.
`Hex()`	Lowercase base 16 encoding.
`SHA256Hash()`	Secure Hash Algorithm (SHA) cryptographic hash function.
`HMAC-SHA256()`	Computes HMAC by using the SHA256 algorithm with the signing key provided. This is the final signature.
`Trim()`	Remove any leading or trailing whitespace.
`UriEncode()`	URI encode every byte. UriEncode() must enforce the following rules: • URI encode every byte except the unreserved characters: 'A'-'Z', 'a'-'z', '0'-'9', '-', '.', '_', and '~'. • The space character is a reserved character and must be encoded as "%20" (and not as "+"). • Each URI encoded byte is formed by a '%' and the two-digit hexadecimal value of the byte. • Letters in the hexadecimal value must be uppercase, for example "%1A". • Encode the forward slash character, '/', everywhere except in the object key name. For example, if the object key name is `photos/Jan/sample.jpg` , the forward slash in the key name is not encoded. **Important** The standard UriEncode functions provided by your development platform may not work because of differences in implementation and related ambiguity in the underlying RFCs. We recommend that you write

Function	Description
	your own custom UriEncode function to ensure that your encoding will work. To see an example of a UriEncode function in Java, see Java Utilities on the GitHub website.

For more information about the signing process (details of creating a canonical request, string to sign, and signature calculations), see Signature Calculations for the Authorization Header: Transferring Payload in a Single Chunk (AWS Signature Version 4). The process is generally the same except that the creation of **CanonicalRequest** in a presigned URL differs as follows:

- You don't include a payload hash in the **Canonical Request**, because when you create a presigned URL, you don't know the payload content because the URL is used to upload an arbitrary payload. Instead, you use a constant string `UNSIGNED-PAYLOAD`.
- The **Canonical Query String** must include all the query parameters from the preceding table except for `X-Amz-Signature`.
- For S3, you must include the `X-Amz-Security-Token` query parameter in the URL if using credentials sourced from the STS service.
- **Canonical Headers** must include the HTTP `host` header. If you plan to include any of the `x-amz-*` headers, these headers must also be added for signature calculation. You can optionally add all other headers that you plan to include in your request. For added security, you should sign as many headers as possible. If you add a signed header that is also a signed query parameter, and they differ in value, you will receive an `InvalidRequest` error as the input is conflicting.

An Example

Suppose you have an object `test.txt` in your `examplebucket` bucket. You want to share this object with others for a period of 24 hours (86400 seconds) by creating a presigned URL.

```
https://examplebucket.s3.amazonaws.com/test.txt
?X-Amz-Algorithm=AWS4-HMAC-SHA256
```

```
&X-Amz-Credential=AKIAIOSFODNN7EXAMPLE%2F20130524%2Fus-east-1%2Fs3%2Faws4_request
&X-Amz-Date=20130524T000000Z&X-Amz-Expires=86400&X-Amz-SignedHeaders=host
&X-Amz-Signature=<signature-value>
```

The following steps illustrate first the signature calculations and then construction of the presigned URL. The example makes the following additional assumptions:

- Request timestamp is `Fri, 24 May 2013 00:00:00 GMT`.
- The bucket is in the US East (N. Virginia) region, and the credential `Scope` and the `Signing Key` calculations use `us-east-1` as the region specifier. For more information, see Regions and Endpoints in the *AWS General Reference*.

You can use this example as a test case to verify the signature that your code calculates; however, you must use the same bucket name, object key, time stamp, and the following example credentials:

Parameter	Value
`AWSAccessKeyId`	`AKIAIOSFODNN7EXAMPLE`
`AWSSecret AccessKey`	`wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY`

1. **StringToSign**

   a. **CanonicalRequest**

```
GET
/test.txt
X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIOSFODNN7EXAMPLE
%2F20130524%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20130524T000000Z&X-Amz-
Expires=86400&X-Amz-SignedHeaders=host
host:examplebucket.s3.amazonaws.com

host
UNSIGNED-PAYLOAD
```

b. **StringToSign**

```
AWS4-HMAC-SHA256
20130524T000000Z
20130524/us-east-1/s3/aws4_request
3bfa292879f6447bbcda7001decf97f4a54dc650c8942174ae0a9121cf58ad04
```

2. **SigningKey**

```
signing key = HMAC-SHA256(HMAC-SHA256(HMAC-SHA256(HMAC-SHA256("AWS4" +
 "<YourSecretAccessKey>","20130524"),"us-east-1"),"s3"),"aws4_request")
```

3. **Signature**

```
aeeed9bbccd4d02ee5c0109b86d86835f995330da4c265957d157751f604d404
```

Now you have all information to construct a presigned URL. The resulting URL for this example is shown as follows (you can use this to compare your presigned URL):

```
https://examplebucket.s3.amazonaws.com/test.txt?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-
Amz-Credential=AKIAIOSFODNN7EXAMPLE%2F20130524%2Fus-east-1%2Fs3%2Faws4_request&X-
Amz-Date=20130524T000000Z&X-Amz-Expires=86400&X-Amz-SignedHeaders=host&X-Amz-
Signature=aeeed9bbccd4d02ee5c0109b86d86835f995330da4c265957d157751f604d404
```

Example 2

The following is an example (unrelated to the previous example) showing a presigned URL with the `X-Amz-Security-Token` parameter.

```
https://examplebucket.s3.us-east-1.amazonaws.com/test.txt
?X-Amz-Algorithm=AWS4-HMAC-SHA256
&X-Amz-Credential=AKIAIOSFODNN7EXAMPLE%2F20130524%2Fus-east-1%2Fs3%2Faws4_request
&X-Amz-Date=20200524T000000Z&X-Amz-Expires=86400&X-Amz-SignedHeaders=host
&X-Amz-Security-Token=IQoJb3JpZ2luX2VjEMv%2F%2F%2F%2F%2F%2F%2F%2F%2F
%2FwEaCXVzLWVhc3QtMSJGMEQCIBSUbVdj9YGs2g0HkHsOHFdkwOozjARSKHL987NhhOC8AiBPepRU1obMvIbGU0T
```

```
%2BWphFPgK%2Fqpxaf5Snvm5M57XFkCqlAgjz%2F%2F%2F%2F%2F%2F%2F%2F%2F
%2F8BEAAaDDQ3MjM4NTU0NDY2MCIM83pULBe5%2F
%2BNm1GZBKvkBVslSaJVgwSef7SsoZCJlfJ56weYl3QCwEGr2F4BmCZZyFpmWEYzWnhNK1AnHMj5nkfKlKBx30XAT5PZGVr
%2F3HhMOkpdanMXn%2B4PY8lvM8RgnzSu90jOUpGXEOAo
%2F6G8OqlMim3%2BZmaQmasn4VYRvESEd7O72QGZ3%2BvDnDVnss0lSYjlv8PP7IujnvhZRnj0WoeOyMe1lL0wTG
%2Fa9usH5hE52w%2FYUJccOn0OaZuyROuVsRV4Q70sbWQhUvYUt%2B0tUMKzm8vsFOp4BaNZFqobbjtb36Y92v
%2Bx5kY6i0s8QE886jJtUWMP5ldMziClGx3p0mN5dzsYlM3GyiJ
%2FO1mWkPQDwg3mtSpOA9oeeuAMPTA7qMqy9RNuTKBDSx9EW27wvPzBum3SJhEfxv48euadKgrIX3Z79ruQFSQOc9LUrDjR
%2B4SoWAJqK%2BGX8Q3vPSjsLxhqhEMWd6U4TXcM7ku3gxMbzqfT8NDg%3D
&X-Amz-Signature=<signature-value>
```

Examples: Signature Calculations in AWS Signature Version 4

Topics

- Signature Calculation Examples Using Java (AWS Signature Version 4)
- Examples of Signature Calculations Using C# (AWS Signature Version 4)

For authenticated requests, unless you are using the AWS SDKs, you have to write code to calculate signatures that provide authentication information in your requests. Signature calculation in AWS Signature Version 4 (see Authenticating Requests (AWS Signature Version 4)) can be a complex undertaking, and we recommend that you use the AWS SDKs whenever possible.

This section provides examples of signature calculations written in Java and C#. The code samples send the following requests and use the HTTP Authorization header to provide authentication information:

- **PUT object** – Separate examples illustrate both uploading the full payload at once and uploading the payload in chunks. For information about using the Authorization header for authentication, see Authenticating Requests: Using the Authorization Header (AWS Signature Version 4).
- **GET object** – This example generates a presigned URL to get an object. Query parameters provide the signature and other authentication information. Users can paste a presigned URL in their browser to retrieve the object, or you can use the URL to create a clickable link. For information about using query parameters for authentication, see Authenticating Requests: Using Query Parameters (AWS Signature Version 4).

The rest of this section describes the examples in Java and C#. The topics include instructions for downloading the samples and for executing them.

Signature Calculation Examples Using Java (AWS Signature Version 4)

The Java sample that shows signature calculation can be downloaded at https://docs.aws.amazon.com/AmazonS3/latest/API/samples/AWSS3SigV4JavaSamples.zip. Note that these samples use AWS SDK for Java v1, and we recommend using AWS SDK for Java v2 for new applications. In `RunAllSamples.java`, the `main()` function executes sample requests to create an object, retrieve an object, and create a presigned URL for the object. The sample creates an object from the text string provided in the code:

```
PutS3ObjectSample.putS3Object(bucketName, regionName, awsAccessKey, awsSecretKey);
GetS3ObjectSample.getS3Object(bucketName, regionName, awsAccessKey, awsSecretKey);
PresignedUrlSample.getPresignedUrlToS3Object(bucketName, regionName, awsAccessKey,
 awsSecretKey);
PutS3ObjectChunkedSample.putS3ObjectChunked(bucketName, regionName, awsAccessKey,
 awsSecretKey);
```

To test the examples on a Linux-based computer

The following instructions are for the Linux operating system.

1. In a terminal, navigate to the directory that contains `AWSS3SigV4JavaSamples.zip`.
2. Extract the .zip file.
3. In a text editor, open the file `./com/amazonaws/services/s3/samples/RunAllSamples.java`. Update code with the following information:

   - The name of a bucket where the new object can be created.

     > **Note**
     >
     > The examples use a virtual-hosted style request to access the bucket. To avoid potential errors, ensure that your bucket name conforms to the bucket naming rules as explained in Bucket Restrictions and Limitations in the *Amazon Simple Storage Service User Guide*.

   - AWS Region where the bucket resides.

If bucket is in the US East (N. Virginia) region, use us-east-1 to specify the region. For a list of other AWS Regions, go to Amazon Simple Storage Service (S3) in the *AWS General Reference*.

4. Compile the source code and store the compiled classes into the `bin/` directory.

```
javac -d bin -source 6 -verbose com
```

5. Change the directory to `bin/`, and then run `RunAllSamples`.

```
java com.amazonaws.services.s3.sample.RunAllSamples
```

The code runs all the methods in `main()`. For each request, the output will show the canonical request, the string to sign, and the signature.

Examples of Signature Calculations Using C# (AWS Signature Version 4)

The C# sample that shows signature calculation can be downloaded at https://docs.aws.amazon.com/AmazonS3/latest/API/samples/AmazonS3SigV4_Samples_CSharp.zip. Note that these samples use AWS SDK for .NET v1, and we recommend using AWS SDK for .NET v3 for new applications. In `Program.cs`, the `main()` function executes sample requests to create an object, retrieve an object, and create a presigned URL for the object. The code for signature calculation is in the `\Signers` folder.

```
PutS3ObjectSample.Run(awsRegion, bucketName, "MySampleFile.txt");

Console.WriteLine("\n\n***********************************************");
PutS3ObjectChunkedSample.Run(awsRegion, bucketName, "MySampleFileChunked.txt");

Console.WriteLine("\n\n***********************************************");
GetS3ObjectSample.Run(awsRegion, bucketName, "MySampleFile.txt");

Console.WriteLine("\n\n***********************************************");
PresignedUrlSample.Run(awsRegion, bucketName, "MySampleFile.txt");
```

To test the examples with Microsoft Visual Studio 2010 or later

1. Extract the .zip file.
2. Start Visual Studio, and then open the .sln file.

3. Update the App.config file with valid security credentials.
4. Update the code as follows:
   - In `Program.cs`, provide the bucket name and the AWS Region where the bucket resides. The sample creates an object in this bucket.
5. Run the code.
6. To verify that the object was created, copy the presigned URL that the program creates, and then paste it in a browser window.

Authenticating Requests: Browser-Based Uploads Using POST (AWS Signature Version 4)

Amazon S3 supports HTTP POST requests so that users can upload content directly to Amazon S3. Using HTTP POST to upload content simplifies uploads and reduces upload latency where users upload data to store in Amazon S3. This section describes how you authenticate HTTP POST requests. For more information about HTTP POST requests, how to create a form, create a POST policy, and an example, see Browser-Based Uploads Using POST (AWS Signature Version 4).

To authenticate an HTTP POST request you do the following:

1. The form must include the following fields to provide signature and relevant information that Amazon S3 can use to re-calculate the signature upon receiving the request:

Element Name	Description
`policy`	The Base64-encoded security policy that describes what is permitted in the request. For signature calculation this policy is the string you sign. Amazon S3 must get this policy so it can re-calculate the signature.
`x-amz-algorithm`	The signing algorithm used. For AWS Signature Version 4, the value is `AWS4-HMAC-SHA256` .
`x-amz-credential`	

Element Name	Description

	In addition to your access key ID, this provides scope information you used in calculating the signing key for signature calculation.
	
	It is a string of the following form:
	
	`<your-access-key-id> /<date>/<aws-region> /<aws-service> /aws4_request`
	
	For example:
	
	`AKIAIOSFODNN7EXAMPLE/20130728/us-east-1/s3/aws4_request . .`
	
	For Amazon S3, the *aws-service* string is `s3`. For a list of Amazon S3 `aws-region` strings, see Regions and Endpoints in the *AWS General Reference*.

`x-amz-date`	It is the date value in ISO8601 format. For example, `20130728T000000Z` . It is the same date you used in creating the signing key. This must also be the same value you provide in the policy (`x-amz-date`) that you signed.
`x-amz-signature`	(AWS Signature Version 4) The HMAC-SHA256 hash of the security policy. For more information on options for the signature, see Add the signature to the HTTP request in the *AWS General Reference*.

2. The POST policy must include the following elements:

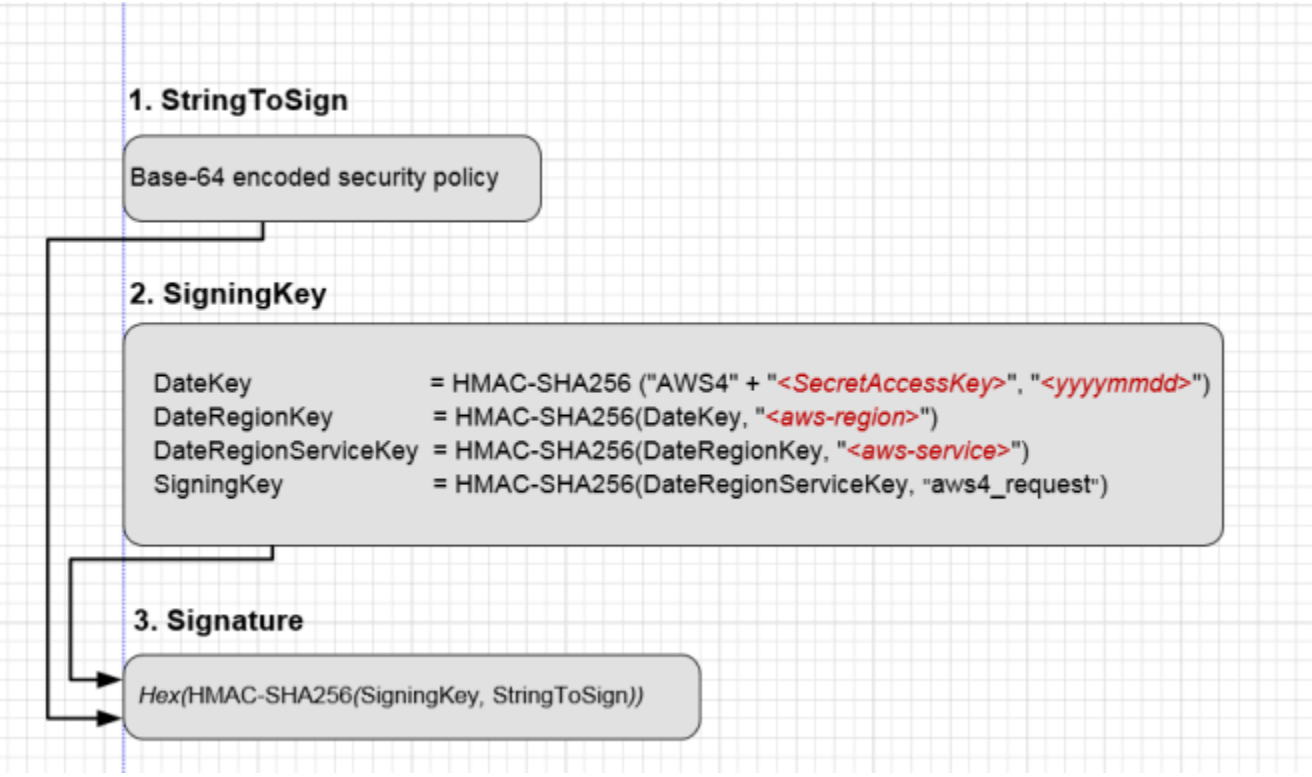
Element Name	Description
`x-amz-algorithm`	

Element Name	Description
	The signing algorithm that you used to calculation the signature. For AWS Signature Version 4, the value is `AWS4-HMAC-SHA256` .
`x-amz-credential`	In addition to your access key ID, this provides scope information you used in calculating the signing key for signature calculation. It is a string of the following form: *<your-access-key-id>* /*<date>*/*<aws-region>* /*<aws-service>* /aws4_request For example, AKIAIOSFODNN7EXAMPLE/20130728/us-east-1/s3/aws4_request . .
`x-amz-date`	The date value specified in the ISO8601 formatted string. For example, "20130728T000000Z". The date must be the same that you used in creating the signing key for signature calculation.

3. For signature calculation the POST policy is the string to sign.

Calculating a Signature

The following diagram illustrates the signature calculation process.



To Calculate a signature

1. Create a policy using UTF-8 encoding.
2. Convert the UTF-8-encoded policy to Base64. The result is the string to sign.
3. Create the signature as an HMAC-SHA256 hash of the string to sign. You will provide the signing key as key to the hash function.
4. Encode the signature by using hex encoding.

For more information about creating HTML forms, security policies, and an example, see the following subtopics:

- Creating an HTML Form (Using AWS Signature Version 4)
- POST Policy
- Example: Browser-Based Upload using HTTP POST (Using AWS Signature Version 4)

Amazon S3 Signature Version 4 Authentication Specific Policy Keys

The following table shows the policy keys related Amazon S3 Signature Version 4 authentication that can be in Amazon S3 policies. In a bucket policy, you can add these conditions to enforce specific behavior when requests are authenticated by using Signature Version 4. For example policies, see Bucket policy examples using Signature Version 4 related condition keys.

Applicable Keys	Description
`s3:signatureversion`	Identifies the version of AWS Signature that you want to support for authenticated requests. For authenticated requests, Amazon S3 supports both Signature Version 4 and Signature Version 2. You can add this condition in your bucket policy to require a specific signature version. Valid values: `"AWS"` identifies Signature Version 2 `"AWS4-HMAC-SHA256"` identifies Signature Version 4
`s3:authType`	Amazon S3 supports various methods of authentication (see Authenticating Requests (AWS Signature Version 4). You can optionally use this condition key to restrict incoming requests to use a specific authentication method. For example, you can allow only the HTTP `Authorization` header to be used in request authentication. Valid values: `REST-HEADER`

Applicable Keys	Description

	`REST-QUERY-STRING`
	
	`POST`

`s3:signatureAge`	The length of time, in milliseconds, that a signature is valid in an authenticated request. This condition works for: • *Presigned URLs* — where the most restrictive condition wins. For more information, see Working with presigned URLs. • *Presigned POST* — upload files directly to S3 using pre-signed POST. For more information, see Amazon S3 POST Policy. In Signature Version 2, this value is always set to 0. In Signature Version 4, the signing key is valid for up to seven days. Therefore, the signatures are also valid for up to seven days. You can use this condition to further limit the signature age. For more information, see Introduction to Signing Requests. Example value: `100`

Applicable Keys	Description
`s3:x-amz-content-sha256`	You can use this condition key to disallow unsigned content in your bucket. When you use Signature Version 4, for requests that use the `Authorization` header, you add the `x-amz-content-sha256` header in the signature calculation and then set its value to the hash payload. Note that this condition key doesn't support the `x-amz-content-sha256` header as a query string parameter. You can use this condition key in your bucket policy to deny any uploads where payloads are not signed. For example, you can deny uploads that use the `Authorization` header to authenticate requests but don't sign the payload. For more information, see Signature Calculations for the Authorization Header: Transferring Payload in a Single Chunk (AWS Signature Version 4). Valid value: `UNSIGNED-PAYLOAD`

Bucket policy examples using Signature Version 4 related condition keys

The following bucket policy denies any Amazon S3 presigned URL request on objects in `examplebucket` if the signature is more than ten minutes old.

JSON

```
{
   "Version": "2012-10-17",
   "Statement": [
```

```
      {
         "Sid": "Deny a presigned URL request if the signature is more than 10
 min old",
         "Effect": "Deny",
         "Principal": "*",
         "Action": "s3:*",
         "Resource": "arn:aws:s3:::examplebucket3/*",
         "Condition": {
            "NumericGreaterThan": {
               "s3:signatureAge": 600000
            }
         }
      }
   ]
}
```

The following bucket policy allows only requests that use the `Authorization` header for request authentication. Any POST or presigned URL requests will be denied.

JSON

```
{
   "Version": "2012-10-17",
   "Statement": [
         {
               "Sid": "Allow only requests that use Authorization header for
 request authentication. Deny POST or presigned URL requests.",
               "Effect": "Deny",
               "Principal": "*",
               "Action": "s3:*",
               "Resource": "arn:aws:s3:::examplebucket3/*",
               "Condition": {
                     "StringNotEquals": {
                           "s3:authType": "REST-HEADER"
                     }
               }
         }
   ]
}
```

The following bucket policy denies requests that use presigned URLS for request authentication:

The following bucket policy denies any uploads with unsigned payloads:

JSON

```
{
   "Version": "2012-10-17",
   "Statement": [
         {
               "Sid": "Deny uploads with unsigned payloads that use the
 Authorization header.",
               "Effect": "Deny",
               "Principal": "*",
               "Action": "s3:*",
               "Resource": "arn:aws:s3:::examplebucket3/*",
               "Condition": {
                     "StringEquals": {
                           "s3:x-amz-content-sha256": "UNSIGNED-PAYLOAD"
                     }
               }
         }
   ]
}
```

Browser-Based Uploads Using POST (AWS Signature Version 4)

This section discusses how to upload files directly to Amazon S3 through a browser using HTTP POST requests. It also contains information about how to use the AWS Amplify JavaScript library for browser-based file uploads to Amazon S3.

Topics

- POST Object
- POST Object restore
- Browser-Based Uploads Using HTTP POST
- Calculating a Signature
- Creating an HTML Form (Using AWS Signature Version 4)
- POST Policy
- Example: Browser-Based Upload using HTTP POST (Using AWS Signature Version 4)
- Browser-based uploads to Amazon S3 using the AWS Amplify library

POST Object

Description

The POST operation adds an object to a specified bucket by using HTML forms. POST is an alternate form of PUT that enables browser-based uploads as a way of putting objects in buckets. Parameters that are passed to PUT through HTTP headers are instead passed as form fields to POST in the multipart/form-data encoded message body. To add an object to a bucket, you must have WRITE access on the bucket. Amazon S3 never stores partial objects. If you receive a successful response, you can be confident that the entire object was stored.

Amazon S3 is a distributed system. Unless you've enabled versioning for a bucket, if Amazon S3 receives multiple write requests for the same object simultaneously, only the last version of the object written is stored.

To ensure that data is not corrupted while traversing the network, use the Content-MD5 form field. When you use this form field, Amazon S3 checks the object against the provided MD5 value. If they do not match, Amazon S3 returns an error. Additionally, you can calculate the MD5 value while posting an object to Amazon S3 and compare the returned ETag to the calculated MD5 value. The ETag reflects only changes to the contents of an object, not its metadata.

> **Note**
>
> To configure your application to send the request headers before sending the request body, use the HTTP status code 100 (Continue). For POST operations, using this status code helps you avoid sending the message body if the message is rejected based on the headers (for example, because of an authentication failure or redirect). For more information about the HTTP status code 100 (Continue), go to Section 8.2.3 of http://www.ietf.org/rfc/rfc2616.txt.

Amazon S3 automatically encrypts all new objects that are uploaded to an S3 bucket. The encryption setting of an uploaded object depends on the default encryption configuration of the destination bucket. By default, all buckets have a default encryption configuration that uses server-side encryption with Amazon S3 managed keys (SSE-S3).

If the destination bucket has an encryption configuration that uses server-side encryption with an AWS Key Management Service (AWS KMS) key (SSE-KMS), dual-layer server-side encryption with

an AWS KMS key (DSSE-KMS), or a customer-provided encryption key (SSE-C), Amazon S3 uses the corresponding KMS key or customer-provided key to encrypt the uploaded object. When uploading an object, if you want to change the encryption setting of the uploaded object, you can specify the type of server-side encryption. You can configure SSE-S3, SSE-KMS, DSSE-KMS, or SSE-C. For more information, see Protecting data using server-side encryption in the *Amazon Simple Storage Service User Guide*.

> **Important**
>
> When constructing your request, make sure that the `file` field is the last field in the form.

Versioning

If you enable versioning for a bucket, `POST` automatically generates a unique version ID for the object being added. Amazon S3 returns this ID in the response by using the `x-amz-version-id` response header.

If you suspend versioning for a bucket, Amazon S3 always uses `null` as the version ID of the object stored in a bucket.

For more information about returning the versioning state of a bucket, see GET Bucket (Versioning Status).

Amazon S3 is a distributed system. If you enable versioning for a bucket and Amazon S3 receives multiple write requests for the same object simultaneously, all versions of the object are stored.

To see sample requests that use versioning, see Sample Request.

Requests

Syntax

```
POST / HTTP/1.1
Host: destinationBucket.s3.amazonaws.com
User-Agent: browser_data
Accept: file_types
Accept-Language: Regions
Accept-Encoding: encoding
Accept-Charset: character_set
Keep-Alive: 300
```

```
Connection: keep-alive
Content-Type: multipart/form-data; boundary=9431149156168
Content-Length: length

--9431149156168
Content-Disposition: form-data; name="key"

acl
--9431149156168
Content-Disposition: form-data; name="tagging"

<Tagging><TagSet><Tag><Key>Tag Name</Key><Value>Tag Value</Value></Tag></TagSet></
Tagging>
--9431149156168
Content-Disposition: form-data; name="success_action_redirect"

success_redirect
--9431149156168
Content-Disposition: form-data; name="Content-Type"

content_type
--9431149156168
Content-Disposition: form-data; name="x-amz-meta-uuid"

uuid
--9431149156168
Content-Disposition: form-data; name="x-amz-meta-tag"

metadata
--9431149156168
Content-Disposition: form-data; name="AWSAccessKeyId"

access-key-id
--9431149156168
Content-Disposition: form-data; name="Policy"

encoded_policy
--9431149156168
Content-Disposition: form-data; name="Signature"

signature=
--9431149156168
Content-Disposition: form-data; name="file"; filename="MyFilename.jpg"
Content-Type: image/jpeg
```

```
file_content
--9431149156168
Content-Disposition: form-data; name="submit"

Upload to Amazon S3
--9431149156168--
```

Request Parameters

This implementation of the operation does not use request parameters.

Form Fields

This operation can use the following form fields.

Name	Description	Required
`AWSAccessKeyId`	The AWS access key ID of the owner of the bucket who grants an Anonymous user access for a request that satisfies the set of constraints in the policy. Type: String Default: None Constraints: Required if a policy document is included with the request.	Conditional
`acl`	The specified Amazon S3 access control list (ACL). If the specified ACL is not valid, an error is generated. For more information about ACLs, see Access control list (ACL) overview in the *Amazon Simple Storage Service User Guide*. Type: String Default: private	No

Name	Description	Required
	Valid Values: `private` | `public-read` | `public-read-write` | `aws-exec-read` | `authenticated-read` | `bucket-owner-read` | `bucket-owner-full-control`	
`Cache-Control` , `Content-Type` , `Content-Disposition` , `Content-Encoding` , `Expires`	The REST-specific headers. For more information, see PutObject. Type: String Default: None	No
`file`	The file or text content. The file or text content must be the last field in the form. You cannot upload more than one file at a time. Type: File or text content Default: None	Yes
`key`	The name of the uploaded key. To use the file name provided by the user, use the `${filename}` variable. For example, if a user named Mary uploads the file `example.jpg` and you specify `/user/mary/${filename}` , the key name is `/user/mary/example.jpg` . For more information, see Object key and metadata in the *Amazon Simple Storage Service User Guide*. Type: String Default: None	Yes

Name	Description	Required
`policy`	The security policy that describes what is permitted in the request. Requests without a security policy are considered anonymous and work only on publicly writable buckets. For more information, see HTML forms and Upload examples in the *Amazon Simple Storage Service User Guide*. Type: String Default: None Constraints: A security policy is required if the bucket is not publicly writable.	Conditional

Name	Description	Required
`success_action_redirect` , `redirect`	The URL to which the client is redirected upon a successful upload. If `success_action_redirect` is not specified , Amazon S3 returns the empty document type specified in the `success_action_status` field. If Amazon S3 cannot interpret the URL, it acts as if the field is not present. If the upload fails, Amazon S3 displays an error and does not redirect the user to a URL. Type: String Default: None **Note** The `redirect` field name is deprecated, and support for the `redirect` field name will be removed in the future.	No

Name	Description	Required
`success_action_status`	If you don't specify `success_action_redirect` , the status code is returned to the client when the upload succeeds. This field accepts the values `200`, `201`, or `204` (the default). If the value is set to `200` or `204`, Amazon S3 returns an empty document with a 200 or 204 status code. If the value is set to `201`, Amazon S3 returns an XML document with a 201 status code. If the value is not set or if it is set to a value that is not valid, Amazon S3 returns an empty document with a 204 status code. Type: String Default: None	No

Name	Description	Required

`tagging`	The specified set of tags to add to the object. To add tags, use the following encoding scheme.
	
	`<Tagging>`
	`  <TagSet>`
	`  <Tag>`
	`  <Key>TagName</Key>`
	`  <Value>TagValue</Value>`
	`  </Tag>`
	`  ...`
	`  </TagSet>`
	`</Tagging>`
	
	For more information, see Object tagging in the *Amazon Simple Storage Service User Guide*.
	
	Type: String
	
	Default: None
		No

`x-amz-storage-class`	The storage class to use for storing the object. If you don't specify a class, Amazon S3 uses the default storage class, `STANDARD`. Amazon S3 supports other storage classes. For more informati on, see Storage classes in the *Amazon Simple Storage Service User Guide*. Type: String Default: `STANDARD` Valid values: `REDUCED_REDUNDANCY` | `EXPRESS_ONEZONE` | `DEEP_ARCHIVE` | `GLACIER` | `GLACIER_IR` | `INTELLIGENT_TIERING` | `ONEZONE_IA` | `STANDARD` | `STANDARD_IA`	No

Name	Description	Required
`x-amz-meta-*`	Headers starting with this prefix are user-defined metadata. Each one is stored and returned as a set of key-value pairs. Amazon S3 doesn't validate or interpret user-defined metadata. For more information, see PutObject. Type: String Default: None	No
`x-amz-security-token`	The Amazon DevPay security token. Each request that uses Amazon DevPay requires two `x-amz-security-token` form fields: one for the product token and one for the user token. Type: String Default: None	No
`x-amz-signature`	(AWS Signature Version 4) The HMAC-SHA256 hash of the security policy. Type: String Default: None	Conditional

Name	Description	Required

`x-amz-website-redirect-location`	If the bucket is configured as a website, this field redirects requests for this object to another object in the same bucket or to an external URL. Amazon S3 stores the value of this header in the object metadata. For information about object metadata, see Object key and metadata in the *Amazon Simple Storage Service User Guide*.
	
	In the following example, the request header sets the redirect to an object (`anotherPage.html`) in the same bucket:
	
	`x-amz-website-redirect-location: /anotherPage.html`
	
	In the following example, the request header sets the object redirect to another website:
	
	`x-amz-website-redirect-location: http://www.example.com/`
	
	For more information about website hosting in Amazon S3, see Hosting websites on Amazon S3 and How to configure website page redirects in the *Amazon Simple Storage Service User Guide*.
	
	Type: String
	
	Default: None
	
	Constraints: The value must be prefixed by `/`, `http://`, or `https://`. The length of the value is limited to 2 KB.
		No

Additional Checksum Request Form Fields

When uploading an object, you can specify various checksums that you would like to use to verify your data integrity. You can specify one additional checksum algorithm for Amazon S3 to use. For more information about additional checksum values, see Checking object integrity in the *Amazon Simple Storage Service User Guide*.

Name	Description	Required
`x-amz-checksum-algorithm`	Indicates the algorithm used to create the checksum for the object. If a value is specified, you must include the matching checksum header. Otherwise, your request will generate a 400 error. Possible values include `CRC32`, `CRC32C`, `SHA1`, and `SHA256`.	No
`x-amz-checksum-crc32`	Specifies the base64-encoded, 32-bit CRC32 checksum of the object. This parameter is required if the value of `x-amz-checksum-algorithm` is `CRC32`.	Conditional
`x-amz-checksum-crc32c`	Specifies the base64-encoded, 32-bit CRC32C checksum of the object. This parameter is required if the value of `x-amz-checksum-algorithm` is `CRC32C`.	Conditional
`x-amz-checksum-sha1`	Specifies the base64-encoded, 160-bit SHA-1 digest of the object. This parameter is required if the value of `x-amz-checksum-algorithm` is `SHA1`.	Conditional
`x-amz-checksum-sha256`	Specifies the base64-encoded, 256-bit SHA-256 digest of the object. This parameter is required if the value of `x-amz-checksum-algorithm` is `SHA256`.	Conditional

Server-Side Encryption Specific Request Form Fields

Server-side encryption is data encryption at rest. Amazon S3 encrypts your data while writing it to disks in AWS data centers and decrypts your data when you access it. When uploading an object, you can specify the type of server-side encryption that you want Amazon S3 to use for encrypting the object.

There are four types of server-side encryption:

- **Server-side encryption with Amazon S3 managed keys (SSE-S3)** – Starting May 2022, all Amazon S3 buckets have encryption configured by default. The default option for server-side encryption is with SSE-S3. Each object is encrypted with a unique key. As an additional safeguard, SSE-S3 encrypts the key itself with a root key that it regularly rotates. SSE-S3 uses one of the strongest block ciphers available, 256-bit Advanced Encryption Standard (AES-256), to encrypt your data.
- **Server-side encryption with AWS KMS keys (SSE-KMS)** – SSE-KMS is provided through an integration of the AWS KMS service with Amazon S3. With AWS KMS, you have more control over your keys. For example, you can view separate keys, edit control policies, and follow the keys in AWS CloudTrail. Additionally, you can create and manage customer managed keys or use AWS managed keys that are unique to you, your service, and your Region.
- **Dual-layer server-side encryption with AWS KMS keys (DSSE-KMS)** – Dual-layer server-side encryption with AWS KMS keys (DSSE-KMS) is similar to SSE-KMS, but applies two individual layers of object-level encryption instead of one layer.
- **Server-side encryption with customer-provided keys (SSE-C)** – With SSE-C, you manage the encryption keys, and Amazon S3 manages the encryption as it writes to disks, and the decryption when you access your objects.

For more information, see Protecting data using server-side encryption in the *Amazon Simple Storage Service User Guide*.

Depending on which type of server-side encryption you want to use, specify the following form fields.

- **Use SSE-S3, SSE-KMS, or DSSE-KMS** – If you want to use these types of server-side encryption, specify the following form fields in the request.

Name	Description	Required
`x-amz-server-side-encryption`	Specifies the server-side encryption algorithm to use when Amazon S3 creates an object. To use SSE-S3, specify `AES256`. To use SSE-KMS, specify `aws:kms`. To use DSSE-KMS, specify `aws:kms:dsse` . Type: String Valid Value: `aws:kms`, `AES256`, `aws:kms:dsse`	Yes
`x-amz-server-side-encryption-aws-kms-key-id`	If the `x-amz-server-side-encryption` header has a valid value of `aws:kms` or `aws:kms:dsse` , this header specifies the ID of the AWS KMS key that was used to encrypt the object. Type: String	Yes, if the value of `x-amz-server-side-encryption` is `aws:kms` or `aws:kms:dsse`
`x-amz-server-side-encryption-context`	If `x-amz-server-side-encryption` has a valid value of `aws:kms` or `aws:kms:dsse` , this header specifies the encryption context for the object. The value of this header is a base64-encoded UTF-8 string that contains JSON-formatted key-value pairs for the encryption context. Type: String	No

Name	Description	Required
`x-amz-server-side-encryption-bucket-key-enabled`	If `x-amz-server-side-encryption` has a valid value of `aws:kms` or `aws:kms:dsse`, this header specifies whether Amazon S3 should use an S3 Bucket Key with SSE-KMS or DSSE-KMS. Setting this header to `true` causes Amazon S3 to use an S3 Bucket Key for object encryption with SSE-KMS or DSSE-KMS. Type: Boolean	No

> **Note**
>
> If you specify `x-amz-server-side-encryption:aws:kms` or `x-amz-server-side-encryption:aws:kms:dsse`, but do not provide `x-amz-server-side-encryption-aws-kms-key-id`, Amazon S3 uses the AWS managed key (`aws/S3`) to protect the data.

- **Use SSE-C** – If you want to manage your own encryption keys, you must provide all the following form fields in the request.

> **Note**
>
> If you use SSE-C, the `ETag` value that Amazon S3 returns in the response is not the MD5 of the object.

Name	Description	Required
`x-amz-server-side-encryption-customer-algorithm`	Specifies the algorithm to use to when encrypting the object. Type: String Default: None Valid Value: `AES256`	Yes

Name	Description	Required
	Constraints: Must be accompanied by valid `x-amz-server-side-encryption-customer-key` and `x-amz-server-side-encryption-customer-key-MD5` fields.	
`x-amz-server-side-encryption-customer-key`	Specifies the customer-provided base64-encoded encryption key for Amazon S3 to use in encrypting data. This value is used to store the object, and then it is discarded. Amazon does not store the encryption key. The key must be appropriate for use with the algorithm specified in the `x-amz-server-side-encryption-customer-algorithm` header. Type: String Default: None Constraints: Must be accompanied by valid `x-amz-server-side-encryption-customer-algorithm` and `x-amz-server-side-encryption-customer-key-MD5` fields.	Yes
`x-amz-server-side-encryption-customer-key-MD5`	Specifies the base64-encoded 128-bit MD5 digest of the encryption key according to RFC 1321. Amazon S3 uses this header for a message-integrity check to ensure that the encryption key was transmitted without error. Type: String Default: None Constraints: Must be accompanied by valid `x-amz-server-side-encryption-customer-algorithm` and `x-amz-server-side-encryption-customer-key` fields.	Yes

Responses

Response Headers

This implementation of the operation can include the following response headers in addition to the response headers common to all responses. For more information, see Common Response Headers.

Name	Description
`x-amz-checksum-crc32`	The base64-encoded, 32-bit CRC32 checksum of the object. Type: String
`x-amz-checksum-crc32c`	The base64-encoded, 32-bit CRC32C checksum of the object. Type: String
`x-amz-checksum-sha1`	The base64-encoded, 160-bit SHA-1 digest of the object. Type: String
`x-amz-checksum-sha256`	The base64-encoded, 256-bit SHA-256 digest of the object. Type: String
`x-amz-expiration`	If an `Expiration` action is configured for the object as part of the bucket's lifecycle configura tion, Amazon S3 returns this header. The header value includes an `expiry-date` component and a URL-encoded `rule-id` component. For version-enabled buckets, this header applies only to current versions. Amazon S3 does not provide a header to indicate when a noncurrent version is eligible for permanent deletion. For more information, see PutBucketLifecycleConfiguration.

Name	Description
	Type: String
`success_action_redirect, redirect`	The URL to which the client is redirected on a successful upload. Type: String Ancestor: PostResponse
`x-amz-server-side-encryption`	The server-side encryption algorithm that was used when storing this object in Amazon S3 (for example, `AES256`, `aws:kms`, `aws:kms:dsse`). Type: String
`x-amz-server-side-encryption-aws-kms-key-id`	If the `x-amz-server-side-encryption` header has a valid value of `aws:kms`, this header specifies the ID of the KMS key that was used to encrypt the object. Type: String
`x-amz-server-side-encryption-bucket-key-enabled`	If `x-amz-server-side-encryption` has a valid value of `aws:kms`, this header indicates whether the object is encrypted with SSE-KMS by using an S3 Bucket Key. If this header is set to `true`, the object uses an S3 Bucket Key with SSE-KMS. Type: Boolean
`x-amz-server-side-encryption-customer-algorithm`	If SSE-C was requested, the response includes this header, which confirms the encryption algorithm that was used. Type: String Valid Values: `AES256`

Name	Description
`x-amz-server-side-encryption-customer-key-MD5`	If SSE-C was requested, the response includes this header to verify round-trip message integrity of the customer-provided encryption key. Type: String
`x-amz-version-id`	Version of the object. Type: String

Response Elements

Name	Description
`Bucket`	The name of the bucket that the object was stored in. Type: String Ancestor: PostResponse
`ETag`	The entity tag (ETag) is an MD5 hash of the object that you can use to do conditional `GET` operations by using the `If-Modified` request tag with the `GET` request operation. `ETag` reflects changes only to the contents of an object, not to its metadata. Type: String Ancestor: PostResponse
`Key`	The object key name. Type: String Ancestor: PostResponse
`Location`	The URI of the object.

Name	Description
	Type: String Ancestor: PostResponse

Special Errors

This implementation of the operation does not return special errors. For general information about Amazon S3 errors and a list of error codes, see Error Responses.

Examples

Sample Request

```
POST /Neo HTTP/1.1
Content-Length: 4
Host: quotes.s3.amazonaws.com
Date: Wed, 01 Mar  2006 12:00:00 GMT
Authorization: authorization string
Content-Type: text/plain
Expect: the 100-continue HTTP status code

ObjectContent
```

Sample Response with Versioning Suspended

The following is a sample response when bucket versioning is suspended:

```
HTTP/1.1 100 Continue
HTTP/1.1 200 OK
x-amz-id-2: LriYPLdmOdAiIfgSm/F1YsViT1LW94/xUQxMsF7xiEb1a0wiIOIxl+zbwZ163pt7
x-amz-request-id: 0A49CE4060975EAC
x-amz-version-id: default
Date: Wed, 12 Oct 2009 17:50:00 GMT
ETag: "1b2cf535f27731c974343645a3985328"
Content-Length: 0
Connection: close
Server: AmazonS3
```

In this response, the version ID is `null`.

Sample Response with Versioning Enabled

The following is a sample response when bucket versioning is enabled.

```
HTTP/1.1 100 Continue
HTTP/1.1 200 OK
x-amz-id-2: LriYPLdmOdAiIfgSm/F1YsViT1LW94/xUQxMsF7xiEb1a0wiIOIxl+zbwZ163pt7
x-amz-request-id: 0A49CE4060975EAC
x-amz-version-id: 43jfkodU8493jnFJD9fjj3HHNVfdsQUIFDNsidf038jfdsjGFDSIRp
Date: Wed, 01 Mar  2006 12:00:00 GMT
ETag: "828ef3fdfa96f00ad9f27c383fc9ac7f"
Content-Length: 0
Connection: close
Server: AmazonS3
```

Related Resources

- CopyObject
- POST Object
- GetObject

POST Object restore

Description

This operation performs the following types of requests:

- `select` – Perform a select query on an archived object
- `restore an archive` – Restore an archived object

To use this operation, you must have permissions to perform the `s3:RestoreObject` and `s3:GetObject` actions. The bucket owner has this permission by default and can grant this permission to others. For more information about permissions, see Permissions Related to Bucket Subresource Operations and Managing Access Permissions to Your Amazon S3 Resources in the *Amazon Simple Storage Service User Guide*.

Querying Archives with Select Requests

You use a select type of request to perform SQL queries on archived objects. The archived objects that are being queried by the select request must be formatted as uncompressed comma-separated values (CSV) files. You can run queries and custom analytics on your archived data without having to restore your data to a hotter Amazon S3 tier. For an overview about select requests, see Querying Archived Objects in the *Amazon Simple Storage Service User Guide*.

When making a select request, do the following:

- Define an output location for the select query's output. This must be an Amazon S3 bucket in the same AWS Region as the bucket that contains the archive object that is being queried. The AWS account that initiates the job must have permissions to write to the S3 bucket. You can specify the storage class and encryption for the output objects stored in the bucket. For more information about output, see Querying Archived Objects in the *Amazon Simple Storage Service User Guide*.

  For more information about the S3 structure in the request body, see the following:

  - PutObject
  - Managing Access with ACLs in the *Amazon Simple Storage Service User Guide*
  - Protecting Data Using Server-Side Encryption in the *Amazon Simple Storage Service User Guide*

- Define the SQL expression for the `SELECT` type of restoration for your query in the request body's `SelectParameters` structure. You can use expressions like the following examples.
  - The following expression returns all records from the specified object.

    ```
    SELECT * FROM Object
    ```

  - Assuming that you are not using any headers for data stored in the object, you can specify columns with positional headers.

    ```
    SELECT s._1, s._2 FROM Object s WHERE s._3 > 100
    ```

  - If you have headers and you set the `fileHeaderInfo` in the `CSV` structure in the request body to `USE`, you can specify headers in the query. (If you set the `fileHeaderInfo` field to `IGNORE`, the first row is skipped for the query.) You cannot mix ordinal positions with header column names.

    ```
    SELECT s.Id, s.FirstName, s.SSN FROM S3Object s
    ```

For more information about using SQL with S3 Glacier Select restore, see SQL Reference for Amazon S3 Select and S3 Glacier Select in the *Amazon Simple Storage Service User Guide*.

When making a select request, you can also do the following:

- To expedite your queries, specify the `Expedited` tier. For more information about tiers, see "Restoring Archives," later in this topic.
- Specify details about the data serialization format of both the input object that is being queried and the serialization of the CSV-encoded query results.

The following are additional important facts about the select feature:

- The output results are new Amazon S3 objects. Unlike archive retrievals, they are stored until explicitly deleted—manually or through a lifecycle policy.
- You can issue more than one select request on the same Amazon S3 object. Amazon S3 doesn't deduplicate requests, so avoid issuing duplicate requests.
- Amazon S3 accepts a select request even if the object has already been restored. A select request doesn’t return error response `409`.

Restoring Archives

Objects in the GLACIER and DEEP_ARCHIVE storage classes are archived. To access an archived object, you must first initiate a restore request. This restores a temporary copy of the archived object. In a restore request, you specify the number of days that you want the restored copy to exist. After the specified period, Amazon S3 deletes the temporary copy but the object remains archived in the GLACIER or DEEP_ARCHIVE storage class that object was restored from.

To restore a specific object version, you can provide a version ID. If you don't provide a version ID, Amazon S3 restores the current version.

The time it takes restore jobs to finish depends on which storage class the object is being restored from and which data access tier you specify.

When restoring an archived object (or using a select request), you can specify one of the following data access tier options in the `Tier` element of the request body:

- **`Expedited`** - Expedited retrievals allow you to quickly access your data stored in the GLACIER storage class when occasional urgent requests for a subset of archives are required. For all but the largest archived objects (250 MB+), data accessed using Expedited retrievals are typically made available within 1–5 minutes. Provisioned capacity ensures that retrieval capacity for Expedited retrievals is available when you need it. Expedited retrievals and provisioned capacity are not available for the DEEP_ARCHIVE storage class.
- **`Standard`** - Standard retrievals allow you to access any of your archived objects within several hours. This is the default option for the GLACIER and DEEP_ARCHIVE retrieval requests that do not specify the retrieval option. Standard retrievals typically complete within 3-5 hours from the GLACIER storage class and typically complete within 12 hours from the DEEP_ARCHIVE storage class.
- **`Bulk`** - Bulk retrievals are Amazon S3 Glacier’s lowest-cost retrieval option, enabling you to retrieve large amounts, even petabytes, of data inexpensively in a day. Bulk retrievals typically complete within 5-12 hours from the GLACIER storage class and typically complete within 48 hours from the DEEP_ARCHIVE storage class.

For more information about archive retrieval options and provisioned capacity for `Expedited` data access, see Restoring Archived Objects in the *Amazon Simple Storage Service User Guide*.

You can use Amazon S3 restore speed upgrade to change the restore speed to a faster speed while it is in progress. You upgrade the speed of an in-progress restoration by issuing another

restore request to the same object, setting a new `Tier` request element. When issuing a request to upgrade the restore tier, you must choose a tier that is faster than the tier that the in-progress restore is using. You must not change any other parameters, such as the `Days` request element. For more information, see Upgrading the Speed of an In-Progress Restore in the *Amazon Simple Storage Service User Guide*.

To get the status of object restoration, you can send a `HEAD` request. Operations return the `x-amz-restore` header, which provides information about the restoration status, in the response. You can use Amazon S3 event notifications to notify you when a restore is initiated or completed. For more information, see Configuring Amazon S3 Event Notifications in the *Amazon Simple Storage Service User Guide*.

After restoring an archived object, you can update the restoration period by reissuing the request with a new period. Amazon S3 updates the restoration period relative to the current time and charges only for the request—there are no data transfer charges. You cannot update the restoration period when Amazon S3 is actively processing your current restore request for the object.

If your bucket has a lifecycle configuration with a rule that includes an expiration action, the object expiration overrides the life span that you specify in a restore request. For example, if you restore an object copy for 10 days, but the object is scheduled to expire in 3 days, Amazon S3 deletes the object in 3 days. For more information about lifecycle configuration, see PutBucketLifecycleConfiguration and Object Lifecycle Management in *Amazon Simple Storage Service User Guide*.

Requests

Syntax

```
POST /ObjectName?restore&versionId=VersionID HTTP/1.1
Host: BucketName.s3.amazonaws.com
Date: date
Authorization: authorization string (see Authenticating Requests (AWS Signature Version
  4))
Content-MD5: MD5

 request body
```

> **Note**
>
> The syntax shows some of the request headers. For a complete list, see "Request Headers," later in this topic.

Request Parameters

This implementation of the operation does not use request parameters.

Request Headers

Name	Description	Required
`Content-MD5`	The base64-encoded 128-bit MD5 digest of the data. You must use this header as a message integrity check to verify that the request body was not corrupted in transit. For more information, see RFC 1864. Type: String Default: None	Yes

Request Elements

The following is an XML example of a request body for restoring an archive.

```
<RestoreRequest>
   <Days>2</Days>
   <GlacierJobParameters>
     <Tier>Bulk</Tier>
   </GlacierJobParameters>
</RestoreRequest>
```

The following table explains the XML for archive restoration in the request body.

Name	Description	Required
`RestoreRequest`	Container for restore information. Type: Container	Yes
`Days`	Lifetime of the restored (active) copy. The minimum number of days that you can restore an object from S3 Glacier is 1. After the object copy reaches the specified lifetime, Amazon S3 removes it from the bucket. If you are restoring an archive, this element is required. Do not use this element with a `SELECT` type of request. Type: Positive integer Ancestors: `RestoreRequest`	Yes, if restoring an archive
`GlacierJobParameters`	Container for Glacier job parameters. Do not use this element with a `SELECT` type of request. Type: Container Ancestors: `RestoreRequest`	No
`Tier`	The data access tier to use when restoring the archive. `Standard` is the default. Type: Enum Valid values: `Expedited` | `Standard` | `Bulk` Ancestors: `GlacierJobParameters`	No

The following XML is the request body for a select query on an archived object:

```
<RestoreRequest>
    <Type>SELECT</Type>
    <Tier>Expedited</Tier>
    <Description>Job description</Description>
    <SelectParameters>
          <Expression>Select * from Object</Expression>
          <ExpressionType>SQL</ExpressionType>
          <InputSerialization>
              <CSV>
                  <FileHeaderInfo>IGNORE</FileHeaderInfo>
                  <RecordDelimiter>\n</RecordDelimiter>
                  <FieldDelimiter>,</FieldDelimiter>
                  <QuoteCharacter>"</QuoteCharacter>
                  <QuoteEscapeCharacter>"</QuoteEscapeCharacter>
                  <Comments>#</Comments>
              </CSV>
           </InputSerialization>
         <OutputSerialization>
             <CSV>
                 <QuoteFields>ASNEEDED</QuoteFields>
                 <RecordDelimiter>\n</RecordDelimiter>
                 <FieldDelimiter>,</FieldDelimiter>
                 <QuoteCharacter>"</QuoteCharacter>
                 <QuoteEscapeCharacter>"</QuoteEscapeCharacter>
             </CSV>
         </OutputSerialization>
    </SelectParameters>
    <OutputLocation>
        <S3>
      <BucketName>Name of bucket</BucketName>
            <Prefix>Key prefix</Prefix>
       <CannedACL>Canned ACL string</CannedACL>
       <AccessControlList>
      <Grantee>
          <Type>Grantee Type</Type>
    <ID>Grantee identifier</ID>
    <URI>Grantee URI</URI>
         <Permission>Granted permission</Permission>
                    <DisplayNmae>Display Name</DisplayName>
                    <EmailAddress>email</EmailAddress>
      </Grantee>
       </AccessControlList>
       <Encryption>
```

```
             <EncryptionType>Encryption type</EncryptionType>
       <KMSKeyId>KMS Key ID</KMSKeyId>
       <KMSContext>Base64-encoded JSON<KMSContext>
            </Encryption>
      <UserMetadata>
               <MetadataEntry>
                   <Name>Key</Name>
                   <Value>Value</Value>
               </MetadataEntry>
            </UserMetadata>
            <Tagging>
                <TagSet>
                    <Tag>
                        <Key>Tag name</Key>
                        <Value>Tag value</Value>
                    </Tag>
               </TagSet>
            </Tagging>
            <StorageClass>Storage class</StorageClass>
  </S3>
    </OutputLocation>
</RestoreRequest>
```

The following tables explain the XML for a `SELECT` type of restoration in the request body.

Name	Description	Required
`RestoreRequest`	Container for restore information. Type: Container	Yes
`Tier`	The data access tier to use when restoring the archive. `Standard` is the default. Type: Enum Valid values: `Expedited` | `Standard` | `Bulk` Ancestors: `RestoreRequest`	No

Name	Description	Required
`Description`	The optional description for the request. Type: String Ancestors: `RestoreRequest`	No
`SelectParameters`	Describes the parameters for the select job request. Type: Container Ancestors: `RestoreRequest`	Yes, if request type is `SELECT`
`OutputLocation`	Describes the location that receives the results of the select restore request. Type: Container for Amazon S3 Ancestors: `RestoreRequest`	Yes, if request type is `SELECT`

The `SelectParameters` container element contains the following elements.

Name	Description	Required

`Expression`	The SQL expression. For example:
	
	• The following SQL expression retrieves the first column of the data from the object stored in CSV format:
	
	`SELECT s._1 FROM Object s`
	
	• The following SQL expression returns everything from the object:
	
	`SELECT * FROM Object`
		Yes

Name	Description	Required
	Type: String Ancestors: `SelectParameters`	
`ExpressionType`	Identifies the expression type. Type: String Valid values: `SQL` Ancestors: `SelectParameters`	Yes
`InputSerialization`	Describes the serialization format of the object. Type: Container for CSV Ancestors: `SelectParameters`	Yes
`OutputSerialization`	Describes how the results of the select job are serialized. Type: Container for CSV Ancestors: `SelectParameters`	Yes

The CSV container element in the `InputSerialization` element contains the following elements.

Name	Description	Required
`RecordDelimiter`	A single character used to separate individual records in the input. Instead of the default value, you can specify an arbitrary delimiter. Type: String Default: \n	No

Name	Description	Required
	Ancestors: CSV	
`FieldDelimiter`	A single character used to separate individual fields in a record. You can specify an arbitrary delimiter. Type: String Default: `,` Ancestors: CSV	No
`QuoteCharacter`	A single character used for escaping when the field delimiter is part of the value. Consider this example in a CSV file: `"a, b"` Wrapping the value in quotation marks makes this value a single field. If you don't use the quotation marks, the comma is a field delimiter (which makes it two separate field values, a and b). Type: String Default: `"` Ancestors: CSV	No

Name	Description	Required
QuoteEscapeCharacter	A single character used for escaping the quotation mark character inside an already escaped value. For example, the value """ a , b """ is parsed as " a , b ". Type: String Default: " Ancestors: CSV	No
FileHeaderInfo	Describes the first line in the input data. It is one of the ENUM values. • NONE: First line is not a header. • IGNORE: First line is a header, but you can't use the header values to indicate the column in an expression. You can use column position (such as _1, _2, …) to indicate the column (SELECT s._1 FROM OBJECT s). • Use: First line is a header, and you can use the header value to identify a column in an expression (SELECT "name" FROM OBJECT). Type: Enum Valid values: NONE | USE | IGNORE Ancestors: CSV	No

Name	Description	Required
`Comments`	A single character used to indicate that a row should be ignored when the character is present at the start of that row. You can specify any character to indicate a comment line. Type: String Ancestors: `CSV`	No

The CSV container element (in the `OutputSerialization` elements) contains the following elements.

Name	Description	Required
`QuoteFields`	Indicates whether to use quotation marks around output fields. • `ALWAYS`: Always use quotation marks for output fields. • `ASNEEDED`: Use quotation marks for output fields when needed. Type: Enum Valid values: `ALWAYS` | `ASNEEDED` Default: `AsNeeded` Ancestors: `CSV`	No
`RecordDelimiter`	A single character used to separate individual records in the output. Instead of the default value, you can specify an arbitrary delimiter.	No

Name	Description	Required
	Type: String Default: \n Ancestors: CSV	
`FieldDelimiter`	A single character used to separate individual fields in a record. You can specify an arbitrary delimiter. Type: String Default: , Ancestors: CSV	No
`QuoteCharacter`	A single character used for escaping when the field delimiter is part of the value. For example, if the value is a, b, Amazon S3 wraps this field value in quotation marks, as follows: " a , b " . Type: String Default: " Ancestors: CSV	No
`QuoteEscapeCharacter`	A single character used for escaping the quotation mark character inside an already escaped value. For example, if the value is " a , b " , Amazon S3 wraps the value in quotation marks, as follows: """ a , b """. Type: String Ancestors: CSV	No

The S3 container element (in the `OutputLocation` element) contains the following elements.

Name	Description	Required
`AccessControlList`	A list of grants that control access to the staged results. Type: Container for Grant Ancestors: S3	No
`BucketName`	The name of the S3 bucket where the select restore results are stored. The bucket must be in the same AWS Region as the bucket that contains the input archive object. Type: String Ancestors: S3	Yes
`CannedACL`	The canned access control list (ACL) to apply to the select restore results. Type: String Valid values: `private` | `public-read` | `public-read-write` | `aws-exec-read` | `authenticated-read` | `bucket-owner-read` | `bucket-owner-full-control` Ancestors: S3	No
`Encryption`	Contains encryption information for the stored results. Type: Container for Encryption Ancestors: S3	No
`Prefix`		Yes

Name	Description	Required
	The prefix that is prepended to the select restore results. The maximum length for the prefix is 512 bytes. Type: String Ancestors: S3	
`StorageClass`	The class of storage used to store the select request results. Type: String Valid values: `STANDARD` | `REDUCED_REDUNDANCY` | `STANDARD_IA` | `ONEZONE_IA` Ancestors: S3	No
`Tagging`	Container for tag information. Type: Tag structure Ancestors: S3	No
`UserMetadata`	Contains a list of metadata to store with the select restore results. Type: MetadataEntry structure Ancestors: S3	No

The Grantee container element (in the `AccessControlList` element) contains the following elements.

Name	Description	Required
`DisplayName`	The screen name of the grantee.	No

Name	Description	Required
	Type: String Ancestors: `Grantee`	
`EmailAddress`	The email address of the grantee. Type: String Ancestors: `Grantee`	No
`ID`	The canonical user ID of the grantee. Type: String Ancestors: `Grantee`	No
`Type`	The type of the grantee. Type: String Ancestors: `Grantee`	No
`URI`	The URI of the grantee group. Type: String Ancestors: `Grantee`	No
`Permission`	Granted permission. Type: String Ancestors: `Grantee`	No

The `Encryption` container element (in S3) contains the following elements.

Name	Description	Required
`EncryptionType`	The server-side encryption algorithm used when storing job results. The default is no encryption. Type: String Valid Values `aws:kms` | `AES256` Ancestors: `Encryption`	No
`KMSContext`	Optional. If the encryption type is `aws:kms`, you can use this value to specify the encryption context for the select restore results. Type: String Ancestors: Encryption	No
`KMSKeyId`	The AWS Key Management Service (AWS KMS) key ID to use for object encryption. Type: String Ancestors: `Encryption`	No

The `TagSet` container element (in the `Tagging` element) contains the following element.

Name	Description	Required
`Tag`	Contains tags. Type: Container Ancestors: `TagSet`	No

The Tag container element (in the `TagSet` element) contains the following elements.

Name	Description	Required
`Key`	Name of the tag. Type: String Ancestors: `Tag`	No
`Value`	Value of the tag. Type: String Ancestors: `Tag`	No

The `MetadataEntry` container element (in the `UserMetadata` element) contains the following key-value pair elements to store with an object.

Name	Description	Required
`MetadataKey`	The metadata key. Type: String Ancestors:	No
`MetadataEntry`	The metadata value. Type: String Ancestors:	No

Responses

A successful operation returns either the `200 OK` or `202 Accepted` status code.

- If the object copy is not previously restored, then Amazon S3 returns `202 Accepted` in the response.
- If the object copy is previously restored, Amazon S3 returns `200 OK` in the response.

Response Headers

This implementation of the operation uses only response headers that are common to most responses. For more information, see Common Response Headers.

Response Elements

This operation does not return response elements.

Special Errors

Error Code	Description	HTTP Status Code	SOAP Fault Code Prefix
`RestoreAlreadyInProgress`	Object restore is already in progress. (This error does not apply to SELECT type requests.)	409 Conflict	Client
`GlacierExpeditedRetrievalNotAvailable`	Glacier expedited retrievals are currently not available. Try again later. (Returned if there is insufficient capacity to process the `Expedited` request. This error applies only to `Expedited` retrievals and not to `Standard` or `Bulk` retrievals.)	503	N/A

Examples

Restore an Object for Two Days Using the Expedited Retrieval Option

The following restore request restores a copy of the `photo1.jpg` object from S3 Glacier for a period of two days using the expedited retrieval option.

```
POST /photo1.jpg?restore HTTP/1.1
Host: examplebucket.s3.amazonaws.com
Date: Mon, 22 Oct 2012 01:49:52 GMT
Authorization: authorization string
Content-Length: content length

<RestoreRequest>
  <Days>2</Days>
  <GlacierJobParameters>
    <Tier>Expedited</Tier>
  </GlacierJobParameters>
</RestoreRequest>
```

If the `examplebucket` does not have a restored copy of the object, Amazon S3 returns the following `202 Accepted` response.

```
HTTP/1.1 202 Accepted
x-amz-id-2: GFihv3y6+kE7KG11GEkQhU7/2/cHR3Yb2fCb2S04nxI423Dqwg2XiQ0B/
UZlzYQvPiBlZNRcovw=
x-amz-request-id: 9F341CD3C4BA79E0
Date: Sat, 20 Oct 2012 23:54:05 GMT
Content-Length: 0
Server: AmazonS3
```

If a copy of the object is already restored, Amazon S3 returns a `200 OK` response, and updates only the restored copy's expiry time.

Query an Archive with a SELECT Request

The following is an example select restore request.

```
POST /object-one.csv?restore HTTP/1.1
Host: examplebucket.s3.amazonaws.com
Date: Date: Sat, 20 Oct 2012 23:54:05 GMT
Authorization: authorization string
Content-Length: content length

<RestoreRequest xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Type>SELECT</Type>
  <Tier>Expedited</Tier>
  <Description>this is a description</Description>
  <SelectParameters>
```

```
    <InputSerialization>
      <CSV>
        <FileHeaderInfo>IGNORE</FileHeaderInfo>
        <Comments>#</Comments>
        <QuoteEscapeCharacter>"</QuoteEscapeCharacter>
        <RecordDelimiter>\n</RecordDelimiter>
        <FieldDelimiter>,</FieldDelimiter>
        <QuoteCharacter>"</QuoteCharacter>
      </CSV>
    </InputSerialization>
    <ExpressionType>SQL</ExpressionType>
    <Expression>select * from object</Expression>
    <OutputSerialization>
      <CSV>
        <QuoteFields>ALWAYS</QuoteFields>
        <QuoteEscapeCharacter>"</QuoteEscapeCharacter>
        <RecordDelimiter>\n</RecordDelimiter>
        <FieldDelimiter>\t</FieldDelimiter>
        <QuoteCharacter>\'</QuoteCharacter>
      </CSV>
    </OutputSerialization>
  </SelectParameters>
  <OutputLocation>
    <S3>
      <BucketName>example-output-bucket</BucketName>
      <Prefix>test-s3</Prefix>
      <AccessControlList>
        <Grant>
          <Grantee xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:type="AmazonCustomerByEmail">
            <EmailAddress>jane-doe@example.com</EmailAddress>
          </Grantee>
          <Permission>FULL_CONTROL</Permission>
        </Grant>
      </AccessControlList>
      <UserMetadata>
        <MetadataEntry>
          <Name>test</Name>
          <Value>test-value</Value>
        </MetadataEntry>
        <MetadataEntry>
          <Name>other</Name>
          <Value>something else</Value>
        </MetadataEntry>
```

```
      </UserMetadata>
      <StorageClass>STANDARD</StorageClass>
    </S3>
  </OutputLocation>
</RestoreRequest>
```

Amazon S3 returns the following `202 Accepted` response.

```
HTTP/1.1 202 Accepted
x-amz-id-2: GFihv3y6+kE7KG11GEkQhU7/2/cHR3Yb2fCb2S04nxI423Dqwg2XiQ0B/
UZlzYQvPiBlZNRcovw=
x-amz-request-id: 9F341CD3C4BA79E0
x-amz-restore-output-path: js-test-s3/qE8nk5M0XIj-LuZE2HXNw6empQm3znLkHlMWInRYPS-
Orl2W0uj6LyYm-neTvm1-btz3wbBxfMhPykd3jkl-lvZE7w42/
Date: Sat, 20 Oct 2012 23:54:05 GMT
Content-Length: 0
Server: AmazonS3
```

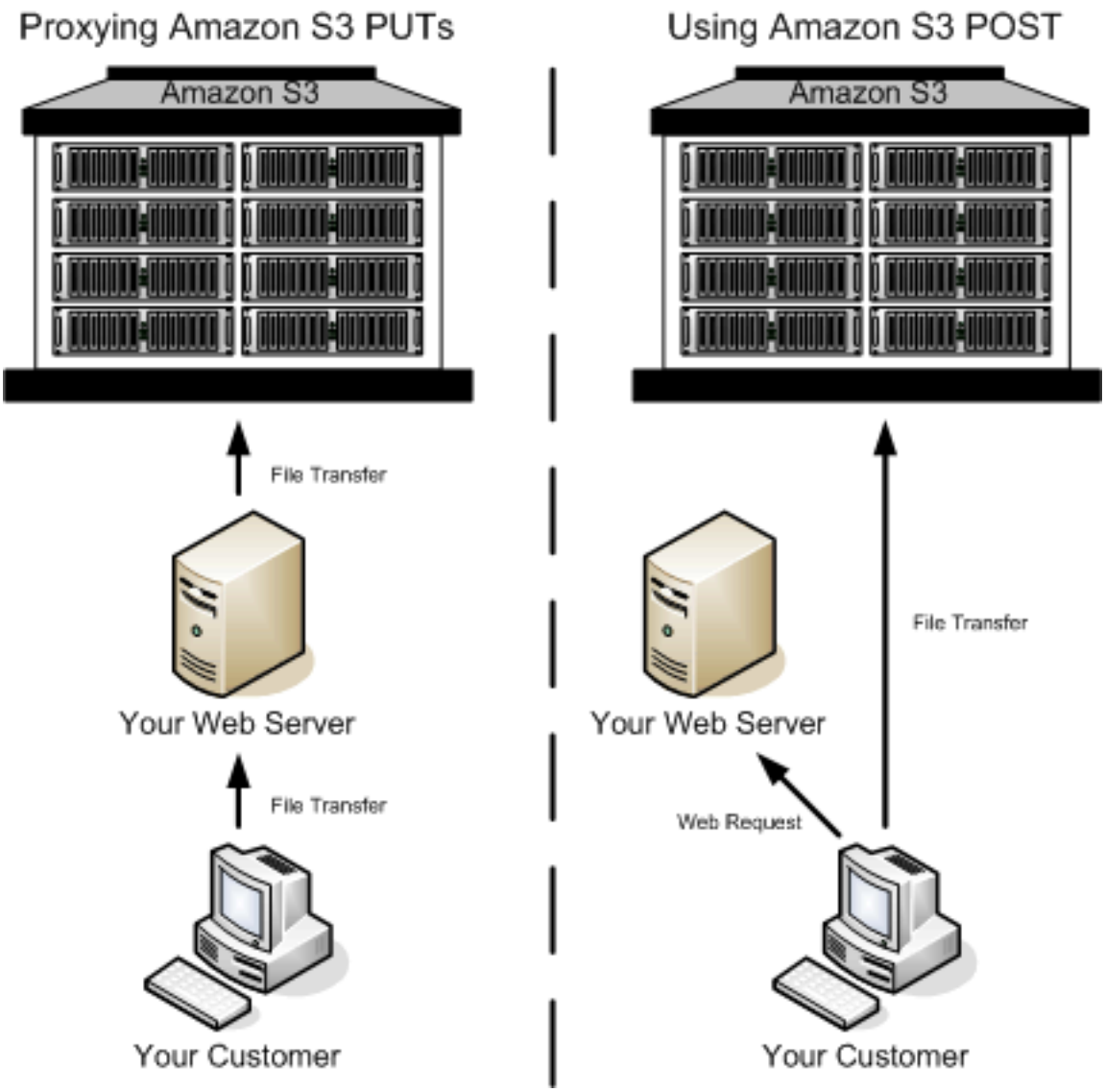
More Info

- GetBucketLifecycleConfiguration
- PutBucketLifecycleConfiguration
- SQL Reference for Amazon S3 Select and S3 Glacier Select in the *Amazon Simple Storage Service User Guide*

Browser-Based Uploads Using HTTP POST

Amazon S3 supports HTTP POST requests so that users can upload content directly to Amazon S3. By using POST, end users can authenticate requests without having to pass data through a secure intermediary node that protects your credentials. Thus, HTTP POST has the potential to reduce latency.

The following figure shows an Amazon S3 upload using a POST request.



1. The user accesses your page from a web browser.
2. Your webpage contains an HTML form that contains all the information necessary for the user to upload content to Amazon S3.
3. The user uploads content to Amazon S3 through the web browser.

The process for sending browser-based POST requests is as follows:

1. Create a security policy specifying conditions that restrict what you want to allow in the request, such as the bucket name where objects can be uploaded, and key name prefixes that you want to allow for the object that is being created.

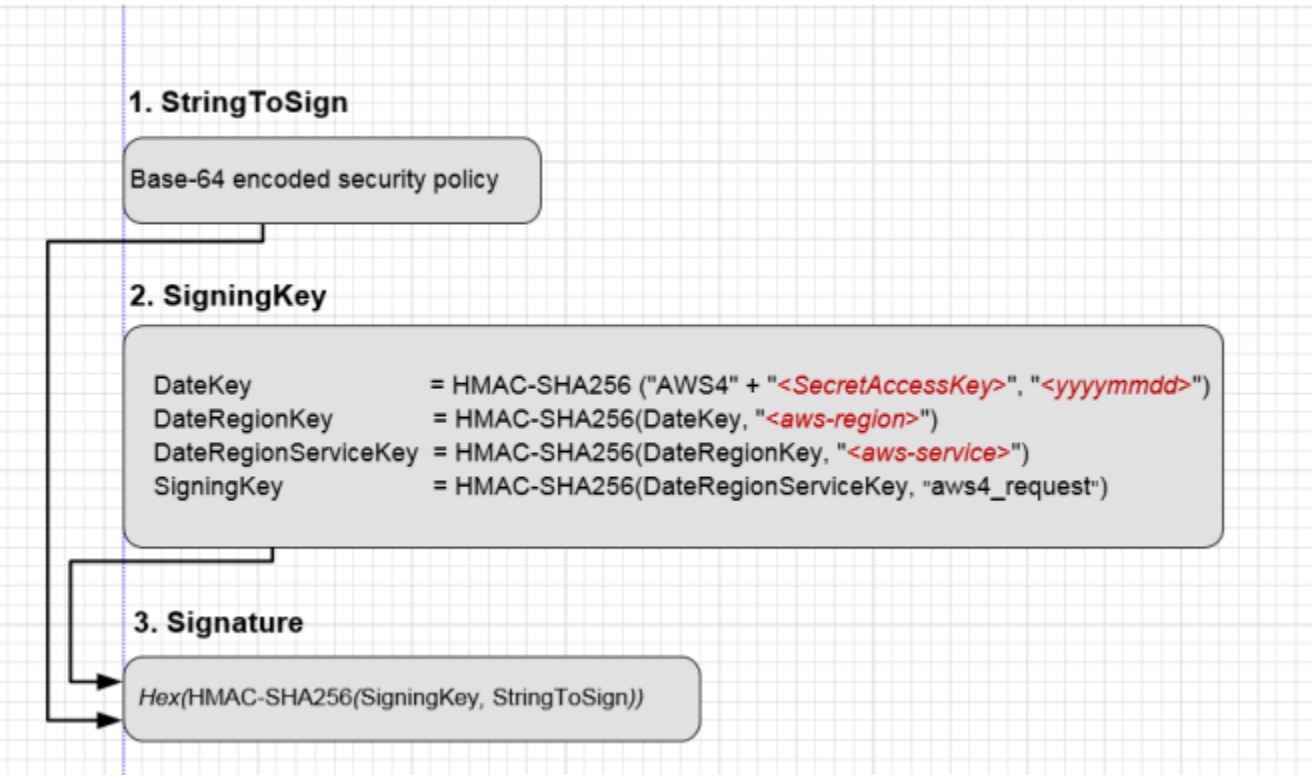
2. Create a signature that is based on the policy. For authenticated requests, the form must include a valid signature and the policy.
3. Create an HTML form that your users can access in order to upload objects to your Amazon S3 bucket.

The following section describes how to create a signature to authenticate a request. For information about creating forms and security policies, see Creating an HTML Form (Using AWS Signature Version 4).

Calculating a Signature

For authenticated requests, the HTML form must include fields for a security policy and a signature.

- A security policy (see POST Policy) controls what is allowed in the request.
- The security policy is the `StringToSign` (see Introduction to Signing Requests) in your signature calculation.



To Calculate a signature

1. Create a policy using UTF-8 encoding.
2. Convert the UTF-8-encoded policy bytes to base64. The result is the `StringToSign`.
3. Create a signing key.
4. Use the signing key to sign the `StringToSign` using HMAC-SHA256 signing algorithm.

For more information about creating HTML forms, security policies, and an example, see the following:

- Creating an HTML Form (Using AWS Signature Version 4)
- POST Policy
- Example: Browser-Based Upload using HTTP POST (Using AWS Signature Version 4)

Creating an HTML Form (Using AWS Signature Version 4)

Topics

- HTML Form Declaration
- HTML Form Fields

To allow users to upload content to Amazon S3 by using their browsers (HTTP POST requests), you use HTML forms. HTML forms consist of a form declaration and form fields. The form declaration contains high-level information about the request. The form fields contain detailed request information.

This section describes how to create HTML forms. For a working example of browser-based upload using HTTP POST and related signature calculations for request authentication, see Example: Browser-Based Upload using HTTP POST (Using AWS Signature Version 4).

The form and policy must be UTF-8 encoded. You can apply UTF-8 encoding to the form by specifying `charset=UTF-8` in the `content` attribute. The following is an example of UTF-8 encoding in the HTML heading.

```
<html>
```

```
  <head>
    ...
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
    ...
  </head>
  <body>
```

Following is an example of UTF-8 encoding in a request header.

```
Content-Type: text/html; charset=UTF-8
```

> **Note**
>
> The form data and boundaries (excluding the contents of the file) cannot exceed 20KB.

HTML Form Declaration

The HTML form declaration has the following three attributes:

- `action` – The URL that processes the request, which must be set to the URL of the bucket. For example, if the name of your bucket is `examplebucket`, the URL is `http://examplebucket.s3.amazonaws.com/`.

  > **Note**
  >
  > The key name is specified in a form field.

- `method` – The method must be POST.
- `enctype` – The enclosure type (`enctype`) must be set to multipart/form-data for both file uploads and text area uploads. For more information about `enctype`, see RFC 1867.

This is a form declaration for the bucket `examplebucket`.

```
<form action="http://examplebucket.s3.amazonaws.com/" method="post"

enctype="multipart/form-data">
```

HTML Form Fields

The following table describes a list of fields that you can use within a form. Among other fields, there is a signature field that you can use to authenticate requests. There are fields for you to specify the signature calculation algorithm (`x-amz-algorithm`), the credential scope (`x-amz-credential`) that you used to generate the signing key, and the date (`x-amz-date`) used to calculate the signature. Amazon S3 uses this information to re-create the signature. If the signatures match, Amazon S3 processes the request.

> **Note**
>
> The variable `${filename}` is automatically replaced with the name of the file provided by the user and is recognized by all form fields. If the browser or client provides a full or partial path to the file, only the text following the last slash (/) or backslash (\) is used (for example, `C:\Program Files\directory1\file.txt` is interpreted as `file.txt`). If no file or file name is provided, the variable is replaced with an empty string.

If you don't provide elements required for authenticated requests, such as the `policy` element, the request is assumed to be anonymous and will succeed only if you have configured the bucket for public read and write.

Element Name	Description	Required
`acl`	An Amazon S3 access control list (ACL). If an invalid ACL is specified, Amazon S3 denies the request. For more information about ACLs, see Using Amazon S3 ACLs. Type: String Default: private Valid Values: `private | public-read | public-read-write | aws-exec-read | authenticated-read`	No

Element Name	Description	Required
	`| bucket-owner-read | bucket-owner-full-control`	

`Cache-Control`
 	
`Content-Type`
 	
`Content-Disposition`
 	
`Content-Encoding`
 	
`Expires`
	REST-specific headers. For more information, see PutObject.	No

`key`	The key name of the uploaded object. To use the file name provided by the user, use the ${filename} variable. For example, if you upload a file `photo1.jpg` and you specify `/user/user1/${filename}` as key name, the file is stored as `/user/user1/photo1.jpg` . For more information, see Object Key and Metadata in the *Amazon Simple Storage Service User Guide*.	Yes
`policy`	The base64-encoded security policy that describes what is permitted in the request. For authenticated requests, a policy is required. Requests without a security policy are considered anonymous and will succeed only on a publicly writable bucket.	Required for authenticated requests

Element Name	Description	Required
`success_action_redirect`	The URL to which the client is redirected upon successful upload. If `success_action_redirect` is not specified, or Amazon S3 cannot interpret the URL, Amazon S3 returns the empty document type that is specified in the `success_action_status` field. If the upload fails, Amazon S3 returns an error and does not redirect the user to another URL.	No

Element Name	Description	Required
`success_action_status`	The status code returned to the client upon successful upload if `success_action_redirect` is not specified. Valid values are `200`, `201`, or `204` (default). If the value is set to 200 or 204, Amazon S3 returns an empty document with the specified status code. If the value is set to 201, Amazon S3 returns an XML document with a 201 status code. For information about the content of the XML document, see POST Object. If the value is not set or is invalid, Amazon S3 returns an empty document with a 204 status code. **Note** Some versions of the Adobe Flash player do not properly handle HTTP responses with an empty body. To support uploads through Adobe Flash, we recommend setting `success_action_status` to 201.	No

Element Name	Description	Required
`x-amz-algorithm`	The signing algorithm used to authenticate the request. For AWS Signature Version 4, the value is `AWS4-HMAC-SHA256` . This field is required if a policy document is included with the request.	Required for authenticated requests

`x-amz-credential`	In addition to your access key ID, this field also provides scope information identifying region and service for which the signature is valid. This should be the same scope you used in calculating the signing key for signature calculation.
	
	It is a string of the following form:
	
	`<your-access-key-id> /<date>/<aws-region> /<aws-service> /aws4_request`
	
	For example:
	
	`AKIAIOSFODNN7EXAMPLE/20130728/us-east-1/s3/aws4_request`
	
	For Amazon S3, the *aws-service* string is `s3`. For a list of Amazon S3 `aws-region` strings, see Regions and Endpoints in the *AWS General Reference*. This is required if a policy document is included with the request.
		Required for authenticated requests

Element Name	Description	Required
`x-amz-date`	It is the date value in ISO8601 format. For example, `20130728T000000Z` . It is the same date you used in creating the signing key (for example, 20130728). This must also be the same value you provide in the policy (`x-amz-date`) that you signed. This is required if a policy document is included with the request.	Required for authenticated requests
`x-amz-security-token`	A security token used by Amazon DevPay and session credentials If the request is using Amazon DevPay, it requires two `x-amz-security-token` form fields: one for the product token and one for the user token. For more information, see Using DevPay in the *Amazon Simple Storage Service User Guide*. If the request is using session credentials, it requires one `x-amz-security-token` form. For more information, see Requesting Temporary Security Credentials in the *IAM User Guide*.	No
`x-amz-signature`	(AWS Signature Version 4) The HMAC-SHA256 hash of the security policy. This field is required if a policy document is included with the request.	Required for authenticated requests

Element Name	Description	Required
`x-amz-meta-*`	Field names starting with this prefix are user-defined metadata. Each one is stored and returned as a set of key-value pairs. Amazon S3 doesn't validate or interpret user-defined metadata. For more information, see PutObject.	No
`x-amz-*`	See POST Object (POST Object for other `x-amz-*` headers.	No
`file`	File or text content. The file or content must be the last field in the form. You cannot upload more than one file at a time.	Yes

Conditional items are required for authenticated requests and are optional for anonymous requests.

Now that you know how to create forms, next you can create a security policy that you can sign. For more information, see POST Policy.

POST Policy

Topics

- Expiration
- Condition Matching
- Conditions
- Character Escaping

The policy required for making authenticated requests using HTTP POST is a UTF-8 and base64-encoded document written in JavaScript Object Notation (JSON) that specifies conditions that the request must meet. Depending on how you design your policy document, you can control the access granularity per-upload, per-user, for all uploads, or according to other designs that meet your needs.

This section describes the POST policy. For example signature calculations using POST policy, see Example: Browser-Based Upload using HTTP POST (Using AWS Signature Version 4).

> **Note**
>
> Although the policy document is optional, we highly recommend that you use one in order to control what is allowed in the request. If you make the bucket publicly writable, you have no control at all over which users can write to your bucket.

The following is an example of a POST policy document.

```
{ "expiration": "2007-12-01T12:00:00.000Z",
  "conditions": [
    {"acl": "public-read" },
    {"bucket": "johnsmith" },
    ["starts-with", "$key", "user/eric/"],
  ]
}
```

The POST policy always contains the `expiration` and `conditions` elements. The example policy uses two condition matching types (exact matching and starts-with matching). The following sections describe these elements.

Expiration

The `expiration` element specifies the expiration date and time of the POST policy in ISO8601 GMT date format. For example, `2013-08-01T12:00:00.000Z` specifies that the POST policy is not valid after midnight GMT on August 1, 2013.

Condition Matching

Following is a table that describes condition matching types that you can use to specify POST policy conditions (described in the next section). Although you must specify at least one condition

for each form field that you specify in the form, you can create more complex matching criteria by specifying multiple conditions for a form field.

Condition Match Type	Description

Exact Matches	The form field value must match the value specified. This example indicates that the ACL must be set to public-read:
	`{"acl": "public-read" }`
	This example is an alternate way to indicate that the ACL must be set to public-read:
	`[ "eq", "$acl", "public-read" ]`

Starts With	The value must start with the specified value. This example indicates that the object key must start with user/user1: `["starts-with", "$key", "user/user1/"]`

Matching Content-Types in a Comma-Separated List	Content-Types values for a `starts-with` condition that include commas are interpreted as lists. Each value in the list must meet the condition for the whole condition to pass. For example,given the following condition:
	`["starts-with", "$Content-Type", "image/"]`
	The following value would pass the condition:
	`"image/jpg,image/png,image/gif"`
	The following value would not pass the condition:
	`["image/jpg,text/plain"]`

Condition Match Type	Description
	Note Data elements other than `Content-Type` are treated as strings, regardless of the presence of commas.
Matching Any Content	To configure the POST policy to allow any content within a form field, use `starts-with` with an empty value (""). This example allows any value for `success_action_redirect` : `["starts-with", "$success_action_redirect", ""]`
Specifying Ranges	For form fields that accept a range, separate the upper and lower limit with a comma. This example allows a file size from 1 to 10 MiB: `["content-length-range", 1048576, 10485760]`

The specific conditions supported in a POST policy are described in Conditions.

Conditions

The `conditions` in a POST policy is an array of objects, each of which is used to validate the request. You can use these conditions to restrict what is allowed in the request. For example, the preceding policy conditions require the following:

- Request must specify the `johnsmith` bucket name.
- Object key name must have the `user/eric` prefix.
- Object ACL must be set to `public-read`.

Each form field that you specify in a form (except `x-amz-signature`, `file`, `policy`, and field names that have an `x-ignore-` prefix) must appear in the list of conditions.

> **Note**
>
> All variables within the form are expanded prior to validating the POST policy. Therefore, all condition matching should be against the expanded form fields. Suppose that you want to restrict your object key name to a specific prefix (`user/user1`). In this case, you set the key form field to `user/user1/${filename}`. Your POST policy should be `[ "starts-with", "$key", "user/user1/" ]` (do not enter `[ "starts-with", "$key", "user/user1/${filename}" ]`). For more information, see Condition Matching.

Policy document conditions are described in the following table.

Element Name	Description
`acl`	Specifies the ACL value that must be used in the form submission. This condition supports exact matching and `starts-with` condition match type discussed in the following section.
`bucket`	Specifies the acceptable bucket name. This condition supports exact matching condition match type.
`content-length-range`	The minimum and maximum allowable size for the uploaded content. This condition supports `content-length-range` condition match type.

`Cache-Control`
 	
`Content-Type`
 	
`Content-Disposition`
	REST-specific headers. For more information, see POST Object.

Element Name	Description

`Content-Encoding`
 	
`Expires`
	This condition supports exact matching and `starts-with` condition match type.

`key`	The acceptable key name or a prefix of the uploaded object. This condition supports exact matching and `starts-with` condition match type.

`success_action_redirect`
 	
`redirect`
	The URL to which the client is redirected upon successful upload.
	
	This condition supports exact matching and `starts-with` condition match type.

`success_action_status`	The status code returned to the client upon successful upload if `success_action_redirect` is not specified. This condition supports exact matching.
`x-amz-algorithm`	The signing algorithm that must be used during signature calculation. For AWS Signature Version 4, the value is `AWS4-HMAC-SHA256`. This condition supports exact matching.

Element Name	Description
`x-amz-credential`	The credentials that you used to calculate the signature. It provides access key ID and scope information identifying region and service for which the signature is valid. This should be the same scope you used in calculating the signing key for signature calculation. It is a string of the following form: *<your-access-key-id>* /*<date>*/*<aws-region>* /*<aws-service>* /aws4_request For example: AKIAIOSFODNN7EXAMPLE/20130728/us-east-1/s3/aws4_request For Amazon S3, the aws-service string is s3. For a list of Amazon S3 `aws-region` strings, see Regions and Endpoints in the *AWS General Reference*. This is required if a POST policy document is included with the request. This condition supports exact matching.
`x-amz-date`	The date value specified in the ISO8601 formatted string. For example, `20130728T000000Z` . The date must be same that you used in creating the signing key for signature calculation. This is required if a POST policy document is included with the request. This condition supports exact matching.

Element Name	Description
`x-amz-security-token`	Amazon DevPay security token. Each request that uses Amazon DevPay requires two `x-amz-security-token` form fields: one for the product token and one for the user token. As a result, the values must be separated by commas. For example, if the user token is `eW91dHViZQ==` and the product token is `b0hnNVNKWVJIQTA=` , you set the POST policy entry to: `{ "x-amz-security-token": "eW91dHViZQ==,b0hnNVNKWVJIQTA=" }` . For more information about Amazon DevPay, see Using DevPay in the *Amazon Simple Storage Service User Guide*.
`x-amz-meta-*`	User-specified metadata. This condition supports exact matching and `starts-with` condition match type.
`x-amz-*`	See POST Object (POST Object for other `x-amz-*` headers. This condition supports exact matching.

> **Note**
>
> If your toolkit adds more form fields (for example, Flash adds `filename`), you must add them to the POST policy document. If you can control this functionality, prefix `x-ignore-` to the field so Amazon S3 ignores the feature and it won't affect future versions of this feature.

Character Escaping

Characters that must be escaped within a POST policy document are described in the following table.

Escape Sequence	Description
\\	Backslash
\$	Dollar symbol
\b	Backspace
\f	Form feed
\n	New line
\r	Carriage return
\t	Horizontal tab
\v	Vertical tab
\u*xxxx*	All Unicode characters

Now that you are acquainted with forms and policies, and understand how signing works, you can try a POST upload example. You need to write the code to calculate the signature. The example provides a sample form, and a POST policy that you can use to test your signature calculations. For more information, see Example: Browser-Based Upload using HTTP POST (Using AWS Signature Version 4).

Example: Browser-Based Upload using HTTP POST (Using AWS Signature Version 4)

This section shows an example of using an HTTP POST request to upload content directly to Amazon S3.

For more information on Signature Version 4, see Signature Version 4 Signing Process.

Uploading a File to Amazon S3 Using HTTP POST

This example provides a sample POST policy and a form that you can use to upload a file. The topic uses the example policy and fictitious credentials to show you the workflow and resulting signature and policy hash. You can use this data as test suite to verify your signature calculation code.

The example uses the following example credentials the signature calculations. You can use these credentials to verify your signature calculation code. However, you must then replace these with your own credentials when sending requests to AWS.

Parameter	Value
AWSAccessKeyId	AKIAIOSFODNN7EXAMPLE
AWSSecretAccessKey	wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY

Sample Policy and Form

The following POST policy supports uploads to Amazon S3 with specific conditions.

```
{ "expiration": "2015-12-30T12:00:00.000Z",
  "conditions": [
    {"bucket": "sigv4examplebucket"},
    ["starts-with", "$key", "user/user1/"],
    {"acl": "public-read"},
    {"success_action_redirect": "http://sigv4examplebucket.s3.amazonaws.com/
successful_upload.html"},
    ["starts-with", "$Content-Type", "image/"],
    {"x-amz-meta-uuid": "14365123651274"},
```

```
    {"x-amz-server-side-encryption": "AES256"},
    ["starts-with", "$x-amz-meta-tag", ""],

    {"x-amz-credential": "AKIAIOSFODNN7EXAMPLE/20151229/us-east-1/s3/aws4_request"},
    {"x-amz-algorithm": "AWS4-HMAC-SHA256"},
    {"x-amz-date": "20151229T000000Z" }
  ]
}
```

This POST policy sets the following conditions on the request:

- The upload must occur before noon UTC on December 30, 2015.
- The content can be uploaded only to the `sigv4examplebucket`. The bucket must be in the region that you specified in the credential scope (`x-amz-credential` form parameter), because the signature you provided is valid only within this scope.
- You can provide any key name that starts with `user/user1`. For example, `user/user1/MyPhoto.jpg`.
- The ACL must be set to `public-read`.
- If the upload succeeds, the user's browser is redirected to `http://sigv4examplebucket.s3.amazonaws.com/successful_upload.html`.
- The object must be an image file.
- The `x-amz-meta-uuid` tag must be set to `14365123651274`.
- The `x-amz-meta-tag` can contain any value.

The following is a Base64-encoded version of this POST policy. You use this value as your StringToSign in signature calculation.


```
eyAiZXhwaXJhdGlvbiI6ICIyMDE1LTEyLTMwVDEyOjAwOjAwLjAwMFoiLA0KICAiY29uZGl0aW9ucyI6IFsNCiAgICB7ImJ
```


When you copy/paste the preceding policy, it should have carriage returns and new lines for your computed hash to match this value (ie. ASCII text, with CRLF line terminators).

Using example credentials to create a signature, the signature value is as follows (in signature calculation, the date is same as the `x-amz-date` in the policy (20151229):

```
8afdbf4008c03f22c2cd3cdb72e4afbb1f6a588f3255ac628749a66d7f09699e
```

The following example form specifies the preceding POST policy and supports a POST request to the `sigv4examplebucket`. Copy/paste the content in a text editor and save it as exampleform.html. You can then upload image files to the specific bucket using the exampleform.html. Your request will succeed if the signature you provide matches the signature Amazon S3 calculates.

> **Note**
>
> You must update the bucket name, dates, credential, policy, and signature with valid values for this to successfully upload to S3.

```
<html>
  <head>

    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />

  </head>
  <body>

  <form action="http://sigv4examplebucket.s3.amazonaws.com/" method="post"
 enctype="multipart/form-data">
    Key to upload:
    <input type="input"  name="key" value="user/user1/${filename}" /><br />
    <input type="hidden" name="acl" value="public-read" />
    <input type="hidden" name="success_action_redirect" value="http://
sigv4examplebucket.s3.amazonaws.com/successful_upload.html" />
    Content-Type:
    <input type="input"  name="Content-Type" value="image/jpeg" /><br />
    <input type="hidden" name="x-amz-meta-uuid" value="14365123651274" />
    <input type="hidden" name="x-amz-server-side-encryption" value="AES256" />
    <input type="text"   name="X-Amz-Credential" value="AKIAIOSFODNN7EXAMPLE/20151229/
us-east-1/s3/aws4_request" />
    <input type="text"   name="X-Amz-Algorithm" value="AWS4-HMAC-SHA256" />
    <input type="text"   name="X-Amz-Date" value="20151229T000000Z" />

    Tags for File:
    <input type="input"  name="x-amz-meta-tag" value="" /><br />
    <input type="hidden" name="Policy" value='<Base64-encoded policy string>' />
    <input type="hidden" name="X-Amz-Signature" value="<signature-value>" />
    File:
    <input type="file"   name="file" /> <br />
```

```
    <!-- The elements after this will be ignored -->
    <input type="submit" name="submit" value="Upload to Amazon S3" />
  </form>

</html>
```

The post parameters are case insensitive. For example, you can specify `x-amz-signature` or `X-Amz-Signature`.

Browser-based uploads to Amazon S3 using the AWS Amplify library

This section describes how to upload files to Amazon S3 using the AWS Amplify JavaScript library.

For information about setting up the AWS Amplify library, see AWS Amplify Installation and Configuration.

Using the AWS Amplify JavaScript library to Upload Files to Amazon S3

The AWS Amplify library `Storage` module gives a simple browser-based upload mechanism for managing user content in public or private Amazon S3 storage.

Example : AWS Amplify Manual Setup

The following example shows the manual setup for using the AWS Amplify Storage module. The default implementation of the Storage module uses Amazon S3.

```
import Amplify from 'aws-amplify';
Amplify.configure(
    Auth: {
        identityPoolId: 'XX-XXXX-X:XXXXXXXX-XXXX-1234-abcd-1234567890ab', //REQUIRED -
 Amazon Cognito Identity Pool ID
        region: 'XX-XXXX-X', // REQUIRED - Amazon Cognito Region
        userPoolId: 'XX-XXXX-X_abcd1234', //OPTIONAL - Amazon Cognito User Pool ID
        userPoolWebClientId: 'XX-XXXX-X_abcd1234', //OPTIONAL - Amazon Cognito Web
 Client ID
    },
    Storage: {
        bucket: '', //REQUIRED -  Amazon S3 bucket
        region: 'XX-XXXX-X', //OPTIONAL -  Amazon service region
    }
```

```
);
```

Example : Put data into Amazon S3

The following example shows how to put public data into Amazon S3.

```
Storage.put('test.txt', 'Hello')
        .then (result => console.log(result))
        .catch(err => console.log(err));
```

The following example shows how to put private data into Amazon S3.

```
Storage.put('test.txt', 'Private Content', {
        level: 'private',
        contentType: 'text/plain'
    })
    .then (result => console.log(result))
    .catch(err => console.log(err));
```

For more information about using the AWS Amplify Storage module, see AWS Amplify Storage.

More Info

AWS Amplify Quick Start

Common request headers

The following table describes headers that can be used by various types of Amazon S3 REST requests.

Header Name	Description
`Authorization`	The information required for request authentication. For more information, go to The Authentication Header in the *Amazon Simple Storage Service Developer Guide*. For anonymous requests this header is not required.
`Access-Control-Request-Method`	A list of HTTP methods that is sent as a pre-flight CORS request. If the pre-flight CORS evaluation is successful, then the specified methods are allowed to be used in the following CORS request.
`Content-Length`	Length of the message (without the headers) according to RFC 2616. This header is required for PUTs and operations that load XML, such as logging and ACLs.
`Content-Type`	The content type of the resource in case the request has content in the body. Example: `text/plain`
`Content-MD5`	The base64 encoded 128-bit MD5 digest of the message (without the headers) according to RFC 1864. This header can be used as a message integrity check to verify that the data is the same data that was originally sent. Although it is optional, we recommend using the Content-MD5 mechanism as an end-to-end integrity check. For more information about REST request authentication, go to REST Authentication in the *Amazon Simple Storage Service Developer Guide*.
`Date`	The date that can be used to create the signature contained in the `Authorization` header. If the `Date` header is to be used for signing it must be specified in the ISO 8601 basic format. In this case, the `x-amz-date` header is not needed.

Header Name	Description
	Note that when `x-amz-date` is present, it always overrides the value of the `Date` header. If the Date header is not used for signing, it can be one of the full date formats specified by RFC 2616, section 3.3. For example, the date/time `Wed, 01 Mar 2006 12:00:00 GMT` is a valid date/time header for use with Amazon S3. If you are using the `Date` header for signing, then it must be in the ISO 8601 basic `YYYYMMDD'T'HHMMSS'Z'` format. If `Date` is specified but is not in ISO 8601 basic format, then you must also include the `x-amz-date` header. If `Date` is specified in ISO 8601 basic format, then this is sufficient for signing requests and you do not need the `x-amz-date` header. For more information, see Handling Dates in Signature Version 4 in the *Amazon Web Services Glossary*.
`Expect`	When your application uses 100-continue, it does not send the request body until it receives an acknowledgment. If the message is rejected based on the headers, the body of the message is not sent. This header can be used only if you are sending a body. Valid Values: 100-continue
`Host`	For path-style requests, the value is `s3.amazonaws.com`. For virtual-style requests, the value is `BucketName.s3.amazonaws.com`. For more information, go to Virtual Hosting in the *Amazon Simple Storage Service User Guide*. This header is required for HTTP 1.1 (most toolkits add this header automatically); optional for HTTP/1.0 requests.
`Origin`	An endpoint that specifies the server name of the initial requester.

Header Name	Description
`x-amz-content-sha256`	When using signature version 4 to authenticate request, this header provides a hash of the request payload. For more information see Signature Calculations for the Authorization Header: Transferring Payload in a Single Chunk (AWS Signature Version 4). When uploading object in chunks, you set the value to `STREAMING-AWS4-HMAC-SHA256-PAYLOAD` to indicate that the signature covers only headers and that there is no payload. For more information, see Signature Calculations for the Authorization Header: Transferring Payload in Multiple Chunks (Chunked Upload) (AWS Signature Version 4).
`x-amz-date`	The date used to create the signature in the Authorization header. The format must be ISO 8601 basic in the `YYYYMMDD'T'HHMMSS'Z'` format. For example, the date/time `20170210T120000Z` is a valid `x-amz-date` for use with Amazon S3. `x-amz-date` is optional for all requests; it can be used to override the date used for signing requests. If the `Date` header is specified in the ISO 8601 basic format, then `x-amz-date` is not needed. When `x-amz-date` is present, it always overrides the value of the `Date` header. For more information, see Handling Dates in Signature Version 4 in the *Amazon Web Services Glossary*.

Header Name	Description
`x-amz-security-token`	This header can be used in the following scenarios: • To provide security tokens for Amazon DevPay operation s - Each request that uses Amazon DevPay requires two `x-amz-security-token` headers: one for the product token and one for the user token. When Amazon S3 receives an authenticated request, it compares the computed signature with the provided signature. Improperly formatted multi-value headers that are used to calculate a signature can cause authentication issues. • To provide a security token when using temporary security credentials - When making requests using temporary security credentials that you obtained from IAM, you must provide a security token by using this header. To learn more about temporary security credentials, see Making Requests. This header is required for requests that use Amazon DevPay and requests that are signed by using temporary security credentials.

Common response headers

The following table describes response headers that are common to most Amazon S3 responses.

Name	Description
`Access-Control-Allow-Credentials`	A Boolean that determines if the server allows CORS requests to contain credentials. If the `Access-Control-Allow-Origin` request header is set to `'*'` then the `Access-Control-Allow-Credentials` response header will be omitted, else it is set to `true` when CORS evaluation is successful. Type: Boolean Default: None
`Access-Control-Allow-Headers`	A list of HTTP headers allowed for your CORS requests. The `Access-Control-Allow-Headers` response header is returned for successful CORS evaluations and explicitly specifies all allowed `Access-Control-Request-Headers` . Type: String Default: None
`Access-Control-Allow-Methods`	A list that specifies which HTTP methods are allowed. Amazon S3 will only allow CORS requests from allowed CORS methods when the CORS evaluation is successful. Type: String Default: None
`Access-Control-Allow-Origin`	The location of the allowed origin. Amazon S3 will only send the `Access-Control-Allow-Origin` response header when the CORS evaluation is successful. If the request origin matches `'*'` in the CORS configuration's allowed origins then the `'*'` is returned in this response header instead of the original origin.

Name	Description
	Type: String Default: None
`Access-Control-Expose-Headers`	A list that allows a server to identify a response header that exposes access for applications when the CORS evaluation is successful. Type: String Default: None
`Access-Control-Max-Age`	The time in seconds that your browser can cache the response for a CORS pre-flight request as identified by the resource, the HTTP method, and the origin. The `Access-Control-Max-Age` response header is only returned when the CORS evaluation is successful. Type: Integer Default: None
`Vary`	A list that indicates which request headers the CORS evaluation result varies on. The `Vary` response header is only returned when the CORS evaluation is successful. Type: String Default: None
`Content-Length`	The length in bytes of the body in the response. Type: String Default: None
`Content-Type`	The MIME type of the content. For example, `Content-Type: text/html; charset=utf-8` . Type: String Default: None

Name	Description
`Connection`	A value that specifies whether the connection to the server is open or closed. Type: Enum Valid Values: `open` | `close` Default: None
`Date`	The date and time that Amazon S3 responded; for example, Wed, 01 Mar 2006 12:00:00 GMT. Type: String Default: None

`ETag`	The entity tag (ETag) represents a specific version of the object. The ETag reflects changes only to the contents of an object, not its metadata. The ETag might or might not be an MD5 digest of the object data. Whether or not it is depends on how the object was created and how it is encrypted, as follows:
	
	• Objects created through the AWS Management Console or by the PUT Object, `POST Object`, or `Copy` operation:
	  • Objects that are plaintext or encrypted by server-side encryption with Amazon S3 managed keys (SSE-S3) have ETags that are an MD5 digest of their data.
	  • Objects encrypted by server-side encryption with customer-provided keys (SSE-C) or AWS Key Management Service (AWS KMS) keys (SSE-KMS) have ETags that are not an MD5 digest of their object data.
	• Objects created by either the Multipart Upload or Upload Part Copy operation have ETags that are not MD5 digests, regardless of the method of encryption.
	
	Type: String

Name	Description
`Server`	The name of the server that created the response. Type: String Default: `AmazonS3`
`x-amz-delete-marker`	A value that specifies whether the object returned was (`true`) or was not (`false`) a delete marker. Type: Boolean Valid Values: `true` | `false` Default: false
`x-amz-id-2`	A special token that is used together with the `x-amz-request-id` header to help AWS troubleshoot problems. For information about Support using these request IDs, see Troubleshooting Amazon S3. Type: String Default: None
`x-amz-request-id`	A value created by Amazon S3 that uniquely identifies the request. This value is used together with the `x-amz-id-2` header to help AWS troubleshoot problems. For information about Support using these request IDs, see Troubleshooting Amazon S3. Type: String Default: None
`x-amz-server-side-encryption`	The server-side encryption algorithm used when storing this object in Amazon S3 (for example, `AES256`, `aws:kms`). Valid Values: `AES256` | `aws:kms`

Name	Description
`x-amz-version-id`	The version of the object. When you enable versioning, Amazon S3 generates a random number for objects added to a bucket. The value is UTF-8 encoded and URL ready. When you PUT an object in a bucket where versioning has been suspended, the version ID is always `null`. Type: String Valid Values: `null` | any URL-ready, UTF-8 encoded string Default: null

Error responses

This section provides reference information about Amazon S3 errors.

> **Note**
>
> - In general, S3 bucket owners are billed for requests with HTTP `200 OK` successful responses and HTTP `4XX` client error responses. Bucket owners aren't billed for HTTP `5XX` server error responses, such as HTTP `503 Slow Down` errors. For more information on S3 error codes under HTTP `3XX` and `4XX` status codes that aren't billed, see Billing for Amazon S3 error responses in the Amazon S3 User Guide. For more information about billing charges if your bucket is configured as a Requester Pays bucket, see How Requester Pays charges work in the Amazon S3 User Guide.
> - SOAP support over HTTP is deprecated, but SOAP is still available over HTTPS. New Amazon S3 features are not supported for SOAP. Instead of using SOAP, we recommend that you use either the REST API or the AWS SDKs.

Topics

- REST error responses
- List of error codes
- List of SELECT Object Content Error Codes
- List of Replication-related error codes
- List of Tagging-related error codes
- List of Amazon S3 on Outposts error codes
- List of Amazon S3 Storage Lens error codes
- List of Amazon S3 Object Lambda error codes
- List of Amazon S3 asynchronous error codes
- List of Amazon S3 Access Grants error codes
- List of Amazon FSx-related error codes
- Amazon S3 error best practices

REST error responses

When an error occurs, the header information contains the following:

- Content-Type: application/xml
- An appropriate 3xx, 4xx, or 5xx HTTP status code

The body of the response also contains information about the error. The following sample error response shows the structure of response elements common to all REST error responses.

```
<?xml version="1.0" encoding="UTF-8"?>
<Error>
  <Code>NoSuchKey</Code>
  <Message>The resource you requested does not exist</Message>
  <Resource>/mybucket/myfoto.jpg</Resource>
  <RequestId>4442587FB7D0A2F9</RequestId>
</Error>
```

The following table explains the REST error response elements.

Name	Description
Code	The error code is a string that uniquely identifies an error condition. It is meant to be read and understood by programs that detect and handle errors by type. For more information, see List of error codes. Type: String Ancestor: `Error`
`Error`	Container for all error elements. Type: Container Ancestor: None
`Message`	The error message contains a generic description of the error condition in English. It is intended for a human audience. Simple programs display the message directly to the end user if they encounter an error condition they

Name	Description
	don't know how or don't care to handle. Sophisticated programs with more exhaustive error handling and proper internationalization are more likely to ignore the error message. Type: String Ancestor: `Error`
`RequestId`	ID of the request associated with the error. Type: String Ancestor: `Error`
`Resource`	The bucket or object that is involved in the error. Type: String Ancestor: `Error`

Many error responses contain additional structured data meant to be read and understood by a developer diagnosing programming errors. For example, if you send a Content-MD5 header with a REST PUT request that doesn't match the digest calculated on the server, you receive a `BadDigest` error. The error response also includes as detail elements the digest that the server calculated, and the digest that you told the server to expect. During development, you can use this information to diagnose the error. In production, a well-behaved program might include this information in its error log.

For information about general response elements, go to Error responses.

List of error codes

The following table lists Amazon S3 error codes.

Error code	Description	HTTP status code	SOAP fault code prefix
AccessControlListNotSupported	The bucket does not allow ACLs.	400 Bad Request	Client
AccessDenied	Access Denied	403 Forbidde	Client
AccessPointAlreadyOwnedByYou	An access point with an identical name already exists in your account.	409 Conflict	Client
AccountProblem	There is a problem with your AWS account that prevents the operation from completing successfully. For further assistance, see Contact Us.	403 Forbidde	Client
AllAccessDisabled	All access to this Amazon S3 resource has been disabled. For further assistance, see Contact Us.	403 Forbidde	Client
AmbiguousGrantByEmailAddress	The email address that you provided is associated with more than one account.	400 Bad Request	Client
AuthorizationHeaderMalformed	The authorization header that you provided is not valid.	400 Bad Request	N/A
AuthorizationQueryParametersError	The authorization query parameters that you provided are not valid.	400 Bad Request	N/A

Error code	Description	HTTP status code	SOAP fault code prefix
`BadDigest`	The Content-MD5 or checksum value that you specified did not match what the server received.	`400 Bad Request`	Client
`BucketAlreadyExists`	The requested bucket name is not available. The bucket namespace is shared by all users of the system. Specify a different name and try again.	`409 Conflict`	Client
`BucketAlreadyOwnedByYou`	The bucket that you tried to create already exists, and you own it. Amazon S3 returns this error in all AWS Regions except in the US East (N. Virginia) Region (us-east-1). For legacy compatibility, if you re-create an existing bucket that you already own in us-east-1, Amazon S3 returns `200` OK and resets the bucket access control lists (ACLs). For Amazon S3 on Outposts, the bucket that you tried to create already exists in your Outpost and you own it.	`409 Conflict` (in all Regions except us-east-1)	Client
`BucketHasAccessPointsAttached`	The bucket you tried to delete has access points attached. Delete your access points before deleting your bucket.	`400 Bad Request`	Client
`BucketNotEmpty`	The bucket that you tried to delete is not empty.	`409 Conflict`	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`ClientTokenConflict`	Your Multi-Region Access Point idempotency token was already used for a different request.	`409 Conflict`	Client
`ConnectionClosedBy Requester`	Returned to the original caller when an error is encountered while reading the WriteGetObjectResp onse body.	`400 Bad Request`	Client
`ConditionalRequestConflict`	A conflicting operation occurred. If using `PutObject` you can retry the request. If using multipart upload you should initiate another `CreateMultipartUpload` request and re-upload each part.	`409 Conflict`	Client
`CredentialsNotSupported`	This request does not support credentials.	`400 Bad Request`	Client
`CrossLocationLoggi ngProhibited`	Cross-Region logging is not allowed. Buckets in one AWS Region cannot log information to a bucket in another Region.	`403 Forbidde`	Client
`DeviceNotActiveError`	The device is not currently active.	`400 Bad Request`	Client
`EndpointNotFound`	Direct requests to the correct endpoint.	`400 Bad Request`	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`EntityTooSmall`	Your proposed upload is smaller than the minimum allowed object size.	`400 Bad Request`	Client
`EntityTooLarge`	Your proposed upload exceeds the maximum allowed object size. For more information, see Amazon Simple Storage Service endpoints and quotas in the *AWS General Reference*.	`400 Bad Request`	Client
`ExpiredToken`	The provided token has expired.	`400 Bad Request`	Client
`IllegalLocationConstraintException`	This error might occur for the following reasons: • You are trying to access a bucket from a different Region than where the bucket exists. • You attempt to create a bucket with a location constraint that corresponds to a different region than the regional endpoint the request was sent to.	`400 Bad Request`	Client
`IllegalVersioningConfigurationException`	The versioning configuration specified in the request is not valid.	`400 Bad Request`	Client

Error code	Description	HTTP status code	SOAP fault code prefix
IncompleteBody	You did not provide the number of bytes specified by the Content-Length HTTP header.	400 Bad Request	Client
IncorrectEndpoint	The specified bucket exists in another Region. Direct requests to the correct endpoint.	400 Bad Request	Client
IncorrectNumberOfFilesInPostRequest	POST requires exactly one file upload per request.	400 Bad Request	Client
InlineDataTooLarge	The inline data exceeds the maximum allowed size.	400 Bad Request	Client
InternalError	An internal error occurred. Try again.	500 Internal Server Error	Server
InvalidAccessKeyId	The AWS access key ID that you provided does not exist in our records.	403 Forbidde	Client
InvalidAccessPoint	The specified access point name or account is not valid.	400 Bad Request	Client
InvalidAccessPointAliasError	The specified access point alias name is not valid.	400 Bad Request	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`InvalidAddressingHeader`	You must specify the Anonymous role.	N/A	Client
`InvalidArgument`	This error might occur for the following reasons: • A ListBuckets request is made to a Regional endpoint that is different from the Region specified in the `bucket-region` parameter. • The specified argument was not valid. • The request was missing a required header. • The specified argument was incomplete or in the wrong format. • The specified argument must have a length greater than or equal to 3.	`400 Bad Request`	Client
`InvalidBucketAclWithObjectOwnership`	Bucket cannot have ACLs set with ObjectOwnership's BucketOwnerEnforced setting.	`400 Bad Request`	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`InvalidBucketName`	The specified bucket is not valid.	`400 Bad Request`	Client
`InvalidBucketOwnerAWSAccountID`	The value of the expected bucket owner parameter must be an AWS account ID.	`400 Bad Request`	Client
`InvalidBucketState`	The request is not valid for the current state of the bucket.	`409 Conflict`	Client
`InvalidDigest`	The Content-MD5 or checksum value that you specified is not valid.	`400 Bad Request`	Client
`InvalidEncryptionAlgorithmError`	The encryption request that you specified is not valid. The valid value is `AES256`.	`400 Bad Request`	Client
`InvalidHostHeader`	The host headers provided in the request used the incorrect style addressing.	`400 Bad Request`	Client
`InvalidHttpMethod`	The request is made using an unexpected HTTP method.	`400 Bad Request`	Client
`InvalidLocationConstraint`	The specified location (Region) constraint is not valid. For more information about selecting a Region for your buckets, see Buckets overview.	`400 Bad Request`	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`InvalidObjectState`	The operation is not valid for the current state of the object.	`403 Forbidde`	Client
`InvalidPart`	One or more of the specified parts could not be found. The part might not have been uploaded, or the specified entity tag might not have matched the part's entity tag.	`400 Bad Request`	Client
`InvalidPartOrder`	The list of parts was not in ascending order. The parts list must be specified in order by part number.	`400 Bad Request`	Client
`InvalidPayer`	All access to this object has been disabled. For further assistance, see Contact Us.	`403 Forbidde`	Client
`InvalidPolicyDocument`	The content of the form does not meet the conditions specified in the policy document.	`400 Bad Request`	Client
InvalidRange	The requested range cannot be satisfied.	416 Requested Range Not Satisfiab le	Client

Error code	Description	HTTP status code	SOAP fault code prefix
InvalidRegion	You've attempted to create a Multi-Region Access Point in a Region that you haven't opted in to.	403 Forbidden	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`InvalidRequest`	This error might occur for the following reasons: • An unpaginated ListBuckets request is made from an account that has an approved general purpose bucket quota higher than 10,000. You must make paginated requests to list the buckets in an account with more than 10,000 buckets. • The request is using the wrong signature version. Use `AWS4-HMAC-SHA256` (Signature Version 4). • An access point can be created only for an existing bucket. • The access point is not in a state where it can be deleted. • An access point can be listed only for an existing bucket. • The next token is not valid. • At least one action must be specified in a lifecycle rule. •	`400 Bad Request`	Client

Error code	Description	HTTP status code	SOAP fault code prefix
	At least one lifecycle rule must be specified. • The number of lifecycle rules must not exceed the allowed limit of 1000 rules. • The range for the `MaxResults` parameter is not valid. • SOAP requests must be made over an HTTPS connection. • Amazon S3 Transfer Accelerat ion is not supported for buckets with non-DNS compliant names. • Amazon S3 Transfer Accelerat ion is not supported for buckets with periods (.) in their names. • The Amazon S3 Transfer Acceleration endpoint supports only virtual style requests. • Amazon S3 Transfer Acceleration is not configured on this bucket. • Amazon S3 Transfer Acceleration is disabled on this bucket. •		

Error code	Description	HTTP status code	SOAP fault code prefix
	Amazon S3 Transfer Acceleration is not supported on this bucket. For assistance, contact Support. • Amazon S3 Transfer Acceleration cannot be enabled on this bucket. For assistance, contact Support. • Conflicting values provided in HTTP headers and query parameters. • Conflicting values provided in HTTP headers and POST form fields. • CopyObject request made on objects larger than 5GB in size.		
`InvalidSessionException`	Returned if the session doesn't exist anymore because it timed out or expired.	`400 Bad Request`	Client
`InvalidSignature`	The request signature that the server calculated does not match the signature that you provided. Check your AWS secret access key and signing method. For more information, see Signing and authenticating REST requests.	`400 Bad Request`	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`InvalidSecurity`	The provided security credentials are not valid.	`403 Forbidde`	Client
`InvalidSOAPRequest`	The SOAP request body is not valid.	`400 Bad Request`	Client
`InvalidStorageClass`	The storage class that you specified is not valid.	`400 Bad Request`	Client
`InvalidTargetBucketForLogging`	The target bucket for logging either does not exist, is not owned by you, or does not have the appropriate grants for the log-delivery group.	`400 Bad Request`	Client
`InvalidToken`	The provided token is malformed or otherwise not valid.	`400 Bad Request`	Client
`InvalidURI`	The specified URI couldn't be parsed.	`400 Bad Request`	Client
`KeyTooLongError`	Your key is too long.	`400 Bad Request`	Client
`KMS.DisabledException`	The request was rejected because the specified KMS key is not enabled.	`400 Bad Request`	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`KMS.InvalidKeyUsageException`	The request was rejected for one of the following reasons: • The KeyUsage value of the KMS key is incompatible with the API operation. • The encryption algorithm or signing algorithm specified for the operation is incompatible with the type of key material in the KMS key (KeySpec). For encrypting, decrypting, re-encrypting, and generating data keys, the KeyUsage must be ENCRYPT_DECRYPT. For signing and verifying messages, the KeyUsage must be SIGN_VERIFY. For generating and verifying message authentication codes (MACs), the KeyUsage must be GENERATE_VERIFY_MAC. For deriving key agreement secrets, the KeyUsage must be KEY_AGREEMENT. To find the KeyUsage of a KMS key, use the DescribeKey operation. To find the encryption or signing algorithms supported for a	`400 Bad Request`	Client

Error code	Description	HTTP status code	SOAP fault code prefix
	particular KMS key, use the DescribeKey operation.		
`KMS.KMSInvalidStateException`	The request was rejected because the state of the specified resource is not valid for this request. This exception means one of the following: • The key state of the KMS key is not compatible with the operation. To find the key state, use the DescribeKey operation. For more information about which key states are compatible with each KMS operation, see Key states of AWS KMS keys in the *AWS Key Management Service Developer Guide*. • For cryptographic operations on KMS keys in custom key stores, this exception represents a general failure with many possible causes. To identify the cause, see the error message that accompanies the exception.	`400 Bad Request`	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`KMS.NotFoundException`	The request was rejected because the specified entity or resource could not be found.	`400 Bad Request`	Client
`MalformedACLError`	The ACL that you provided was not well formed or did not validate against our published schema.	`400 Bad Request`	Client
`MalformedPOSTRequest`	The body of your POST request is not well-formed multipart/form-data.	`400 Bad Request`	Client
`MalformedXML`	The XML that you provided was not well formed or did not validate against our published schema.	`400 Bad Request`	Client
`MaxMessageLengthExceeded`	Your request was too large.	`400 Bad Request`	Client
`MaxPostPreDataLengthExceededError`	Your POST request fields preceding the upload file were too large.	`400 Bad Request`	Client
`MetadataTooLarge`	Your metadata headers exceed the maximum allowed metadata size.	`400 Bad Request`	Client
`MethodNotAllowed`	The specified method is not allowed against this resource.	`405 Method Not Allowed`	Client

Error code	Description	HTTP status code	SOAP fault code prefix
MissingAttachment	A SOAP attachment was expected, but none was found.	400 Bad Request	Client
MissingAuthenticationToken	The request was not signed.	403 Forbidden	Client
MissingContentLength	You must provide the Content-Length HTTP header.	411 Length Required	Client
MissingRequestBodyError	You sent an empty XML document as a request.	400 Bad Request	Client
MissingSecurityElement	The SOAP 1.1 request is missing a security element.	400 Bad Request	Client
MissingSecurityHeader	Your request is missing a required header.	400 Bad Request	Client
NoLoggingStatusForKey	There is no such thing as a logging status subresource for a key.	400 Bad Request	Client
NoSuchAsyncRequest	The specified request was not found.	404 Not Found	Client
NoSuchBucket	The specified bucket does not exist.	404 Not Found	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`NoSuchBucketPolicy`	The specified bucket does not have a bucket policy.	404 Not Found	Client
`NoSuchCORSConfiguration`	The specified bucket does not have a CORS configuration.	404 Not Found	Client
`NoSuchKey`	The specified key does not exist.	404 Not Found	Client
`NoSuchLifecycleConfiguration`	The specified lifecycle configuration does not exist.	404 Not Found	Client
`NoSuchMultiRegionAccessPoint`	The specified Multi-Region Access Point does not exist.	404 Not Found	Client
`NoSuchObjectLockConfiguration`	The specified object does not have an ObjectLock configuration.	404 Not Found	Client
`NoSuchWebsiteConfiguration`	The specified bucket does not have a website configuration.	404 Not Found	Client
`NoSuchTagSet`	The specified tag does not exist.	404 Not Found	Client

Error code	Description	HTTP status code	SOAP fault code prefix
NoSuchUpload	The specified multipart upload does not exist. The upload ID might not be valid, or the multipart upload might have been aborted or completed.	404 Not Found	Client
NoSuchVersion	The version ID specified in the request does not match an existing version.	404 Not Found	Client
NotDeviceOwnerError	The device that generated the token is not owned by the authenticated user.	400 Bad Request	Client
NotImplemented	A header that you provided implies functionality that is not implemented.	501 Not Implemented	Server
NotModified	The resource was not changed.	304 Not Modified	Server
NoTransformationDefined	No transformation found for this Object Lambda Access Point.	404 Not Found	Client
NotSignedUp	Your account is not signed up for the Amazon S3 service. You must sign up before you can use Amazon S3. You can sign up at the following URL: https://aws.amazon.com/s3	403 Forbidde	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`ObjectLockConfigurationNotFoundError`	The Object Lock configuration does not exist for this bucket.	`404 Not Found`	Client
`OwnershipControlsNotFoundError`	The bucket ownership controls were not found.	`404 Not Found`	Client
`OperationAborted`	A conflicting conditional operation is currently in progress against this resource. Try again.	`409 Conflict`	Client
`PermanentRedirect`	The bucket that you are attempting to access must be addressed using the specified endpoint. Send all future requests to this endpoint.	`301 Moved Permanently`	Client
`PermanentRedirectControlError`	The API operation you are attempting to access must be addressed using the specified endpoint. Send all future requests to this endpoint.	`301 Moved Permanently`	Client
`PreconditionFailed`	At least one of the preconditions that you specified did not hold.	`412 Precondition Failed`	Client
`Redirect`	Temporary redirect. You are being redirected to the bucket while the Domain Name System (DNS) server is being updated.	`307 Temporar Redirect`	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`RequestHeaderSectionTooLarge`	The request header and query parameters used to make the request exceed the maximum allowed size.	`400 Bad Request`	Client
`RequestIsNotMultiPartContent`	A bucket POST request must be of the enclosure-type multipart/form-data.	`412 Precondition Failed`	Client
`RequestTimeout`	Your socket connection to the server was not read from or written to within the timeout period.	`400 Bad Request`	Client
`RequestTimeTooSkewed`	The difference between the request time and the server's time is too large.	`403 Forbidde`	Client
`RequestTorrentOfBucketError`	Requesting the torrent file of a bucket is not permitted.	`400 Bad Request`	Client
`ResponseInterrupted`	Returned to the original caller when an error is encountered while reading the WriteGetObjectResponse body.	`400 Bad Request`	Client
`RestoreAlreadyInProgress`	The object restore is already in progress.	`409 Conflict`	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`ServerSideEncryptionConfigurationNotFoundError`	The server-side encryption configuration was not found.	`400 Bad Request`	Client
`ServiceUnavailable`	Service is unable to handle request.	`503 Service Unavailable`	Server
`SignatureDoesNotMatch`	The request signature that the server calculated does not match the signature that you provided. Check your AWS secret access key and signing method. For more information, see REST Authentication and SOAP Authentication.	`403 Forbidden`	Client
`SlowDown`	Please reduce your request rate.	`503 Slow Down`	Server
`503 SlowDown`	Slow Down	`503 Slow Down`	Server
`TagPolicyException`	The tag policy does not allow the specified value for the following tag key.	`400 Bad Request`	Client
`TemporaryRedirect`	You are being redirected to the bucket while the Domain Name System (DNS) server is being updated.	`307 Temporary Redirect`	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`TokenCodeInvalidError`	The serial number and/or token code you provided is not valid.	`400 Bad Request`	Client
`TokenRefreshRequired`	The provided token must be refreshed.	`400 Bad Request`	Client
`TooManyAccessPoints`	You have attempted to create more access points than are allowed for an account. For more information, see Amazon Simple Storage Service endpoints and quotas in the *AWS General Reference*.	`400 Bad Request`	Client
`TooManyBuckets`	You have attempted to create more buckets than are allowed for an account. For more information, see Amazon Simple Storage Service endpoints and quotas in the *AWS General Reference*.	`400 Bad Request`	Client
`TooManyMultiRegionAccessPointregionsError`	You have attempted to create a Multi-Region Access Point with more Regions than are allowed for an account. For more information, see Amazon Simple Storage Service endpoints and quotas in the *AWS General Reference*.	`400 Bad Request`	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`TooManyMultiRegionAccessPoints`	You have attempted to create more Multi-Region Access Points than are allowed for an account. For more information, see Amazon Simple Storage Service endpoints and quotas in the *AWS General Reference*.	`400 Bad Request`	Client
`UnauthorizedAccessError`	Applicable in China Regions only. Returned when a request is made to a bucket that doesn't have an ICP license. For more information, see ICP Recordal.	`403 Forbidde`	Client
`UnexpectedContent`	This request contains unsupported content.	`400 Bad Request`	Client
`UnexpectedIPError`	Applicable in China Regions only. This request was rejected because the IP was unexpected.	`403 Forbidde`	Client
`UnsupportedArgument`	The request contained an unsupported argument.	`400 Bad Request`	Client
`UnsupportedSignature`	The provided request is signed with an unsupported STS Token version or the signature version is not supported.	`400 Bad Request`	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`UnresolvableGrantByEmailAddress`	The email address that you provided does not match any account on record.	`400 Bad Request`	Client
`UserKeyMustBeSpecified`	The bucket POST request must contain the specified field name. If it is specified, check the order of the fields.	`400 Bad Request`	Client
`NoSuchAccessPoint`	The specified access point does not exist.	`404 Not Found`	Client
`InvalidTag`	Your request contains tag input that is not valid. For example, your request might contain duplicate keys, keys or values that are too long, or system tags.	`400 Bad Request`	Client
`MalformedPolicy`	Your policy contains a principal that is not valid.	`400 Bad Request`	Client

List of SELECT Object Content Error Codes

> **Important**
>
> Amazon S3 Select is no longer available to new customers. Existing customers of Amazon S3 Select can continue to use the feature as usual. Learn more

The following table contains special errors that `SELECT Object Content` might return. For general information about Amazon S3 errors and a list of error codes, see Error responses.

Error code	Description	HTTP status code	SOAP fault code prefix
`AmbiguousFieldName`	The field name matches to multiple fields in the file. Check the SQL expression and the file, and try again.	400	Client
`Busy`	The service is unavailable. Try again later.	503	Client
`CastFailed`	An attempt to convert from one data type to another using `CAST` failed in the SQL expression.	400	Client
`ColumnTooLong`	The length of a column in the result is greater than `maxCharsPerColumn` of 1 MB.	400	Client
`CSVEscapingRecordDelimiter`	A quoted record delimiter was found in the file. To allow quoted record delimiters, set `AllowQuotedRecordDelimiter` to `'TRUE'`.	400	Client
`CSVParsingError`	An error occurred while parsing the CSV file. Check the file and try again.	400	Client
`CSVUnescapedQuote`	An unescaped quote was found while parsing the CSV file. To allow quoted record delimiters, set `AllowQuotedRecordDelimiter` to `'TRUE'`.	400	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`EmptyRequestBody`	The request body cannot be empty.	400	Client
`EvaluatorBindingDoesNotExist`	A column name or a path provided does not exist in the SQL expression.	400	Client
`EvaluatorInvalidArguments`	There is an incorrect number of arguments in the function call in the SQL expression.	400	Client
`EvaluatorInvalidTimestampFormatPattern`	The timestamp format string in the SQL expression is not valid.	400	Client
`EvaluatorInvalidTimestampFormatPatternSymbol`	The timestamp format pattern contains a symbol in the SQL expression that is not valid.	400	Client
`EvaluatorInvalidTimestampFormatPatternSymbolForParsing`	The timestamp format pattern contains a valid format symbol that cannot be applied to timestamp parsing in the SQL expression.	400	Client
`EvaluatorInvalidTimestampFormatPatternToken`	The timestamp format pattern contains a token in the SQL expression that is not valid.	400	Client
`EvaluatorLikePatternInvalidEscapeSequence`	An argument given to the `LIKE` expression was not valid.	400	Client
`EvaluatorNegativeLimit`	`LIMIT` must not be negative.	400	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`EvaluatorTimestampFormatPatternDuplicateFields`	The timestamp format pattern contains multiple format specifiers representing the timestamp field in the SQL expression.	400	Client
`EvaluatorTimestampFormatPatternHourClockAmPmMismatch`	The timestamp format pattern contains a 12-hour hour of day format symbol but doesn't also contain an AM/PM field, or it contains a 24-hour hour of day format specifier and contains an AM/PM field in the SQL expression.	400	Client
`EvaluatorUnterminatedTimestampFormatPatternToken`	The timestamp format pattern contains an unterminated token in the SQL expression.	400	Client
`ExpressionTooLong`	The SQL expression is too long. The maximum byte-length for an SQL expression is 256 KB.	400	Client
`ExternalEvalException`	The query cannot be evaluated. Check the file and try again.	400	Client
`IllegalSqlFunctionArgument`	An illegal argument was used in the SQL function.	400	Client
`IncorrectSqlFunctionArgumentType`	An incorrect argument type was specified in a function call in the SQL expression.	400	Client
`IntegerOverflow`	An integer overflow or underflow occurred in the SQL expression.	400	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`InternalError`	An internal error occurred.	500	Client
`InvalidCast`	An attempt to convert from one data type to another using `CAST` failed in the SQL expression.	400	Client
`InvalidColumnIndex`	The column index in the SQL expression is not valid.	400	Client
`InvalidCompressionFormat`	The file is not in a supported compression format. Only GZIP and BZIP2 are supported.	400	Client
`InvalidDataSource`	The data source type is not valid. Only CSV, JSON, and Parquet are supported.	400	Client
`InvalidDataType`	The SQL expression contains a data type that is not valid.	400	Client
`InvalidExpressionType`	The `ExpressionType` value is not valid. Only SQL expressions are supported.	400	Client
`InvalidFileHeaderInfo`	The `FileHeaderInfo` value is not valid. Only `NONE`, `USE`, and `IGNORE` are supported.	400	Client
`InvalidJsonType`	The `JsonType` value is not valid. Only `DOCUMENT` and `LINES` are supported.	400	Client
`InvalidKeyPath`	The key path in the SQL expression is not valid.	400	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`InvalidQuoteFields`	The `QuoteFields` value is not valid. Only `ALWAYS` and `ASNEEDED` are supported.	400	Client
`InvalidRequestParameter`	The value of a parameter in the `SelectRequest` element is not valid. Check the service API documentation and try again.	400	Client
`InvalidScanRange`	The provided scan range is not valid.	400	Client
`InvalidTableAlias`	The SQL expression contains a table alias that is not valid.	400	Client
`InvalidTextEncoding`	The encoding type is not valid. Only UTF-8 encoding is supported.	400	Client
`JSONParsingError`	An error occurred while parsing the JSON file. Check the file and try again.	400	Client
`LexerInvalidChar`	The SQL expression contains a character that is not valid.	400	Client
`LexerInvalidIONLiteral`	The SQL expression contains an operator that is not valid.	400	Client
`LexerInvalidLiteral`	The SQL expression contains an operator that is not valid.	400	Client
`LexerInvalidOperator`	The SQL expression contains a literal that is not valid.	400	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`LikeInvalidInputs`	The argument given to the `LIKE` clause in the SQL expression is not valid.	400	Client
`MalformedXML`	The XML provided was not well formed or did not validate against our published schema. Check the service documentation and try again.	400	Client
`MaxOperatorsExceeded`	Failed to parse SQL expression, try reducing complexity. For example, reduce number of operators used.	400	Client
`MethodNotAllowed`	The specified method is not allowed against this resource.	`405 Method Not Allowed`	Client
`MissingRequiredParameter`	The `SelectRequest` entity is missing a required parameter. Check the service documentation and try again.	400	Client
`MultipleDataSourcesUnsupported`	Multiple data sources are not supported.	400	Client
`NumberFormatError`	An error occurred while parsing a number. This error can be caused by underflow or overflow of integers.	400	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`ObjectSerializationConflict`	`InputSerialization` specifies more than one format (CSV, JSON, or Parquet), or `OutputSerialization` specifies more than one format (CSV or JSON). For `InputSerialization` and `OutputSerialization`, you can specify only one format for each.	400	Client
`OverMaxColumn`	The number of columns in the result is greater than the maximum allowable number of columns.	400	Client
`OverMaxParquetBlockSize`	The Parquet file is above the max row group size.	400	Client
`OverMaxRecordSize`	The length of a record in the input or result is greater than the `maxCharsPerRecord` limit of 1 MB.	400	Client
`ParquetParsingError`	An error occurred while parsing the Parquet file. Check the file and try again.	400	Client
`ParquetUnsupportedCompressionCodec`	The specified Parquet compression codec is not supported.	400	Client
`ParseAsteriskIsNotAloneInSelectList`	Other expressions are not allowed in the SELECT list when * is used without dot notation in the SQL expression.	400	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`ParseCannotMixSqbAndWildcardInSelectList`	Cannot mix `[]` and `*` in the same expression in a `SELECT` list in the SQL expression.	400	Client
`ParseCastArity`	The SQL expression `CAST` has incorrect arity.	400	Client
`ParseEmptySelect`	The SQL expression contains an empty `SELECT` clause.	400	Client
`ParseExpected2TokenTypes`	The expected token in the SQL expression was not found.	400	Client
`ParseExpectedArgumentDelimiter`	The expected argument delimiter in the SQL expression was not found.	400	Client
`ParseExpectedDatePart`	The expected date part in the SQL expression was not found.	400	Client
`ParseExpectedExpression`	The expected SQL expression was not found.	400	Client
`ParseExpectedIdentForAlias`	The expected identifier for the alias in the SQL expression was not found.	400	Client
`ParseExpectedIdentForAt`	The expected identifier for `AT` name in the SQL expression was not found.	400	Client
`ParseExpectedIdentForGroupName`	`GROUP` is not supported in the SQL expression.	400	Client
`ParseExpectedKeyword`	The expected keyword in the SQL expression was not found.	400	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`ParseExpectedLeftParenAfterCast`	The expected left parenthesis after `CAST` in the SQL expression was not found.	400	Client
`ParseExpectedLeftParenBuiltinFunctionCall`	The expected left parenthesis in the SQL expression was not found.	400	Client
`ParseExpectedLeftParenValueConstructor`	The expected left parenthesis in the SQL expression was not found.	400	Client
`ParseExpectedMember`	The SQL expression contains an unsupported use of `MEMBER`.	400	Client
`ParseExpectedNumber`	The expected number in the SQL expression was not found.	400	Client
`ParseExpectedRightParenBuiltinFunctionCall`	The expected right parenthesis character in the SQL expression was not found.	400	Client
`ParseExpectedTokenType`	The expected token in the SQL expression was not found.	400	Client
`ParseExpectedTypeName`	The expected type name in the SQL expression was not found.	400	Client
`ParseExpectedWhenClause`	The expected `WHEN` clause in the SQL expression was not found. `CASE` is not supported.	400	Client
`ParseInvalidContextForWildcardInSelectList`	The use of `*` in the `SELECT` list in the SQL expression is not valid.	400	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`ParseInvalidPathComponent`	The SQL expression contains a path component that is not valid.	400	Client
`ParseInvalidTypeParam`	The SQL expression contains a parameter value that is not valid.	400	Client
`ParseMalformedJoin`	`JOIN` is not supported in the SQL expression.	400	Client
`ParseMissingIdentAfterAt`	The expected identifier after the @ symbol in the SQL expression was not found.	400	Client
`ParseNonUnaryAgregateFunctionCall`	Only one argument is supported for aggregate functions in the SQL expression.	400	Client
`ParseSelectMissingFrom`	The SQL expression contains a missing `FROM` after the `SELECT` list.	400	Client
`ParseUnExpectedKeyword`	The SQL expression contains an unexpected keyword.	400	Client
`ParseUnexpectedOperator`	The SQL expression contains an unexpected operator.	400	Client
`ParseUnexpectedTerm`	The SQL expression contains an unexpected term.	400	Client
`ParseUnexpectedToken`	The SQL expression contains an unexpected token.	400	Client
`ParseUnknownOperator`	The SQL expression contains an operator that is not valid.	400	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`ParseUnsupportedAlias`	The SQL expression contains an unsupported use of `ALIAS`.	400	Client
`ParseUnsupportedCallWithStar`	Only `COUNT` with `(*)` as a parameter is supported in the SQL expression.	400	Client
`ParseUnsupportedCase`	The SQL expression contains an unsupported use of `CASE`.	400	Client
`ParseUnsupportedCaseClause`	The SQL expression contains an unsupported use of `CASE`.	400	Client
`ParseUnsupportedLiteralsGroupBy`	The SQL expression contains an unsupported use of `GROUP BY`.	400	Client
`ParseUnsupportedSelect`	The SQL expression contains an unsupported use of `SELECT`.	400	Client
`ParseUnsupportedSyntax`	The SQL expression contains unsupported syntax.	400	Client
`ParseUnsupportedToken`	The SQL expression contains an unsupported token.	400	Client
`TruncatedInput`	Object decompression failed. Check that the object is properly compressed using the format specified in the request.	400	Client
`UnauthorizedAccess`	You are not authorized to perform this operation.	401	Client
`UnrecognizedFormatException`	We encountered a record type that is not valid.	400	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`UnsupportedFunction`	We encountered an unsupported SQL function.	400	Client
`UnsupportedParquetType`	The specified Parquet type is not supported.	400	Client
`UnsupportedRangeHeader`	A range header is not supported for this operation.	400	Client
`UnsupportedScanRangeInput`	Scan range queries are not supported on this type of object.	400	Client
`UnsupportedSqlOperation`	We encountered an unsupported SQL operation.	400	Client
`UnsupportedSqlStructure`	We encountered an unsupported SQL structure. Check the SQL Reference.	400	Client
`UnsupportedStorageClass`	We encountered a storage class that is not supported. Only `STANDARD`, `STANDARD_IA` , and `ONEZONE_IA` storage classes are supported.	400	Client
`UnsupportedSyntax`	We encountered syntax that is not valid.	400	Client
`UnsupportedTypeForQuerying`	Your query contains an unsupported type for comparison (e.g. verifying that a Parquet INT96 column type is greater than 0).	400	Client
`ValueParseFailure`	A timestamp parse failure occurred in the SQL expression.	400	Client

List of Replication-related error codes

The following table contains special errors that the `Replication` operation might return. For general information about Amazon S3 errors and a list of error codes, see Error responses.

Error code	Description	HTTP status code	SOAP fault code prefix
`InvalidArgument`	This error might occur for the following reasons: • The `<Account>` element is empty. It must contain a valid account ID. • The AWS account specified in the `<Account>` element must match the destination bucket owner. • `ReplicationTime-Status` must contain a value. • `ReplicationTime-ReplicationTimeValue` must contain a value. • `Replication-ReplicationTimeValue-Minutes` value must be 15. • `ReplicationMetrics` must contain a `Status`. • `ReplicationMetrics` must contain an `EventThreshold`.	400	Client

Error code	Description	HTTP status code	SOAP fault code prefix
	• `EventThreshold-ReplicationTimeValue-Minutes` value must be 15. • `Rule ID` must not contain non-ASCII characters.		
`InvalidRequest`	This error might occur for the following reasons: • The `<Owner>` in `<AccessControlTranslation>` has a value, so the `<Account>` element must be specified. • The `<Account>` element is empty. It must contain a valid account ID. • The replication `destination` must contain both `ReplicationTime` and `Metrics`, or neither. • `ReplicationTime` and `ReplicationMetrics` must have the same status. • S3 Replication Time Control (S3 RTC) is not supported in this AWS Region.	400	Client

Error code	Description	HTTP status code	SOAP fault code prefix
`ReplicationConfigurationNotFoundError`	There is no replication configuration for this bucket.	404 Not Found	Client

List of Tagging-related error codes

The following table contains special errors that the `TagResource`, `UntagResource`, and `ListTagsForResource` operations might return for Storage Lens groups. For general information about general Amazon S3 errors and a list of error codes, see Error responses.

Error Code	Description	HTTP Status Code	SOAP Fault Code Prefix
`InvalidRequest`	The AWS Region in the resource ARN doesn't match the Region that's specified in this request. The AWS account in the resource ARN doesn't match the account ID that's specified in this request. The AWS partition in the resourceArn is invalid.	`400 Bad Request`	Not supported
`InvalidTag`	This request contains a tag key or value that isn't valid. Valid characters include the following: `[a-zA-Z+-=._:/]`. Tag keys can contain up to 128 characters. Tag values can contain up to 256 characters. There are duplicate tag keys in your request. User-defined tag keys can't start with `aws:`.	`400 Bad Request`	Not supported

Error Code	Description	HTTP Status Code	SOAP Fault Code Prefix
`NoSuchResource`	The specified resource doesn't exist.	`404 Not Found`	Not supported
`TagPolicyException`	The tag policy does not allow the specified value for the following tag key.	`400 Bad Request`	Not supported
`TooManyTags`	The number of tags exceeds the limit of 50 tags.	`400 Bad Request`	Not supported

List of Amazon S3 on Outposts error codes

The following table contains special errors that an Amazon S3 on Outposts operation might return. For general information about Amazon S3 errors and a list of error codes, see Error responses.

Error code	Description	HTTP status code	SOAP fault code prefix
`BadRequest`	The bucket is in a transitional state because of a previous deletion attempt. Try again later.	400 Bad Request	Not supported
`InvalidRequest`	This error might occur for the following reasons: • Amazon VPC configuration is required. • Public access is not allowed on S3 on Outposts access points.	400 Bad Request	Client
`InvalidOutpostState`	The request is not valid for the current state of the Outpost.	409 Conflict	Not supported

Error code	Description	HTTP status code	SOAP fault code prefix
`InvalidRequest`	The access point is not in a state where it can be deleted.	400 Bad Request	Not supported
`NoSuchOutpost`	The specified Outpost does not exist.	404 Not Found	Not supported
`UnsupportedOperation`	The specified action was not supported.	404 Not Found	Not supported
`InsufficientCapacity`	Insufficient capacity.	507 Insufficient Storage	Not supported

List of Amazon S3 Storage Lens error codes

The following table contains special errors that Amazon S3 Storage Lens operations might return. For general information about general Amazon S3 errors and a list of error codes, see Error responses.

Error code	Description	HTTP status code	SOAP fault code prefix
`AccessDenied`	This Region is not supported as a home Region for S3 Storage Lens.	`403 Forbidden`	Not supported
`AccountNotAuthorized`	This account not authorized to use AWS Organizations. Use your management account or delegated administrator account.	`403 Forbidden`	Not supported
`ActivityMetricsMustEnabled`	Activity metrics must be enabled.	400 Bad Request	Not supported

Error code	Description	HTTP status code	SOAP fault code prefix
`AWSOrganizationsNotInUseException`	This account is not part of your organization.	`403 Forbidden`	Not supported
`DefaultConfigurationDeleteForbidden`	The Default configuration cannot be deleted.	`403 Forbidden`	Not supported
`DuplicateStorageLensGroupARN`	There are two or more entries of the same Storage Lens group ARN in this configuration.	`400 Bad Request`	Not supported
`EmptyExcludeContainer`	This error occurs for the following reasons: • The exclude container cannot be empty. • The exclude container cannot have zero buckets. • The exclude container cannot have zero Regions.	400 Bad Request	Not supported
`EmptyExcludeElement`	You must specify a Storage Lens group with your Exclude element.	`400 Bad Request`	Not supported

Error code	Description	HTTP status code	SOAP fault code prefix
`EmptyIncludeContainer`	This error occurs for the following reasons: • The include container cannot be empty. • The include container cannot have zero buckets. • The include container cannot have zero Regions.	400 Bad Request	Not supported
`InvalidAWSOrgArn`	There is a malformed AWS Organizations ARN in the configuration.	400 Bad Request	Not supported
`EmptyIncludeElement`	You must specify a Storage Lens group with your Include element.	`400 Bad Request`	Not supported
`InvalidBucketFilter`	Organization-level configurations do not support bucket filters.	400 Bad Request	Not supported
`InvalidConfigId`	The configuration ID is not valid.	400 Bad Request	Not supported
`InvalidDestination`	The S3 bucket ARN is malformed.	400 Bad Request	Not supported
`InvalidEncryptionMethod`	Only one encryption method can be specified.	400 Bad Request	Not supported
`InvalidFilterForDefaultConfiguration`	The default configuration must not include any filters.	400 Bad Request	Not supported

Error code	Description	HTTP status code	SOAP fault code prefix
`InvalidIncludeExcludeContainers`	You can specify either an Include container or an Exclude container in a configuration. You cannot specify both in a configuration.	400 Bad Request	Not supported
`InvalidIncludeExcludeElements`	Only one Include or Exclude element is allowed. At least one Include or Exclude element must be present.	`400 Bad Request`	Not supported
`InvalidKMSEncryptionKeyId`	The KMS key ID ARN is not valid.	400 Bad Request	Not supported
`InvalidMaximumPrefixDepth`	`MaxDepth` must be within the range [1,10].	400 Bad Request	Not supported
`InvalidMinimumStorageBytesPercentage`	`MinStorageBytesPercentage` must be within the range [1.00,100.00].	400 Bad Request	Not supported
`InvalidOrganizationARN`	The AWS Organizations ARN in the configuration is not valid.	400 Bad Request	Not supported
`InvalidOrganizationForDefaultConfiguration`	The default configuration does not support organization-level metrics.	400 Bad Request	Not supported
`InvalidRegionForDefaultConfiguration`	The specified Region is not supported for default configuration.	400 Bad Request	Not supported
`InvalidRegionName`	The Region name is not valid.	400 Bad Request	Not supported
`InvalidStorageLensArn`	The S3 Storage Lens ARN is not required in input.	400 Bad Request	Not supported

Error code	Description	HTTP status code	SOAP fault code prefix
`InvalidStorageLensGroupARN`	This Storage Lens group ARN isn't valid or only Storage Lens group s in your account are allowed. Additionally, you must follow the Storage Lens group ARN structure : `arn::s3:::storage-lens-group/` and adhere to the 64 character limit. Storage Lens group names can also contain only the following characters: a-z, A-Z, 0-9, hyphens (-), and underscores (_).	`400 Bad Request`	Not supported
`MissingAccountLevelActivityMetrics`	Activity metrics must be enabled at the account level when activity metrics are enabled at the bucket level.	400 Bad Request	Not supported
`MissingBucketLevelActivityMetrics`	Activity metrics must be enabled at the bucket level when activ ity metrics are enabled at the account level.	400 Bad Request	Not supported
`MissingEncryptionMethod`	The encryption method cannot be blank. Specify either `SSE-KMS` or `SSE-S3`.	400 Bad Request	Not supported
`MissingPrefixLevelStorageMetrics`	Storage metrics at the prefix level are mandatory when the prefix level is enabled.	400 Bad Request	Not supported
`OrganizationAccessDenied`	This account is not authorized to add AWS Organizations.	403 Forbidden	Not supported

Error code	Description	HTTP status code	SOAP fault code prefix
`OrgConfigurationNotSupported`	The specified Region does not support AWS Organizations in the configuration.	403 Forbidden	Not supported
`ServiceNotEnabledForOrg`	The S3 Storage Lens service-linked role is not enabled for the organization.	403 Forbidden	Not supported
`StorageMetricsMustEnabled`	Prefix-level storage metrics must be enabled.	400 Bad Request	Not supported
`TooManyBuckets`	The buckets container cannot have more than 50 buckets.	400 Bad Request	Not supported
`TooManyRegions`	The Regions container cannot have more than 50 Regions.	400 Bad Request	Not supported
`TooManyStorageLensGroups`	You can't attach more than 50 Storage Lens groups to your Storage Lens dashboard.	`400 Bad Request`	Not supported

The following table contains special errors that S3 Storage Lens groups operations might return. For general information about general Amazon S3 errors and a list of error codes, see Error responses.

Error code	Description	HTTP status code	SOAP fault code prefix
`AccessDenied`	You don't have permission to perform Storage Lens group actions. This Region is not supported as home Region for S3 Storage Lens groups.	`403 Forbidden`	Not supported

Error code	Description	HTTP status code	SOAP fault code prefix
`ConfigurationAlreadyExists`	The specified configuration already exists.	`409 Conflict`	Not supported
`DuplicateElement`	Tags must be unique. The `And` logical operator includes duplicate tag keys. The `Or` logical operator includes duplicate tags. Logical operator includes duplicate prefixes or suffixes.	`400 Bad Request`	Not supported
`InvalidAge`	`DaysLessThan` and `DaysGreaterThan` must be positive numbers.	`400 Bad Request`	Not supported
`InvalidFilter`	A filter must include one of the following elements: `And`, `Or`, `MatchAnyTag` , `MatchAnyPrefix` , `MatchAnySuffix` , `MatchObjectAge` , `MatchObjectSize` .	`400 Bad Request`	Not supported
`InvalidLogicalOperator`	At least two sub elements must be present in the logical operators `And` or `Or`.	`400 Bad Request`	Not supported
`InvalidMatchAnyPrefix`	The `MatchAnyPrefix` parameter can’t be empty.	`400 Bad Request`	Not supported
`InvalidMatchAnySuffix`	The `MatchAnySuffix` parameter can't be empty.	`400 Bad Request`	Not supported
`InvalidMatchAnyTag`	The `MatchAnyTag` parameter can't be empty.	`400 Bad Request`	Not supported

Error code	Description	HTTP status code	SOAP fault code prefix
`InvalidMatchObjectAge`	The `MatchObjectAge` parameter can't be empty.	`400 Bad Request`	Not supported
`InvalidMatchObjectSize`	The `MatchObjectSize` parameter can't be empty.	`400 Bad Request`	Not supported
`InvalidName`	Storage Lens group Name parameter must be between 1 and 64 characters. The Storage Lens group `Name` parameter must use the `^[a-zA-Z0-9\-_]+$` pattern.	`400 Bad Request`	Not supported
`InvalidNumericCombination`	This object age or object size combination isn't valid.	`400 Bad Request`	Not supported
`InvalidPrefix`	The maximum length of a prefix is 1,024 characters. The prefix string can't be empty.	`400 Bad Request`	Not supported
`InvalidSize`	`BytesLessThan` and `BytesGreaterThan` must be positive numbers. The maximum object size can't exceed 5 TB. The minimum object size can't be greater than or equal to 5 TB.	`400 Bad Request`	Not supported
`InvalidSuffix`	The maximum length of a suffix is 1,024 characters. The suffix string can't be empty.	`400 Bad Request`	Not supported

Error code	Description	HTTP status code	SOAP fault code prefix
`InvalidTag`	The object tag key can’t exceed 128 characters. The object tag key string can't be null or empty. The maximum length of a tag value is 256 characters. The object tag key contains characters that aren't valid. The object tag key must contain only a-z, A-Z, 0-9, spaces, and the following characters: `^(_.:/=+\-@]*)$` .	`400 Bad Request`	Not supported
`MismatchedName`	The name specified in the request doesn't match the Storage Lens group name.	`400 Bad Request`	Not supported
`TooManyConfigurations`	You have attempted to create more Storage Lens group configurations than the 50 allowed.	`400 Bad Request`	Not supported
`TooManyElements`	The `Element` exceeds the maximum number of elements allowed within a logical operator. Only 10 prefixes, suffixes, or tags are allowed.	`400 Bad Request`	Not supported

List of Amazon S3 Object Lambda error codes

The following table contains special errors that S3 Object Lambda might return. For information about general Amazon S3 errors and a list of error codes, see Error responses.

Error responses received from the supporting access points during non-`GetObject` requests are sent to the caller unaltered.

Error code	Description	HTTP status code
`LambdaInvalidResponse`	Returned to the original caller when `WriteGetObjectResponse` responds with `ValidationError` to AWS Lambda. See the `ValidationError` message for more details. Not all cases of `ValidationError` result in a `LambdaInvalidResponse` error.	`400 Bad Request`
`LambdaInvocationFailed`	Lambda function invocation failed. Callers might receive the following error when S3 Object Lambda is unable to successfully invoke the configured Lambda function. The error message might contain details about an eventual error returned by the AWS Lambda service when invoking the function (for example, status code, error code, error message and request ID).	`400 Bad Request`
`LambdaNotFound`	The AWS Lambda function was not found. The configured Lambda function, version, or alias was not found when attempting to invoke it. Ensure that the S3 Object Lambda Access Point configuration points to the correct Lambda function ARN.	`404 Not Found`

Error code	Description	HTTP status code	
	The error message might contain details about an eventual error returned by the AWS Lambda service when invoking the function (for example, status code, error code, error message and request ID).		
`LambdaPermissionError`	The caller is not authorized to invoke the Lambda function. The caller must have permission to invoke the Lambda function. Check the policies attached to the caller and ensure that they've been allowed to use `lambda:Invoke` for the configured function. The error message might contain details about an eventual error returned by the AWS Lambda service when invoking the function (for example, status code, error code, error message and request ID).	`403 Forbidden`	

Error code	Description	HTTP status code
LambdaResponseNotReceived	The Lambda function exited without successfully calling WriteGetObjectResponse . GetObject response data is provided by the Lambda function by calling the WriteGetObjectResponse API operation . The Amazon CloudWatch logs for the function might provide more insight into why the function did not successfully call this API operation despite exiting normally.	500 Internal Service Error
LambdaRuntimeError	The Lambda function failed during execution. An explicit error was received from the Lambda function. For details about the failure, check the AWS CloudFormation logs.	500 Internal Service Error
LambdaTimeout	The Lambda function did not respond in the allowed time. The Lambda function failed to complete its call to WriteGetObjectResponse within 60 seconds.	500 Internal Service Error

Error code	Description	HTTP status code
`SlowDown`	Reduce your request rate for operations involving AWS Lambda. The function invocation was throttled by AWS Lambda, perhaps because it has reached its configure d concurrency limitation. For more information, see Managing concurrency for a Lambda function in the *AWS Lambda Developer Guide*. The error message might contain details about an eventual error returned by the AWS Lambda service when invoking the function (for example, status code, error code, error message and request ID).	`503 Slow Down`
`ValidationError`	Validation errors might be returned from the `WriteGetObjectResp onse` API operation and can occur for numerous reasons. See the error message for more details.	`400 Bad Request`

List of Amazon S3 asynchronous error codes

The following table contains special errors that asynchronous requests might return. For general information about Amazon S3 errors and a list of error codes, see Error responses.

These errors are returned when you query about the state of an asynchronous request, such as by using `DescribeMultiRegionAccessPointOperation`. Because these requests are asynchronous, all of these errors have a status code of `200 OK`.

Error code	Description	HTTP status code
AccessDenied	Access denied.	200 OK
InternalErrors	An internal server error occurred.	200 OK
MalformedPolicy	The specified policy syntax is not valid.	200 OK
MultiRegionAccessPointAlreadyOwnedByYou	You already have a Multi-Region Access Point with the same name.	200 OK
MultiRegionAccessPointModifiedByAnotherRequest	The action failed because another request is modifying the specified resource. Try resubmitting your request after the previous request has been completed.	200 OK
MultiRegionAccessPointNotReady	The specified Multi-Region Access Point is not ready to be updated.	200 OK
MultiRegionAccessPointSameBucketRegion	The buckets used to create a Multi-Region Access Point cannot be in the same Region.	200 OK
MultiRegionAccessPointUnsupportedRegion	One of the buckets supplied to create the Multi-Region Access Point is in a Region that is not supported.	200 OK
NoSuchBucket	The specified bucket does not exist.	200 OK
NoSuchMultiRegionAccessPoint	The specified Multi-Region Access Point does not exist.	200 OK

List of Amazon S3 Access Grants error codes

The following table contains special errors that S3 Access Grants requests might return. For general information about Amazon S3 errors and a list of error codes, see Error responses.

Error Code	Description	HTTP Status Code
`AccessGrantAlreadyExists`	The specified access grant already exists	409
`AccessGrantsInstanceAlreadyExists`	Access Grants Instance already exists	409
`AccessGrantsInstanceNotEmptyError`	Please clean up locations before deleting the access grants instance	400
`AccessGrantsInstanceNotExistsError`	Access Grants Instance does not exist	404
`AccessGrantsInstanceResourcePolicyNotExists`	Access Grants Instance Resource Policy does not exist	404
`AccessGrantsLocationAlreadyExistsError`	The specified access grants location already exists	409
`AccessGrantsLocationNotEmptyError`	Please clean up access grants before deleting access grants location	400
`AccessGrantsLocationsQuotaExceededError`	The access grants location quota has been exceeded. Access Grants Locations Quota: *<value>*. Please reach out to S3 if an increase is required.	409
`AccessGrantsQuotaExceededError`	The access grants quota has been exceeded. Access Grants Quota:	409

Error Code	Description	HTTP Status Code
	<value>. Please reach out to S3 if an increase is required.	
`InvalidTag`	There are duplicate tag keys in your request. Remove the duplicate tag keys and try again.	`400`
`InvalidAccessGrant`	The specified Access Grant is invalid	`400`
`InvalidAccessGrantsLocation`	The specified Access Grants Location is invalid	`400`
`InvalidIamRole`	The specified IAM Role is invalid	`400`
`InvalidIdentityCenterInstance`	The specified identity center instance is invalid	`400`
`InvalidResourcePolicy`	The specified Resource Policy is invalid	`400`
`InvalidResourcePolicy`	The specified Resource Policy is invalid	`400`
`InvalidTag`	This request contains a tag key or value that isn't valid. Valid characters include the following: [a-zA-Z+-=._:/]. Tag keys can contain up to 128 characters. Tag values can contain up to 256 characters.	`400`
`NoSuchAccessGrantError`	The specified access grant does not exist	`404`
`NoSuchAccessGrantsLocationError`	The specified access grants location does not exist	`404`

Error Code	Description	HTTP Status Code
`AccessDenied`	You do not have *<requested permission>* permissions to the requested S3 Prefix: *<requested target>*	`403 Forbidden`
`StsNotAuthorizedError`	An error occurred (`StsNotAuthorizedError`) when calling the GetDataAccess operation: User: `access-grants.s3.amazonaws.com` is not authorized to perform: `sts:AssumeRole` on resource: *<IAM Role ARN>*	`403`
`StsPackedPolicyTooLargeError`	An error occurred (`StsPackedPolicyTooLargeError`) when calling the GetDataAccess operation: Serialized token too large for session	`400`
`StsValidationError`	*The error message varies depending on the validation error.*	`400`
`InvalidTags`	Tag keys cannot start with AWS reserved prefix for system tags."	`400`
`TooManyTags`	The number of tags exceeds the limit of 50 tags. Remove some tags and try again.	`400`

List of Amazon FSx-related error codes

The following table contains special errors that requests made to Amazon FSx through an Amazon S3 access point might return. For general information about Amazon S3 errors and a list of error codes, see Error responses.

Error Code	Description	HTTP Status Code	
`AccessDenied`	This error might occur for the following reasons: • Caller is not authorized to preform specified S3 operation. • Caller is not authorized to access the Amazon FSx resource for the specified key.	`403 Forbidden`	
`InsufficientCapacity`	Maximum storage capacity of file system has been reached.	`507 Insufficient Capacity`	
`InvalidKey`	The specified key is not valid.	`400 Bad Request`	
`SlowDown`	Please reduce your request rate.	`503 Slow Down`	

Amazon S3 error best practices

Many error responses contain additional structured data meant to be read and understood by a developer diagnosing programming errors. For example, if you send a Content-MD5 header with a REST PUT request that doesn't match the digest calculated on the server, you receive a BadDigest error. The error response also includes as detail elements the digest we calculated, and the digest you told us to expect. During development, you can use this information to diagnose the error. In production, a well-behaved program might include this information in its error log.

When designing an application for use with Amazon S3, it is important to handle Amazon S3 errors appropriately. This section describes issues to consider when designing your application.

Retry InternalErrors

Internal errors are errors that occur within the Amazon S3 environment.

Requests that receive an InternalError response might not have processed. For example, if a PUT request returns InternalError, a subsequent GET might retrieve the old value or the updated value.

If Amazon S3 returns an InternalError response, retry the request.

Tune application for repeated SlowDown errors

As with any distributed system, S3 has protection mechanisms which detect intentional or unintentional resource over-consumption and react accordingly. SlowDown errors can occur when a high request rate triggers one of these mechanisms. Reducing your request rate will decrease or eliminate errors of this type. Generally speaking, most users will not experience these errors regularly; however, if you would like more information or are experiencing high or unexpected SlowDown errors, please post to our Amazon S3 developer forum or sign up for Support https://aws.amazon.com/premiumsupport/.

Isolate errors

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

Amazon S3 provides a set of error codes that are used by both the SOAP and REST API. The SOAP API returns standard Amazon S3 error codes. The REST API is designed to look like a standard HTTP server and interact with existing HTTP clients (e.g., browsers, HTTP client libraries, proxies, caches, and so on). To ensure the HTTP clients handle errors properly, we map each Amazon S3 error to an HTTP status code.

HTTP status codes are less expressive than Amazon S3 error codes and contain less information about the error. For example, the `NoSuchKey` and `NoSuchBucket` Amazon S3 errors both map to the HTTP `404 Not` Found status code.

Although the HTTP status codes contain less information about the error, clients that understand HTTP, but not the Amazon S3 API, will usually handle the error correctly.

Therefore, when handling errors or reporting Amazon S3 errors to end users, use the Amazon S3 error code instead of the HTTP status code as it contains the most information about the error. Additionally, when debugging your application, you should also consult the human readable <Details> element of the XML error response.

AWS Glossary

For the latest AWS terminology, see the AWS glossary in the *AWS Glossary Reference*.

Amazon S3 Resources

Following is a table that lists related resources that you'll find useful as you work with this service.

Resource	Description
Amazon Simple Storage Service User Guide	The getting started guide provides a quick tutorial of the service based on a simple use case.
Amazon Simple Storage Service User Guide	The developer guide describes how to accomplish tasks using Amazon S3 operations.
Amazon S3 Technical FAQ	The FAQ covers the top 20 questions developers have asked about this product.
Amazon S3 Release Notes	The Release Notes give a high-level overview of the current release. They specifically note any new features, corrections, and known issues.
Tools for Amazon Web Services	A central starting point to find documentation, code samples, release notes, and other information to help you build innovative applications with AWS SDKs and tools.
AWS Management Console	The console allows you to perform most of the functions of Amazon S3 without programming.
Discussion Forums	A community-based forum for developers to discuss technical questions related to Amazon Web Services.
Support Center	The home page for AWS Technical Support, including access to our Developer Forums, Technical FAQs, Service Status page, and Premium Support.
Support	The primary web page for information about Support, a one-on-one, fast-response support channel to help you build and run applications on AWS Infrastructure Services.

Resource	Description
Amazon S3 product information	The primary web page for information about Amazon S3.
Contact Us	A central contact point for inquiries concerning AWS billing, account, events, abuse, etc.
Conditions of Use	Detailed information about the copyright and trademark usage at Amazon.com and other topics.

Document History

The following table describes the important changes in each release of the *Amazon Simple Storage Service API Reference* up to March 27, 2019. For changes after March 27, 2019, see the consolidated Document History in the *Amazon Simple Storage Service User Guide*.

- **API version:** 2006-03-01
- **Latest documentation update:** March 27, 2019

Change	Description	Release Date
New archive storage class	Amazon S3 now offers a new archive storage class, DEEP_ARCHIVE, for storing rarely accessed objects. Fo r more information, see Storage Classes in the *Amazon Simple Storage Service User Guide*.	March 27, 2019
Support for Parquet-f ormatted Amazon S3 inventory files	Amazon S3 now supports the Apache Parquet (Parquet) format in addition to the Apache optimized row columnar (ORC) and comma-separated values (CSV) file formats for inventory output files. For more information, see Amazon S3 Inventory in the *Amazon Simple Storage Service User Guide*. The following APIs were updated accordingly: • GetBucketInventoryConfiguration • PutBucketInventoryConfiguration	December 04, 2018
PUT directly to the GLACIER storage class	The Amazon S3 PUT and related operations now support specifying GLACIER as the storage class when creating objects. Previously, you had to transition to the GLACIER storage class from another Amazon S3 storage class. For more information about the GLACIER storage class, see	November 26, 2018

Change	Description	Release Date
	Storage Classes in the *Amazon Simple Storage Service User Guide*. The following APIs were updated accordingly: • PutObject • POST Object • CopyObject • CreateMultipartUpload	
Object Lock	Amazon S3 now supports locking objects using a Write Once Read Many (WORM) model. You can lock objects for a definite period of time using a retention period or indefinitely using a legal hold. For more information about Amazon S3 Object Lock, see Locking Objects in the *Amazon Simple Storage Service User Guide*. The following APIs were updated for S3 Object Lock: • PutObject • GetObject • HeadObject • CreateBucket • HeadBucket	November 26, 2018

Change	Description	Release Date
New storage class	Amazon S3 now offers a new storage class named INTELLIGENT_TIERING that is for storing data that has changing or unknown access patterns. For more informati on, see Storage Classes in the *Amazon Simple Storage Service User Guide*. The following APIs were updated accordingly: • PutObject • POST Object • CopyObject • CreateMultipartUpload	November 26, 2018
Block Public Access	Amazon S3 now includes the ability to block public access to buckets and objects on a per-bucket or account-wide basis. For more information, see Using Amazon S3 Block Public Access in the *Amazon Simple Storage Service User Guide*.	November 15, 2018

Change	Description	Release Date
Filtering enhancements in cross-region replication (CRR) rules	In a CRR rule configuration, you can specify an object filter to choose a subset of objects to apply the rule to. Previously, you could filter only on an object key prefix. In this release, you can filter on an object key prefix, one or more object tags, or both. For more information, see Replication Configuration Overview in the *Amazon Simple Storage Service User Guide*. The following APIs are updated accordingly: • PutBucketReplication • GetBucketReplication • DeleteBucketReplication	September 19, 2018
New storage class	Amazon S3 now offers a new storage class, ONEZONE_IA (IA, for infrequent access) for storing objects. For more information, see Storage Classes in the *Amazon Simple Storage Service User Guide*.	April 4, 2018
Amazon S3 Select	Amazon S3 Select is now generally available. This feature retrieves object content based on an SQL expression. For more information, see Selecting Content from Objects in the *Amazon Simple Storage Service User Guide*. The following API has been updated: • SelectObjectContent	April 4, 2018

Change	Description	Release Date
Asia Pacific (Osaka-Local) Region	Amazon S3 is now available in the Asia Pacific (Osaka-Local) Region. For more information about Amazon S3 Regions and endpoints, see Regions and Endpoints in the *AWS General Reference*. **Important** You can use the Asia Pacific (Osaka-Local) Region only in conjunction with the Asia Pacific (Tokyo) Region. To request access to Asia Pacific (Osaka-Local) Region, contact your sales representative.	February 12, 2018
Europe (Paris) Region	Amazon S3 is now available in the Europe (Paris) Region. For more information about Amazon S3 regions and endpoints, see Regions and Endpoints in the *AWS General Reference*.	December 18, 2017
China (Ningxia) Region	Amazon S3 is now available in the China (Ningxia) Region. For more information about Amazon S3 regions and endpoints, see Regions and Endpoints in the *AWS General Reference*.	December 11, 2017
Querying archives with SQL	Amazon S3 now supports querying S3 Glacier data archives with SQL. For more information, see Querying Archived Objects in the *Amazon Simple Storage Service User Guide*. The following API changed: • RestoreObject	November 29, 2017

Change	Description	Release Date
SELECT Object Content (Preview)	Amazon S3 now supports the SELECT Object Content functionality as part of a Preview program. This feature retrieves object content based on an SQL expression. The following API has been added: • SelectObjectContent	November 29, 2017
Support for ORC-formatted Amazon S3 inventory files	Amazon S3 now supports the Apache optimized row columnar (ORC) format in addition to comma-separated values (CSV) file format for inventory output files. For more information, see Amazon S3 Inventory in the *Amazon Simple Storage Service User Guide*. The following APIs are updated accordingly: • GetBucketInventoryConfiguration • PutBucketInventoryConfiguration	November 17, 2017

Change	Description	Release Date
Default encryption for S3 buckets	Amazon S3 default encryption provides a way to set the default encryption behavior for an S3 bucket. You can set default encryption on a bucket so that all objects are encrypted when they are stored in the bucket. The objects are encrypted using server-side encryption with either Amazon S3-managed keys (SSE-S3) or AWS KMS-managed keys (SSE-KMS). For more information, see Amazon S3 Default Encryption for S3 Buckets in the *Amazon Simple Storage Service User Guide*. The following APIs are updated accordingly: • DeleteBucketEncryption • GetBucketEncryption • PutBucketEncryption	November 06, 2017
Encryption status in Amazon S3 inventory	Amazon S3 now supports including encryption status in Amazon S3 inventory so you can see how your objects are encrypted at rest for compliance auditing or other purposes. You can also configure to encrypt Amazon S3 inventory with server-side encryption (SSE) or SSE-KMS so that all inventory files are encrypted accordingl y. For more information, see Amazon S3 Inventory in the *Amazon Simple Storage Service User Guide*. The following APIs are updated accordingly: • GetBucketInventoryConfiguration • PutBucketInventoryConfiguration	November 06, 2017

Change	Description	Release Date
Cross-region replication (CRR) enhancements	Cross-region replication (CRR) now supports the following: • In a cross-account scenario, you can add a CRR configuration to change replica ownership to the AWS account that owns the destination bucket. For more information, see CRR: Change Replica Owner in the *Amazon Simple Storage Service User Guide*. • By default, Amazon S3 does not replicate objects in your source bucket that are created using server-side encryption using AWS KMS-managed keys. In your CRR configuration, you can now direct Amazon S3 to replicate these objects. For more information, see CRR: Replicating Objects Created with SEE Using AWS KMS-Managed Encryption Keys in the *Amazon Simple Storage Service User Guide*. The following APIs are updated accordingly: • GetBucketReplication • PutBucketReplication	November 06, 2017
Europe (London) Region	Amazon S3 is now available in the Europe (London) Region. For more information about Amazon S3 regions and endpoints, see Regions and Endpoints in the *AWS General Reference*.	December 13, 2016
Canada (Central) Region	Amazon S3 is now available in the Canada (Central) Region. For more information about Amazon S3 regions and endpoints, see Regions and Endpoints in the *AWS General Reference*.	December 8, 2016

Change	Description	Release Date
Object tagging support	Amazon S3 now supports object tagging. The following new API operations support object tagging: • PutObjectTagging • GetObjectTagging • DeleteObjectTagging In addition, other API operations are updated to support object tagging. For more information, see Object Tagging in the *Amazon Simple Storage Service User Guide*.	November 29, 2016
S3 lifecycle now supports object tag based filter	Amazon S3 now supports tag-based filtering in lifecycle configuration. You can now specify a lifecycle rule, in which you can specify a key prefix, one or more object tags, or a combination of both, to select a subset of objects to which the lifecycle rule applies. For more information, see Object Lifecycle Managementin the *Amazon Simple Storage Service User Guide*. Amazon S3 now supports Expedited and Bulk data retrievals in addition to Standard retrievals when restoring objects archived to S3 Glacier.	November 29, 2016

Change	Description	Release Date
CloudWatch request metrics for buckets	Amazon S3 now supports CloudWatch metrics for requests made on buckets. The following new API operations support configuring request metrics: • DeleteBucketMetricsConfiguration • GetBucketMetricsConfiguration • PutBucketMetricsConfiguration • ListBucketMetricsConfigurations For more information, see Monitoring Metrics with Amazon CloudWatch in the *Amazon Simple Storage Service User Guide*.	November 29, 2016
Amazon S3 Inventory	Amazon S3 now supports storage inventory. Amazon S3 inventory provides a flat-file output of your objects and their corresponding metadata on a daily or weekly basis for an S3 bucket or a shared prefix (that is, objects that have names that begin with a common string). The following new API operations are for storage inventory: • DeleteBucketInventoryConfiguration • GetBucketInventoryConfiguration • PutBucketInventoryConfiguration • ListBucketInventoryConfigurations For more information, see Amazon S3 Storage Inventory in the *Amazon Simple Storage Service User Guide*.	November 29, 2016

Change	Description	Release Date
Amazon S3 Analytics – Storage Class Analysis	The new Amazon S3 analytics – storage class analysis feature observes data access patterns to help you determine when to transition less frequently accessed STANDARD storage to the STANDARD_IA (IA, for infrequent access) storage class. After storage class analysis observes the infrequent access patterns of a filtered set of data over a period of time, you can use the analysis results to help you improve your lifecycle configurations. This feature also includes a detailed daily analysis of your storage usage at the specified bucket, prefix, or tag level that you can export to a S3 bucket. The following new API operations are for storage class analysis: • DeleteBucketAnalyticsConfiguration • GetBucketAnalyticsConfiguration • PutBucketAnalyticsConfiguration • ListBucketAnalyticsConfigurations For more information, see Amazon S3 Analytics – Storage Class Analysis in the *Amazon Simple Storage Service User Guide*.	November 29, 2016
Added S3 Glacier retrieval options to RestoreObject	Amazon S3 now supports Expedited and Bulk data retrievals in addition to Standard retrievals when restoring objects archived to S3 Glacier. For more information, see Restoring Archived Objects in the *Amazon Simple Storage Service User Guide*.	November 21, 2016

Change	Description	Release Date
US East (Ohio) Region	Amazon S3 is now available in the US East (Ohio) Region. For more information about Amazon S3 regions and endpoints, see Regions and Endpoints in the *AWS General Reference*.	October 17, 2016
Asia Pacific (Mumbai) region	Amazon S3 is now available in the Asia Pacific (Mumbai) region. For more information about Amazon S3 regions and endpoints, see Regions and Endpoints in the *AWS General Reference*.	June 27, 2016
GET Bucket (List Objects) API revised	The GET Bucket (List Objects) API has been revised. We recommend that you use the new version, GET Bucket (List Objects) version 2. For more information, see ListObjectsV2.	May 4, 2016
Amazon S3 Transfer Acceleration	Amazon S3 Transfer Acceleration enables fast, easy, and secure transfers of files over long distances between your client and an S3 bucket. Transfer Acceleration takes advantage of Amazon CloudFront's globally distributed edge locations. For more information, see Transfer Acceleration in the *Amazon Simple Storage Service User Guide*. The following new API operations support Transfer Acceleration: GetBucketAccelerateConfiguration and PutBucketAccelerateConfiguration.	April 19, 2016
Lifecycle support to remove expired object delete marker	Lifecycle configuration expiration action now allows you to direct Amazon S3 to remove expired object delete markers in versioned bucket. For more information, see Elements to Describe Lifecycle Actions in the *Amazon Simple Storage Service User Guide*.	March 16, 2016

Change	Description	Release Date
Bucket lifecycle configuration now supports the action to cancel incomplete multipart uploads	Bucket lifecycle configuration now supports the `AbortIncompleteMultipartUpload` action that you can use to direct Amazon S3 to cancel multipart uploads that don't complete within a specified number of days after being initiated. When a multipart upload becomes eligible for an abort operation, Amazon S3 deletes any uploaded parts and cancels the multipart upload. The following API operations have been updated to support the new action: • PutBucketLifecycleConfiguration – The XML configuration now allows you to specify the `AbortIncompleteMultipartUpload` action in a lifecycle configuration rule. • ListParts and CreateMultipartUpload – Both of these API operations now return two additional response headers (`x-amz-abort-date`, and `x-amz-abort-rule-id`) if the bucket has a lifecycle rule that specifies the `AbortIncompleteMultipartUpload` action. These headers in the response indicate when the initiated multipart upload will become eligible for an abort operation and which lifecycle rule is applicable. For conceptual information, see the following topics in the *Amazon Simple Storage Service User Guide*: •	March 16, 2016

Change	Description	Release Date
	Aborting Incomplete Multipart Uploads Using a Bucket Lifecycle configuration • Elements to Describe Lifecycle Actions	
Amazon S3 Signature Version 4 now supports unsigned payloads	Amazon S3 Signature Version 4 now supports unsigned payloads when authenticating requests using the `Authorization` header. Because you don't sign the payload, it does not provide the same security that comes with payload signing, but it provides similar performance characteristics as signature version 2. For more informati on, see Signature Calculations for the Authorization Header: Transferring Payload in a Single Chunk (AWS Signature Version 4).	January 15, 2016
Asia Pacific (Seoul) region	Amazon S3 is now available in the Asia Pacific (Seoul) region. For more information about Amazon S3 regions and endpoints, see Regions and Endpoints in the *AWS General Reference*.	January 6, 2016
Renamed the US Standard region	Changed the region name string from US Standard to US East (N. Virginia). This is only a region name update, there is no change in the functionality.	December 11, 2015

Change	Description	Release Date
New storage class	Amazon S3 now offers a new storage class, STANDARD_IA (IA, for infrequent access) for storing objects. This storage class is optimized for long-lived and less frequently accessed data. For more information, see Storage Classes in the *Amazon Simple Storage Service User Guide*. Lifecycle configuration feature updates now allow you to transition objects to the STANDARD_IA storage class. For more information, see Object Lifecycle Management in the *Amazon Simple Storage Service User Guide*. Previously, the cross-region replication feature used the storage class of the source object for object replicas. Now, when you configure cross-region replication you can specify a storage class for the object replica created in the destination bucket. For more information, see Cross-Region Replication in the *Amazon Simple Storage Service User Guide*.	September 16, 2015
Event notifications	Amazon S3 event notifications have been updated to add notifications when objects are deleted and to add filtering on object names with prefix and suffix matching. For the relevant API operations, see PutBucketNotificationConfiguration, and GetBucketNotificationConfiguration. For more information, see Configuring Amazon S3 Event Notifications in the *Amazon Simple Storage Service User Guide*.	July 28, 2015

Change	Description	Release Date
Cross-region replication	Amazon S3 now supports cross-region replication. Cross-region replication is the automatic, asynchronous copying of objects across buckets in different AWS Regions. For the relevant API operations, see PutBucketReplication, GetBucketReplication and DeleteBucketReplication. For more information, see Enabling Cross-Region Replication in the *Amazon Simple Storage Service User Guide*.	March 24, 2015
Event notifications	Amazon S3 now supports new event types and destinations in a bucket notification configuration. Prior to this release, Amazon S3 supported only the `s3:ReducedRedundancyLostObject` event type and an Amazon SNS topic as the destination. For more information about the new event types, go to Setting Up Notification of Bucket Events in the *Amazon Simple Storage Service User Guide*. For the relevant API operations, see PutBucketNotificationConfiguration and GetBucketNotificationConfiguration.	November 13, 2014

Change	Description	Release Date
Server-side encryption with AWS Key Management Service (KMS)	Amazon S3 now supports server-side encryption using AWS Key Management Service (KMS). With server-side encryption with KMS, you manage the envelope key through KMS, and Amazon S3 calls KMS to access the envelope key within the permissions you set. For more information about server-side encryption with KMS, see Protecting Data Using Server-Side Encryption with AWS Key Management Service in the *Amazon Simple Storage Service User Guide*. The following Amazon S3 REST API operations support headers related to KMS. • PutObject • CopyObject • POST Object • CreateMultipartUpload • UploadPart	November 12, 2014
Europe (Frankfurt) Region	Amazon S3 is now available in the Europe (Frankfurt) Region region.	October 23, 2014

Change	Description	Release Date
Server-side encryption with customer-provided encryption keys	Amazon S3 now supports server-side encryption using customer-provided encryption keys (SSE-C). Server-side encryption enables you to request Amazon S3 to encrypt your data at rest. When using SSE-C, Amazon S3 encrypts your objects with the custom encryption keys that you provide. Since Amazon S3 performs the encryption for you, you get the benefits of using your own encryption keys without the cost of writing or executing your own encryption code. For more information about SSE-C, go to Server-Side Encryption (Using Customer-Provided Encryption Keys) in the *Amazon Simple Storage Service User Guide*. The following Amazon S3 REST API operations support headers related to SSE-C. • GetObject • HeadObject • PutObject • CopyObject • POST Object • CreateMultipartUpload • UploadPart • UploadPartCopy	June 12, 2014

Change	Description	Release Date
Lifecycle support for versioning	Prior to this release lifecycle configuration was supported only on nonversioned buckets. Now you can configure lifecycle on both the nonversioned and versioning-enabled buckets. For more information, go to Object Lifecycle Management in the *Amazon Simple Storage Service User Guide*. The related API operations, see PutBucketLifecycleConfiguration, GetBucketLifecycleConfiguration, and DeleteBucketLifecycle.	May 20, 2014
Amazon S3 now supports Signature Version 4	Amazon S3 now supports Signature Version 4 (SigV4) in all regions, the latest specification for how to sign and authenticate AWS requests. For more information, see Authenticating Requests (AWS Signature Version 4).	January 30, 2014
Amazon S3 list actions now support `encoding-type` request parameter	The following Amazon S3 list actions now support `encoding-type` optional request parameter. ListObjects ListObjectVersions ListMultipartUploads ListParts An object key can contain any Unicode character; however, the XML 1.0 parser cannot parse some characters, such as characters with an ASCII value from 0 to 10. For characters that are not supported in XML 1.0, you can add this parameter to request that Amazon S3 encode the keys in the response.	November 1, 2013

Change	Description	Release Date
SOAP Support Over HTTP Deprecated	SOAP support over HTTP is deprecated, but it is still available over HTTPS. New Amazon S3 features will not be supported for SOAP. We recommend that you use either the REST API or the AWS SDKs.	September 19, 2013
Root domain support for website hosting	Amazon S3 now supports hosting static websites at the root domain. Visitors to your website can access your site from their browser without specifying "www" in the web address (e.g., "example.com"). Many customers already host static websites on Amazon S3 that are accessible from a "www" subdomain (e.g., "www.example.com"). Previously, to support root domain access, you needed to run your own web server to proxy root domain requests from browsers to your website on Amazon S3. Running a web server to proxy requests introduces additional costs, operational burden, and another potential point of failure. Now, you can take advantage of the high availability and durability of Amazon S3 for both "www" and root domain addresses. For an example walkthrough, go to Example: Setting Up a Static Website Using a Custom Domain in the *Amazon Simple Storage Service User Guide*. For conceptual information, go to Hosting Static Websites on Amazon S3 in the *Amazon Simple Storage Service User Guide*.	December 27, 2012

Change	Description	Release Date
Support for Archiving Data to Amazon Glacier	Amazon S3 now supports a storage option that enables you to utilize Amazon Glacier's low-cost storage service for data archival. To archive objects, you define archival rules identifying objects and a timeline when you want Amazon S3 to archive these objects to S3 Glacier. You can easily set the rules on a bucket using the Amazon S3 console or programmatically using the Amazon S3 API or AWS SDKs. To support data archival rules, Amazon S3 lifecycle management API has been updated. For more informati on, see PutBucketLifecycleConfiguration. After you archive objects, you must first restore a copy before you can access the data. Amazon S3 offers a new API for you to initiate a restore. For more information, see RestoreObject. For conceptual information, go to Object Lifecycle Management in the *Amazon Simple Storage Service User Guide*.	November 13, 2012

Change	Description	Release Date
Support for Website Page Redirects	For a bucket that is configured as a website, Amazon S3 now supports redirecting a request for an object to another object in the same bucket or to an external URL. You can configure redirect by adding the `x-amz-website-redirect-location` metadata to the object. The object upload API operations PutObject, CreateMultipartUpload, and POST Object allow you to configure the `x-amz-website-redirect-location` object metadata. For conceptual information, go to How to Configure Website Page Redirects in the *Amazon Simple Storage Service User Guide*.	October 4, 2012
Cross-Origin Resource Sharing (CORS) support	Amazon S3 now supports Cross-Origin Resource Sharing (CORS). CORS defines a way in which client web applications that are loaded in one domain can interact with or access resources in a different domain. With CORS support in Amazon S3, you can build rich client-side web applications on top of Amazon S3 and selectively allow cross-domain access to your Amazon S3 resources. For more information, see Enabling Cross-Origin Resource Sharing in the *Amazon Simple Storage Service User Guide*.	August 31, 2012
Cost Allocation Tagging support	Amazon S3 now supports cost allocation tagging, which allows you to label S3 buckets so you can more easily track their cost against projects or other criteria. For more information, see Cost Allocation Tagging in the *Amazon Simple Storage Service User Guide*.	August 21, 2012

Change	Description	Release Date
Object Expiration support	You can use Object Expiration to schedule automatic removal of data after a configured time period. You set object expiration by adding lifecycle configuration to a bucket. For more information, see Transitioning Objects: General Considerations in the *Amazon Simple Storage Service User Guide*.	December 27, 2011
New Region supported	Amazon S3 now supports the South America (São Paulo) region. For more information, see Buckets and Regions in the *Amazon Simple Storage Service User Guide*.	December 14, 2011
Multi-Object Delete	Amazon S3 now supports Multi-Object Delete API that enables you to delete multiple objects in a single request. With this feature, you can remove large numbers of objects from Amazon S3 more quickly than using multiple individual DELETE requests. For more information about the API see, see DeleteObjects. For conceptual information about the delete operation, see Deleting Objects in the *Amazon Simple Storage Service User Guide*.	December 7, 2011
New region supported	Amazon S3 now supports the US West (Oregon) region. For more information, see Buckets and Regions in the *Amazon Simple Storage Service User Guide*.	November 8, 2011

Change	Description	Release Date
Server-side encryption support	Amazon S3 now supports server-side encryption. It enables you to request Amazon S3 to encrypt your data at rest, that is, encrypt your object data when Amazon S3 writes your data to disks in its data centers. To request server-side encryption, you must add the `x-amz-server-side-encryption` header to your request. To learn more about data encryption, go to Using Data Encryption in the *Amazon Simple Storage Service User Guide*.	October 17, 2011
Multipart Upload API extended to enable copying objects up to 5 TB	Prior to this release, Amazon S3 API supported copying objects (see CopyObject) of up to 5 GB in size. To enable copying objects larger than 5 GB, Amazon S3 extends the multipart upload API with a new operation, `Upload Part (Copy)`. You can use this multipart upload operation to copy objects up to 5 TB in size. For conceptual information about multipart upload, go to Uploading Objects Using Multipart Upload in the *Amazon Simple Storage Service User Guide*. To learn more about the new API, see UploadPartCopy.	June 21, 2011
SOAP API calls over HTTP disabled	To increase security, SOAP API calls over HTTP are disabled. Authenticated and anonymous SOAP requests must be sent to Amazon S3 using SSL.	June 6, 2011

Change	Description	Release Date
Support for hosting static websites in Amazon S3	Amazon S3 introduces enhanced support for hosting static websites. This includes support for index documents and custom error documents. When using these features, requests to the root of your bucket or a subfolder (e.g., `http://mywebsite.com/subfolder`) returns your index document instead of the list of objects in your bucket. If an error is encountered, Amazon S3 returns your custom error message instead of an Amazon S3 error message. For API information to configure your bucket as a website, see the following sections: • PutBucketWebsite • GetBucketWebsite • DeleteBucketWebsite For conceptual overview, go to Hosting Websites on Amazon S3 in the *Amazon Simple Storage Service User Guide*.	February 17, 2011
Response Header API Support	The GET Object REST API now allows you to change the response headers of the REST GET Object request for each request. That is, you can alter object metadata in the response, without altering the object itself. For more information, see GetObject.	January 14, 2011

Change	Description	Release Date
Large Object Support	Amazon S3 has increased the maximum size of an object you can store in an S3 bucket from 5 GB to 5 TB. If you are using the REST API you can upload objects of up to 5 GB size in a single PUT operation. For larger objects, you must use the Multipart Upload REST API to upload objects in parts. For conceptual information, go to Uploading Objects Using Multipart Upload in the *Amazon Simple Storage Service User Guide*. For multipart upload API information, see CreateMultipartUpload, UploadPart, CompleteMultipartUpload, ListParts, and ListMultipartUploads	December 9, 2010
Multipart upload	Multipart upload enables faster, more flexible uploads into Amazon S3. It allows you to upload a single object as a set of parts. For conceptual information, go to Uploading Objects Using Multipart Upload in the *Amazon Simple Storage Service User Guide*. For multipart upload API information, see CreateMultipartUpload, UploadPart, CompleteMultipartUpload, ListParts, and ListMultipartUploads	November 10, 2010
Notifications	The Amazon S3 notifications feature enables you to configure a bucket so that Amazon S3 publishes a message to an Amazon Simple Notification Service (SNS) topic when Amazon S3 detects a key event on a bucket. For more information, see GET Bucket notification and PUT Bucket notification.	July 14, 2010
Bucket policies	Bucket policies is an access management system you use to set access permissions on buckets, objects, and sets of objects. This functionality supplements and in many cases replaces access control lists.	July 6, 2010

Change	Description	Release Date
Reduced Redundancy	Amazon S3 now enables you to reduce your storage costs by storing objects in Amazon S3 with reduced redundancy. For more information, see PUT Object.	May 12, 2010
New region supported	Amazon S3 now supports the Asia Pacific (Singapore) region and therefore new location constraints. For more information, see GET Bucket location and PUT Bucket.	April 28, 2010
Object Versioning	This release introduces object Versioning. All objects now have a key and a version. If you enable versioning for a bucket, Amazon S3 gives all objects added to a bucket a unique version ID. This feature enables you to recover from unintended overwrites and deletions. For more information, see GET Object, DELETE Object, PUT Object, PUT Object Copy, or POST Object. The SOAP API does not support versioned objects.	February 8, 2010
New region supported	Amazon S3 now supports the US-West (Northern California) region. The new endpoint is `s3-us-west-1.amazonaws.com`. For more information, see How to Select a Region for Your Buckets in the *Amazon Simple Storage Service User Guide*.	December 2, 2009
C# Library Support	AWS now provides Amazon S3 C# libraries, sample code, tutorials, and other resources for software developers who prefer to build applications using language-specific API operations instead of REST or SOAP. These libraries provide basic functions (not included in the REST or SOAP APIs), such as request authentication, request retries, and error handling so that it's easier to get started.	November 11, 2009

Change	Description	Release Date
Technical documents reorganized	The API reference has been split out of the *Amazon S3 Developer Guide*. Now, on the documentation landing page, Amazon Simple Storage Service Documentation, you can select the document you want to view. When viewing the documents online, the links in one document will take you, when appropriate, to one of the other guides.	September 16, 2009

Appendix

Topics

- Appendix: SelectObjectContent Response
- Appendix: OPTIONS object
- Appendix: SOAP API
- Appendix: Authenticating requests (AWS signature version 2)
- Appendix: Lifecycle Configuration APIs (Deprecated)

Appendix: SelectObjectContent Response

Description

The Amazon S3 Select operation filters the contents of an Amazon S3 object based on a simple structured query language (SQL) statement. Given the response size of this operation is unknown, Amazon S3 Select streams the response as a series of messages and includes a `Transfer-Encoding` header with **chunked** as its value in the response.

For more information about Amazon S3 Select, see Selecting Content from Objects in the *Amazon Simple Storage Service User Guide*.

For more information about using SQL with Amazon S3 Select, see SQL Reference for Amazon S3 Select and S3 Glacier Select in the *Amazon Simple Storage Service User Guide*.

Responses

A successful Amazon S3 Select Operation returns `200 OK` status code.

Response Headers

This implementation of the operation uses only response headers that are common to most responses. For more information, see Common Response Headers.

Response Body

Since the Amazon S3 Select response size is unknown, Amazon S3 streams the response as a series of messages and includes a `Transfer-Encoding` header with **chunked** as its value in the response. The following example shows the response format at the top level:

```
<Message 1>
<Message 2>
<Message 3>
......
<Message n>
```

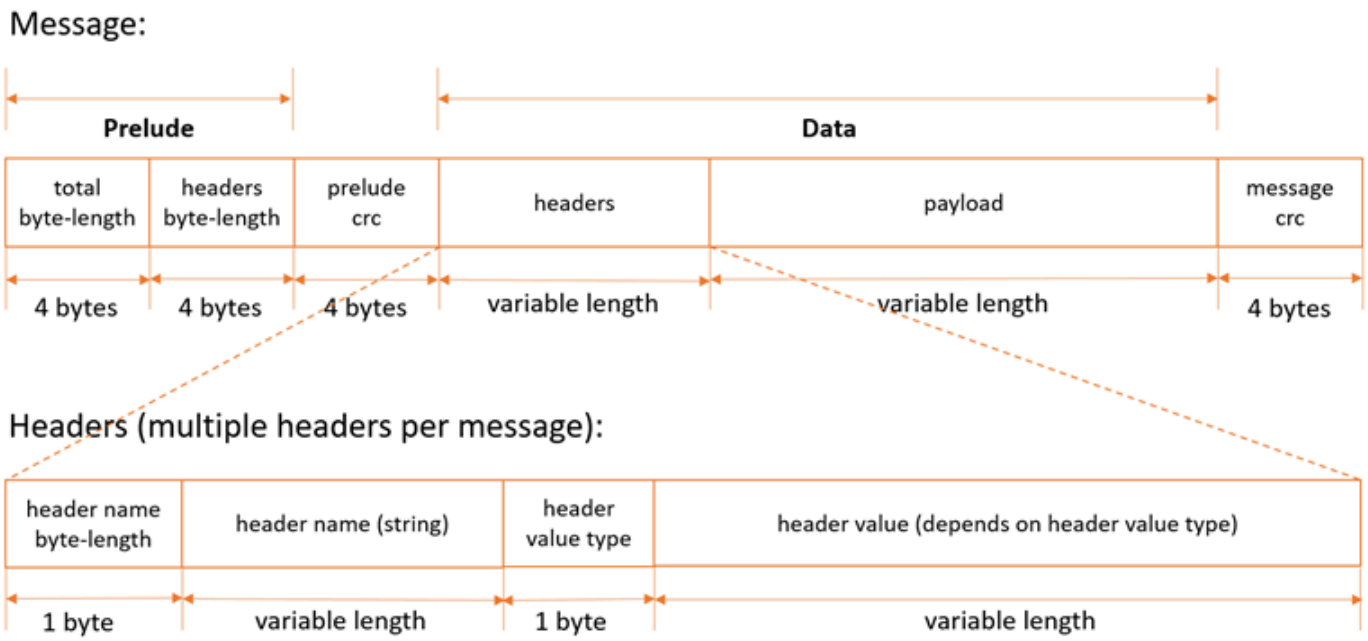
Each message consists of two sections: the prelude and the data. The prelude section consists of 1) the total byte-length of the message, and 2) the combined byte-length of all the headers. The data section consists of 1) the headers, and 2) a payload.

Each section ends with a 4-byte big-endian integer checksum (CRC). Amazon S3 Select uses CRC32 (often referred to as GZIP CRC32) to calculate both CRCs. For more information about CRC32, see *GZIP file format specification version 4.3*.

Total message overhead including the prelude and both checksums is 16 bytes.

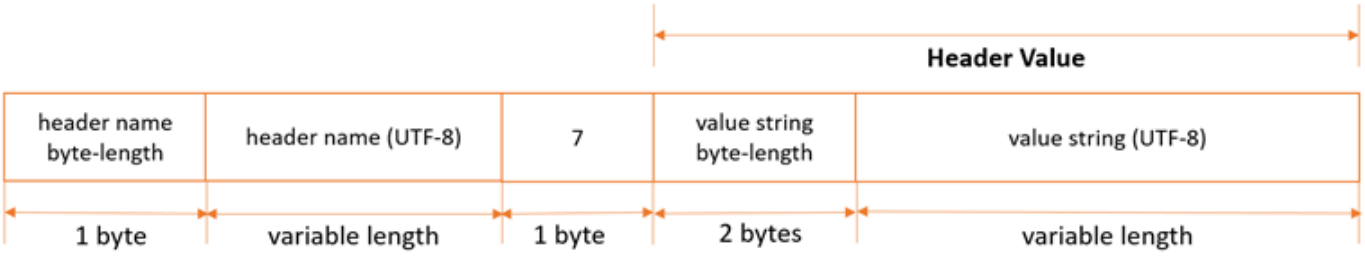
> **Note**
>
> All `integer` values within messages are in network byte order, or big-endian order.

The following diagram shows the components that make up a message and a header. Note that there are multiple headers per message.



> **Note**
>
> For Amazon S3 Select, the header value type is always 7 (type=String). For this type, the header value consists of two components, a 2-byte big-endian integer length, and a UTF-8 string that is of that byte-length. The following diagram shows the components that make up Amazon S3 Select headers.

Amazon S3 Select Headers (type=String):



Payload byte-length calculations (these two calculations are equivalent):

- payload_length = total_length - header_length - sizeOf(total_length) - sizeOf(header_length) - sizeOf(prelude_crc) - sizeOf(message_crc)
- payload_length = total_length - header_length - 16

Each message contains the following components:

- **Prelude**: Always fixed size of 8 bytes (two fields of 4 bytes each):
  - *First four bytes*: Total byte-length: Big-endian integer byte-length of the entire message (including the 4-byte total length field itself).
  - *Second four bytes*: Headers byte-length: Big-endian integer byte-length of the headers portion of the message (excluding the headers length field itself).
- **Prelude CRC**: 4-byte big-endian integer checksum (CRC) for the prelude portion of the message (excluding the CRC itself). The prelude has a separate CRC from the message CRC (see below), to ensure that corrupted byte-length information can be detected immediately, without causing pathological buffering behavior.
- **Headers**: A set of metadata annotating the message, such as the message type, payload format, and so on. Messages can have multiple headers, so this portion of the message can have different byte-lengths depending on the message type. Headers are key-value pairs, where both the key and value are UTF-8 strings. Headers can appear in any order within the headers portion of the message, and any given header type can only appear once.

  For Amazon S3 Select, following is a list of header names and the set of valid values depending on the message type.

  - *MessageType Header*:

  - HeaderName => ":message-type"
  - Valid HeaderValues => "error", "event"
- *EventType Header*:
  - HeaderName => ":event-type"
  - Valid HeaderValues => "Records", "Cont", "Progress", "Stats", "End"
- *ErrorCode Header*:
  - HeaderName => ":error-code"
  - Valid HeaderValues => Error Code from the table in the List of SELECT Object Content Error Codes section.
- *ErrorMessage Header*:
  - HeaderName => ":error-message"
  - Valid HeaderValues => Error message returned by the service, to help diagnose request-level errors.
- **Payload**: Can be anything.
- **Message CRC**: 4-byte big-endian integer checksum (CRC) from the start of the message to the start of the checksum (that is, everything in the message excluding the message CRC itself).

Each header contains the following components. There can be multiple headers per message.

- **Header Name Byte-Length**: Byte-length of the header name.
- **Header Name**: Name of the header, indicating the header type. Valid values: ":message-type" ":event-type" ":error-code" ":error-message"
- **Header Value Type**: Enum indicating the header value type. For Amazon S3 Select, this is always 7.
- **Value String Byte-Length**: (For Amazon S3 Select) Byte-length of the header value string.
- **Header Value String**: (For Amazon S3 Select) Value of the header string. Valid values for this field vary based on the type of the header. See the sections below for valid values for each header type and message type.

For Amazon S3 Select, responses can be messages of the following types:

- **Records message**: Can contain a single record, partial records, or multiple records. Depending on the size of the result, a response can contain one or more of these messages.

- **Continuation message**: Amazon S3 periodically sends this message to keep the TCP connection open. These messages appear in responses at random. The client must detect the message type and process accordingly.
- **Progress message**: Amazon S3 periodically sends this message, if requested. It contains information about the progress of a query that has started but has not yet completed.
- **Stats message**: Amazon S3 sends this message at the end of the request. It contains statistics about the query.
- **End message**: Indicates that the request is complete, and no more messages will be sent. You should not assume that the request is complete until the client receives an End message.
- **RequestLevelError message**: Amazon S3 sends this message if the request failed for any reason. It contains the error code and error message for the failure. If Amazon S3 sends a `RequestLevelError` message, it doesn't send an End message.

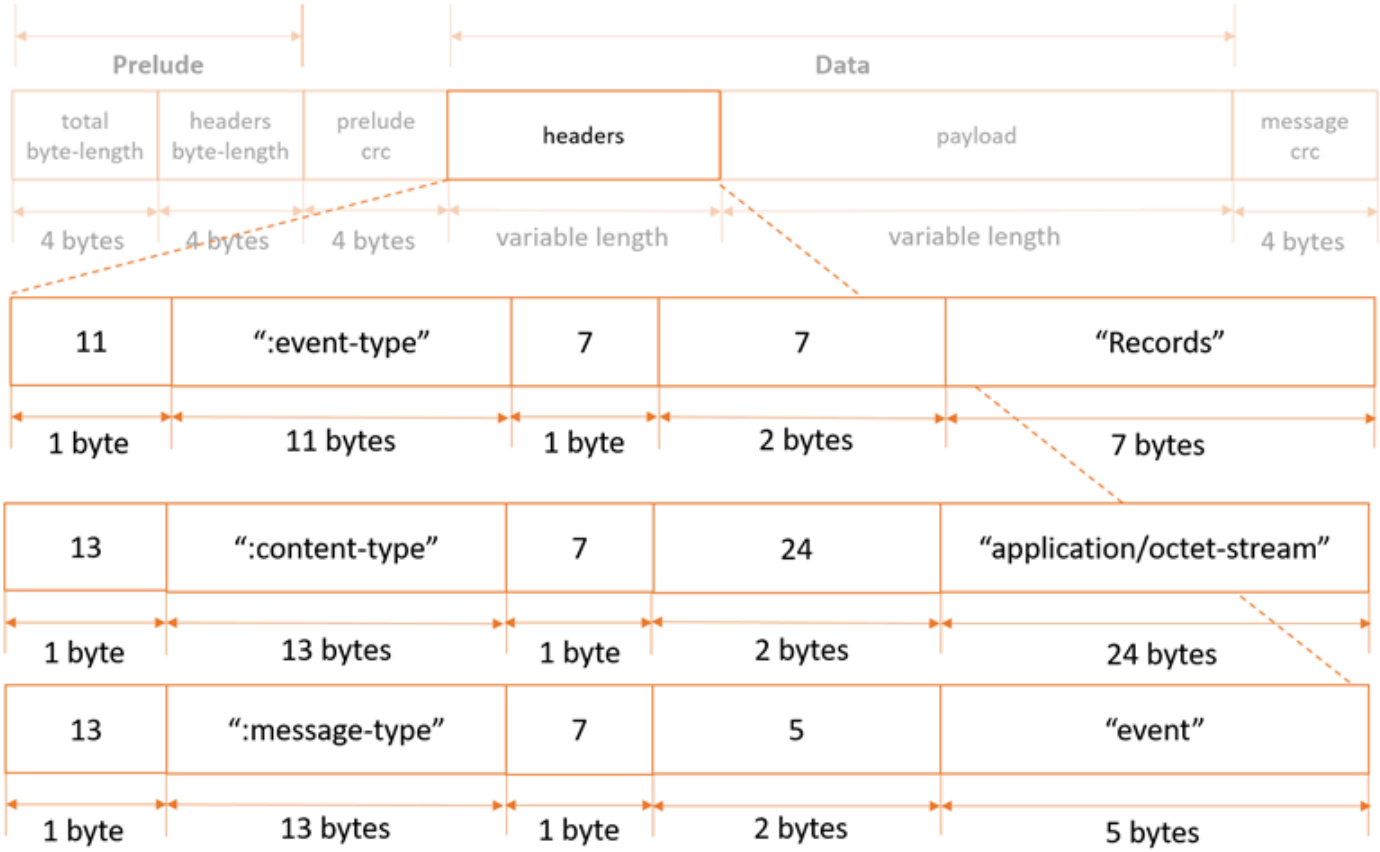
The following sections explain the structure of each message type in more detail.

For sample code and unit tests that use this protocol, see AWS C Event Stream on the GitHub website.

Records Message

Header specification

Records messages contain three headers, as follows:



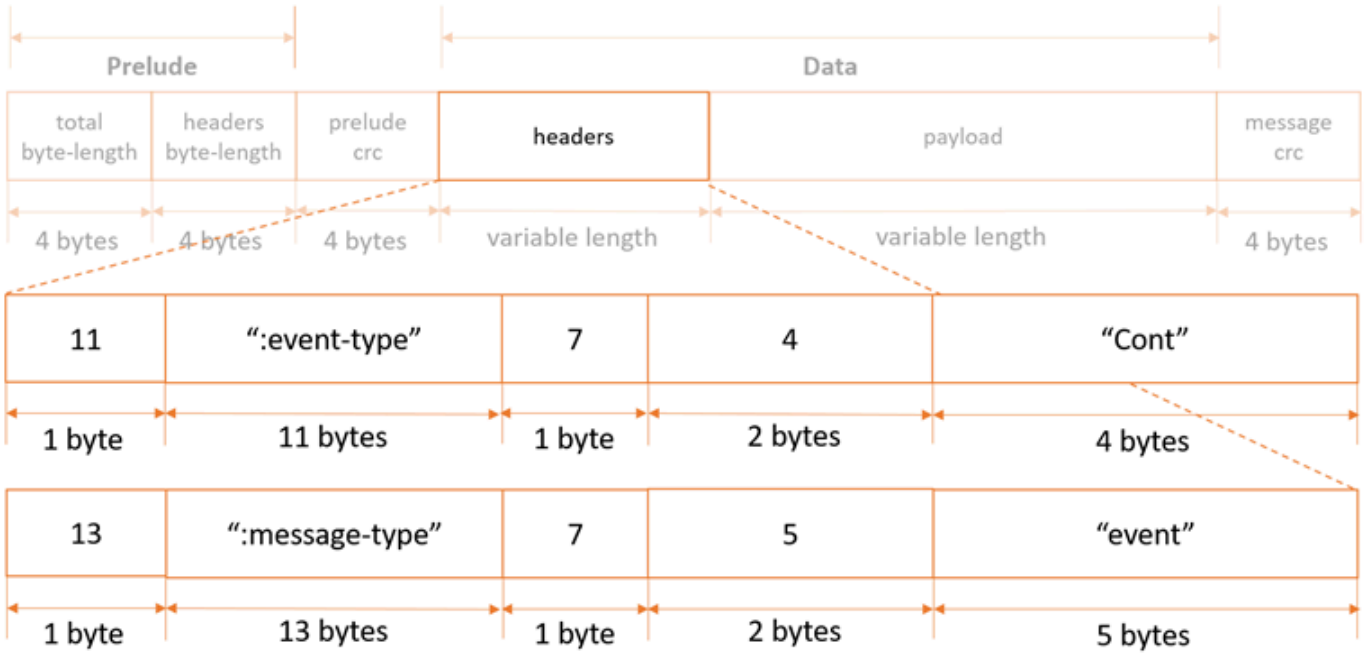
Payload specification

Records message payloads can contain a single record, partial records, or multiple records.

Continuation Message

Header specification

Continuation messages contain two headers, as follows:



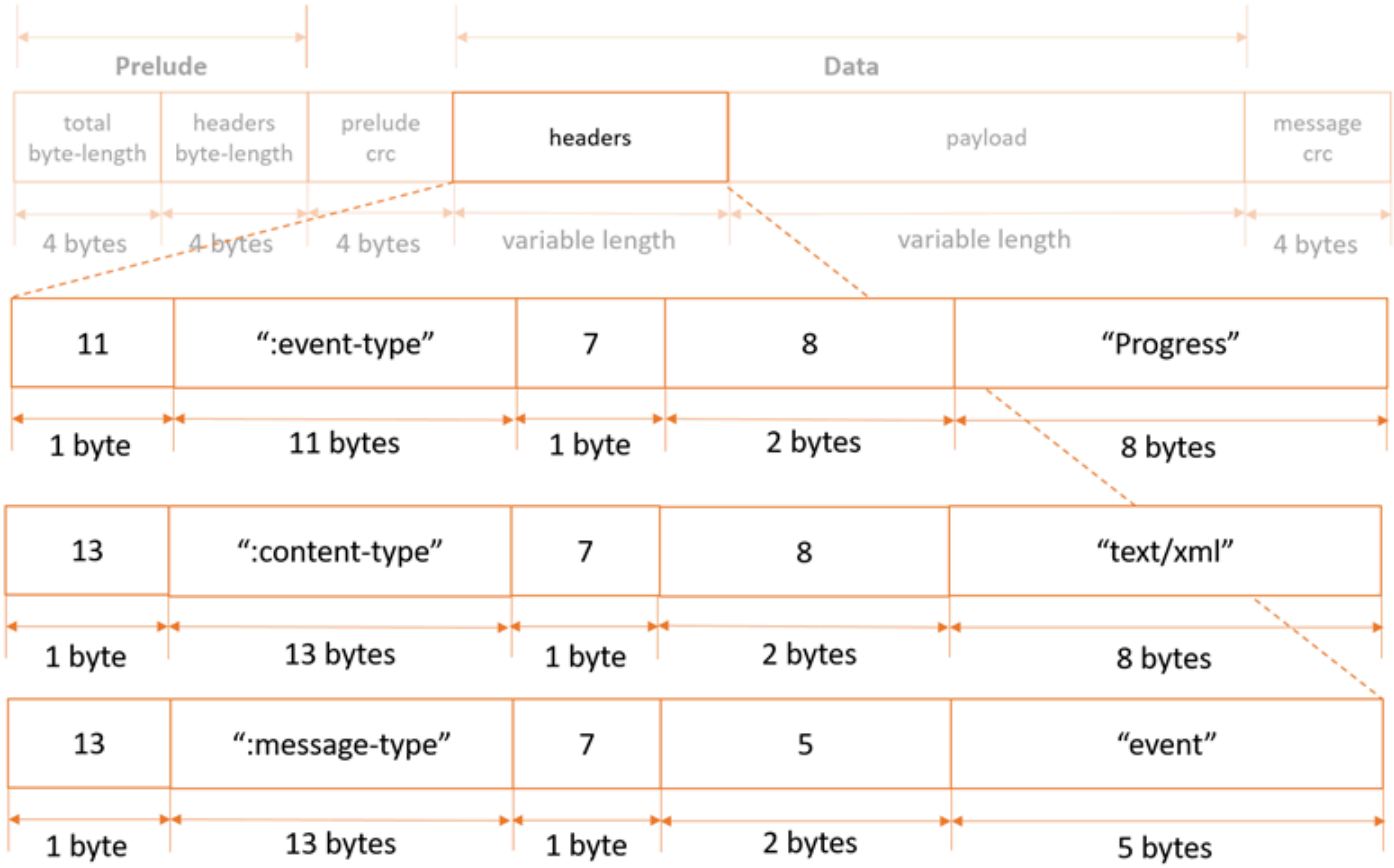
Payload specification

Continuation messages have no payload.

Progress Message

Header specification

Progress messages contain three headers, as follows:



Payload specification

Progress message payload is an XML document containing information about the progress of a request.

- *BytesScanned* => Number of bytes that have been processed before being uncompressed (if the file is compressed).
- *BytesProcessed* => Number of bytes that have been processed after being uncompressed (if the file is compressed).
- *BytesReturned* => Current number of bytes of records payload data returned by Amazon S3.

For uncompressed files, `BytesScanned` and `BytesProcessed` are equal.

Example:

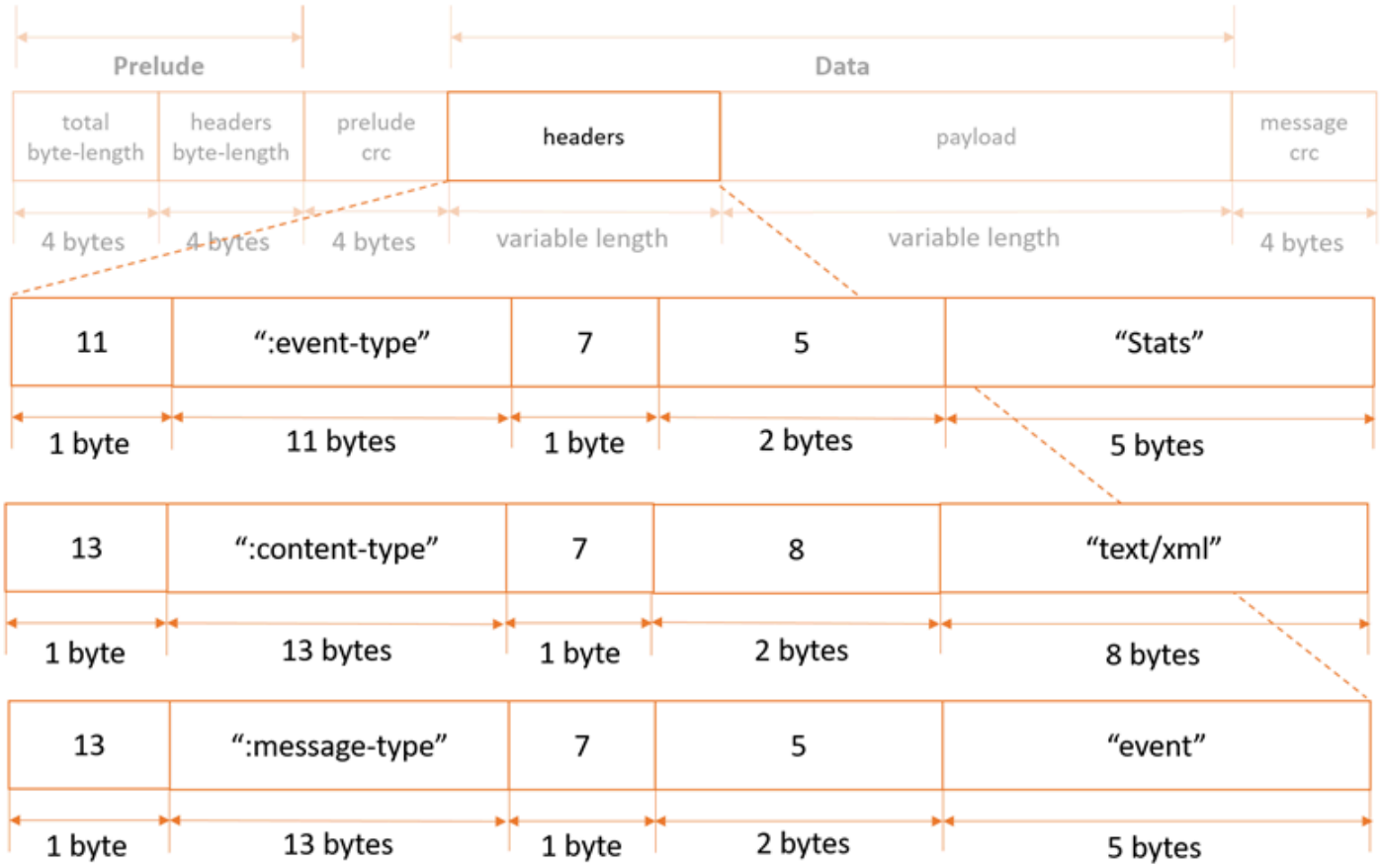
```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<Progress>
     <BytesScanned>512</BytesScanned>
     <BytesProcessed>1024</BytesProcessed>
     <BytesReturned>1024</BytesReturned>
</Progress>
```

Stats Message

Header specification

Stats messages contain three headers, as follows:



Payload specification

Stats message payload is an XML document containing information about a request's stats when processing is complete.

- *BytesScanned* => Number of bytes that have been processed before being uncompressed (if the file is compressed).

- *BytesProcessed* => Number of bytes that have been processed after being uncompressed (if the file is compressed).
- *BytesReturned* => Total number of bytes of records payload data returned by Amazon S3.

For uncompressed files, `BytesScanned` and `BytesProcessed` are equal.

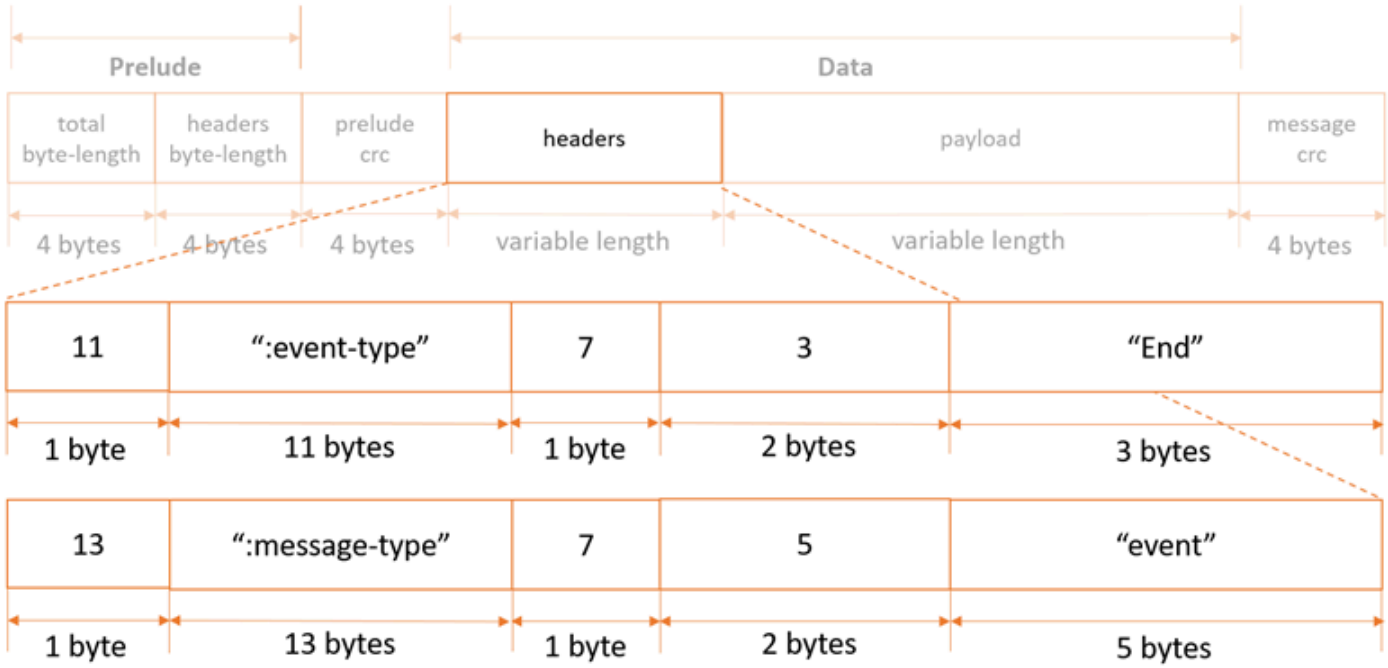
Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<Stats>
     <BytesScanned>512</BytesScanned>
     <BytesProcessed>1024</BytesProcessed>
     <BytesReturned>1024</BytesReturned>
</Stats>
```

End Message

Header specification

End messages contain two headers, as follows:



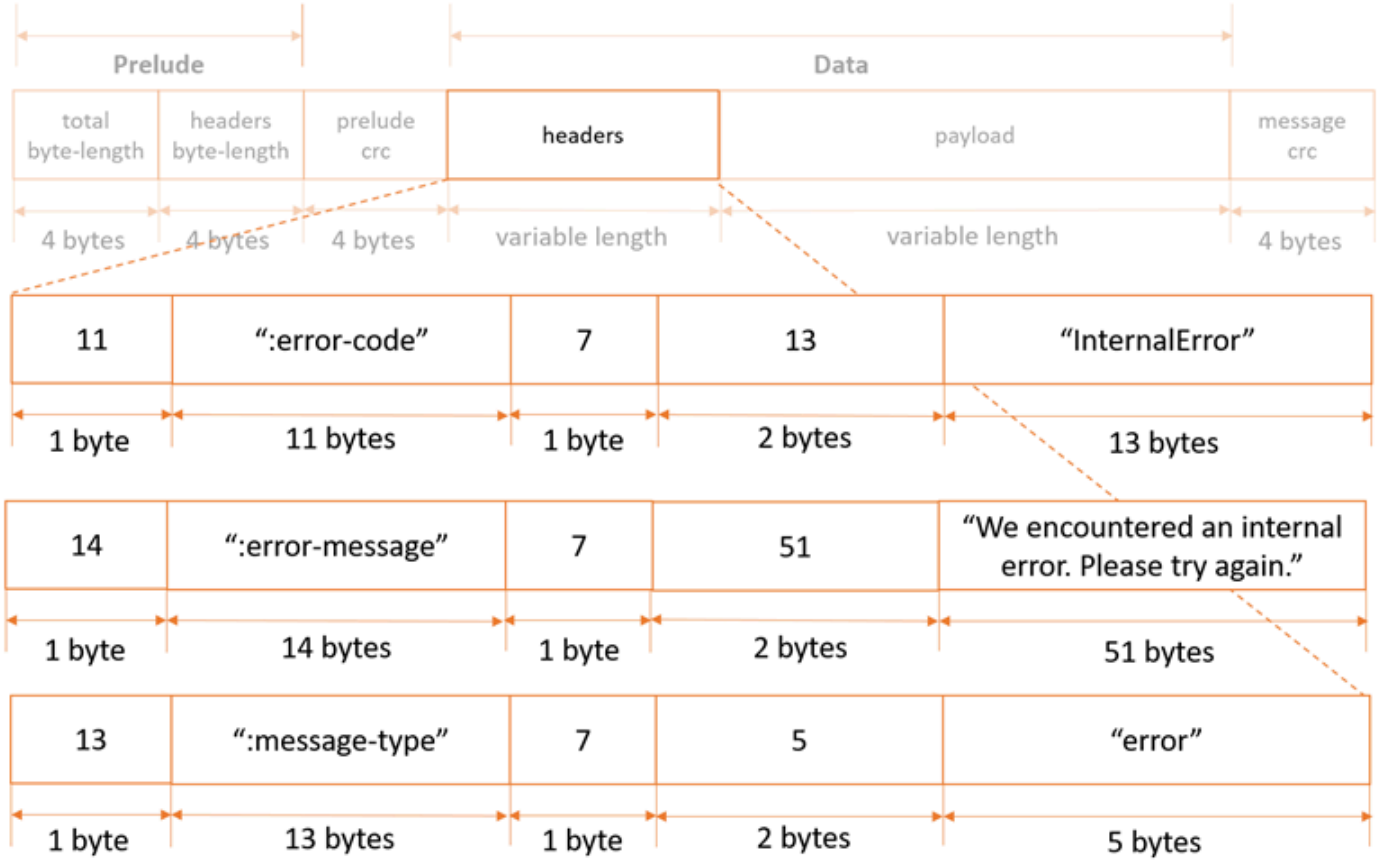
Payload specification

End messages have no payload.

Request Level Error Message

Header specification

Request-level error messages contain three headers, as follows:



For a list of possible error codes and error messages, see the List of SELECT Object Content Error Codes.

Payload specification

Request-level error messages have no payload.

Related Resources

- the section called "SelectObjectContent"

- the section called “GetObject”
- the section called “GetBucketLifecycleConfiguration”
- the section called “PutBucketLifecycleConfiguration”

Appendix: OPTIONS object

Description

A browser can send this preflight request to Amazon S3 to determine if it can send an actual request with the specific origin, HTTP method, and headers.

Amazon S3 supports cross-origin resource sharing (CORS) by enabling you to add a `cors` subresource on a bucket. When a browser sends this preflight request, Amazon S3 responds by evaluating the rules that are defined in the `cors` configuration.

If `cors` is not enabled on the bucket, then Amazon S3 returns a `403 Forbidden` response.

For more information about CORS, go to Enabling Cross-Origin Resource Sharing in the *Amazon Simple Storage Service User Guide*.

Requests

Syntax

```
OPTIONS /ObjectName HTTP/1.1
Host: BucketName.s3.amazonaws.com
Origin: Origin
Access-Control-Request-Method: HTTPMethod
Access-Control-Request-Headers: RequestHeader
```

Request Parameters

This operation does not introduce any specific request parameters, but it may contain any request parameters that are required by the actual request.

Request Headers

Name	Description	Required
`Origin`	Identifies the origin of the cross-origin request to Amazon S3. For example, http://www.example.com. Type: String	Yes

Name	Description	Required
	Default: None	
`Access-Control-Request-Method`	Identifies what HTTP method will be used in the actual request. Type: String Default: None	Yes
`Access-Control-Request-Headers`	A comma-delimited list of HTTP headers that will be sent in the actual request. For example, to put an object with server-side encryption, this preflight request will determine if it can include the `x-amz-server-side-encryption` header with the request. Type: String Default: None	No

Request Elements

This implementation of the operation does not use request elements.

Responses

Response Headers

Header	Description
`Access-Control-Allow-Origin`	The origin you sent in your request. If the origin in your request is not allowed, Amazon S3 will not include this header in the response.

Header	Description
	Type: String
`Access-Control-Max-Age`	How long, in seconds, the results of the preflight request can be cached. Type: String
`Access-Control-Allow-Methods`	The HTTP method that was sent in the original request. If the method in the request is not allowed, Amazon S3 will not include this header in the response. Type: String
`Access-Control-Allow-Headers`	A comma-delimited list of HTTP headers that the browser can send in the actual request. If any of the requested headers is not allowed, Amazon S3 will not include that header in the response, nor will the response contain any of the headers with the `Access-Control` prefix. Type: String
`Access-Control-Expose-Headers`	A comma-delimited list of HTTP headers. This header provides the JavaScript client with access to these headers in the response to the actual request. Type: String

Response Elements

This implementation of the operation does not return response elements.

Examples

Example : Send a preflight OPTIONS request to a `cors` enabled bucket

A browser can send this preflight request to Amazon S3 to determine if it can send the actual PUT request from http://www.example.com origin to the Amazon S3 bucket named `examplebucket`.

Sample Request

```
OPTIONS /exampleobject HTTP/1.1
Host: examplebucket.s3.amazonaws.com
Origin: http://www.example.com
Access-Control-Request-Method: PUT
```

Sample Response

```
HTTP/1.1 200 OK
x-amz-id-2: 6SvaESv3VULYPLik5LLl7lSPPtSnBvDdGmnklX1HfUl7uS2m1DF6td6KWKNjYMXZ
x-amz-request-id: BDC4B83DF5096BBE
Date: Wed, 21 Aug 2012 23:09:55 GMT
Etag: "1f1a1af1f1111111111111c11aed1da1"
Access-Control-Allow-Origin: http://www.example.com
Access-Control-Allow-Methods: PUT
Access-Control-Expose-Headers: x-amz-request-id
Content-Length: 0
Server: AmazonS3
```

Related Resources

- GetBucketCors
- DeleteBucketCors
- PutBucketCors

Appendix: SOAP API

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

This section describes the SOAP API with respect to service, bucket, and object operations. Note that SOAP requests, both authenticated and anonymous, must be sent to Amazon S3 using SSL. Amazon S3 returns an error when you send a SOAP request over HTTP.

The latest Amazon S3 WSDL is available at docs.aws.amazon.com/2006-03-01/AmazonS3.wsdl.

Topics

- Operations on the Service (SOAP API)
- Operations on Buckets (SOAP API)
- Operations on Objects (SOAP API)
- Authenticating SOAP requests
- Setting access policy with SOAP
- Common elements
- SOAP Error Responses

Operations on the Service (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

This section describes operations you can perform on the Amazon S3 service.

Topics

- ListAllMyBuckets (SOAP API)

ListAllMyBuckets (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

The `ListAllMyBuckets` operation returns a list of all buckets owned by the sender of the request.

Example

Sample Request

```
<ListAllMyBuckets xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</ListAllMyBuckets>
```

Sample Response

```
<ListAllMyBucketsResult xmlns="http://s3.amazonaws.com/doc/2006-03-01">
  <Owner>
    <ID>bcaf1ffd86f41161ca5fb16fd081034f</ID>
    <DisplayName>webfile</DisplayName>
  </Owner>
  <Buckets>
    <Bucket>
      <Name>quotes;/Name>
      <CreationDate>2006-02-03T16:45:09.000Z</CreationDate>
    </Bucket>
    <Bucket>
      <Name>samples</Name>
      <CreationDate>2006-02-03T16:41:58.000Z</CreationDate>
    </Bucket>
```

```
 </Buckets>
</ListAllMyBucketsResult>
```

Response Body

- `Owner:`

  This provides information that Amazon S3 uses to represent your identity for purposes of authentication and access control. ID is a unique and permanent identifier for the developer who made the request. DisplayName is a human-readable name representing the developer who made the request. It is not unique, and might change over time.We recommend that you match your DisplayName to your Forum name.

- `Name:`

  The name of a bucket. Note that if one of your buckets was recently deleted, the name of the deleted bucket might still be present in this list for a period of time.

- `CreationDate:`

  The time that the bucket was created.

Access Control

You must authenticate with a valid AWS Access Key ID. Anonymous requests are never allowed to list buckets, and you can only list buckets for which you are the owner.

Operations on Buckets (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

This section describes operations you can perform on Amazon S3 buckets.

Topics

- CreateBucket (SOAP API)

- DeleteBucket (SOAP API)
- ListBucket (SOAP API)
- GetBucketAccessControlPolicy (SOAP API)
- SetBucketAccessControlPolicy (SOAP API)
- GetBucketLoggingStatus (SOAP API)
- SetBucketLoggingStatus (SOAP API)

CreateBucket (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

The `CreateBucket` operation creates a bucket. Not every string is an acceptable bucket name. For information on bucket naming restrictions, see Working with Amazon S3 Buckets .

> **Note**
>
> To determine whether a bucket name exists, use `ListBucket` and set `MaxKeys` to 0. A NoSuchBucket response indicates that the bucket is available, an AccessDenied response indicates that someone else owns the bucket, and a Success response indicates that you own the bucket or have permission to access it.

Example Create a bucket named "quotes"

`Sample Request`

```
<CreateBucket xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <Bucket>quotes</Bucket>
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
```

```
</CreateBucket>
```

Sample Response

```
<CreateBucketResponse xmlns="http://s3.amazonaws.com/doc/2006-03-01">
  <CreateBucketResponse>
    <Bucket>quotes</Bucket>
  </CreateBucketResponse>
</CreateBucketResponse>
```

Elements

- `Bucket:` The name of the bucket you are trying to create.
- `AccessControlList:` The access control list for the new bucket. This element is optional. If not provided, the bucket is created with an access policy that give the requester FULL_CONTROL access.

Access Control

You must authenticate with a valid AWS Access Key ID. Anonymous requests are never allowed to create buckets.

Related Resources

- ListBucket (SOAP API)

DeleteBucket (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

The `DeleteBucket` operation deletes a bucket. All objects in the bucket must be deleted before the bucket itself can be deleted.

Example

This example deletes the "quotes" bucket.

`Sample Request`

```
<DeleteBucket xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <Bucket>quotes</Bucket>
  <AWSAccessKeyId> AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</DeleteBucket>
```

`Sample Response`

```
<DeleteBucketResponse xmlns="http://s3.amazonaws.com/doc/2006-03-01">
  <DeleteBucketResponse>
    <Code>204</Code>
    <Description>No Content</Description>
  </DeleteBucketResponse>
</DeleteBucketResponse>
```

Elements

- `Bucket`: The name of the bucket you want to delete.

Access Control

Only the owner of a bucket is allowed to delete it, regardless the access control policy on the bucket.

ListBucket (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

The `ListBucket` operation returns information about some of the items in the bucket.

For a general introduction to the list operation, see the Listing Object Keys.

Requests

This example lists up to 1000 keys in the "quotes" bucket that have the prefix "notes."

Syntax

```
<ListBucket xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <Bucket>quotes</Bucket>
  <Prefix>notes/</Prefix>
  <Delimiter>/</Delimiter>
  <MaxKeys>1000</MaxKeys>
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</ListBucket>
```

Parameters

Name	Description	Required
`prefix`	Limits the response to keys which begin with the indicated prefix. You can use prefixes to separate a bucket into different sets of keys in a way similar to how a file system uses folders. **Important** Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints. Type: String Default: None	No
`marker`	Indicates where in the bucket to begin listing. The list will only include keys that occur lexicographically after marker. This is	No

Name	Description	Required
	convenient for pagination: To get the next page of results use the last key of the current page as the marker. Type: String Default: None	
`max-keys`	The maximum number of keys you'd like to see in the response body. The server might return fewer than this many keys, but will not return more. Type: String Default: None	No
`delimiter`	Causes keys that contain the same string between the prefix and the first occurrence of the delimiter to be rolled up into a single result element in the CommonPrefixes collection. These rolled-up keys are not returned elsewhere in the response. Type: String Default: None	No

Success Response

This response assumes the bucket contains the following keys:

```
notes/todos.txt
notes/2005-05-23/customer_mtg_notes.txt
notes/2005-05-23/phone_notes.txt
notes/2005-05-28/sales_notes.txt
```

Syntax

```
<?xml version="1.0" encoding="UTF-8"?>
<ListBucketResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Name>backups</Name>
  <Prefix>notes/</Prefix>
```

```
  <MaxKeys>1000</MaxKeys>
  <Delimiter>/</Delimiter>
  <IsTruncated>false</IsTruncated>
  <Contents>
    <Key>notes/todos.txt</Key>
    <LastModified>2006-01-01T12:00:00.000Z</LastModified>
    <ETag>&quot;828ef3fdfa96f00ad9f27c383fc9ac7f&quot;</ETag>
    <Size>5126</Size>
    <StorageClass>STANDARD</StorageClass>
    <Owner>
      <ID>75aa57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
      <DisplayName>webfile</DisplayName>
    </Owner>
    <StorageClass>STANDARD</StorageClass>
  </Contents>
  <CommonPrefixes>
    <Prefix>notes/2005-05-23/</Prefix>
  </CommonPrefixes>
  <CommonPrefixes>
    <Prefix>notes/2005-05-28/</Prefix>
  </CommonPrefixes>
  </ListBucketResult>
```

As you can see, many of the fields in the response echo the request parameters. `IsTruncated`, `Contents`, and `CommonPrefixes` are the only response elements that can contain new information.

Response Elements

Name	Description
`Contents`	Metadata about each object returned. Type: XML metadata Ancestor: ListBucketResult
`CommonPrefixes`	A response can contain `CommonPrefixes` only if you specify a `delimiter`. When you do, `CommonPrefixes` contains all (if there are any) keys between `Prefix` and the next occurrence of the string specified by `delimiter`. In effect, `CommonPrefixes` lists keys that act like subdirectories in the directory specified by `Prefix`. For example, if `prefix` is

Name	Description
	`notes/` and `delimiter` is a slash (/), in `notes/summer/july` , the common prefix is `notes/summer/` . Type: String Ancestor: ListBucketResult
`Delimiter`	Causes keys that contain the same string between the prefix and the first occurrence of the delimiter to be rolled up into a single result element in the CommonPrefixes collection. These rolled-up keys are not returned elsewhere in the response. Type: String Ancestor: ListBucketResult
`IsTruncated`	Specifies whether (true) or not (false) all of the results were returned. All of the results may not be returned if the number of results exceeds that specified by `MaxKeys`. Type: String Ancestor: boolean
`Marker`	Indicates where in the bucket to begin listing. Type: String Ancestor: ListBucketResult
`MaxKeys`	The maximum number of keys returned in the response body. Type: String Ancestor: ListBucketResult

Name	Description
`Name`	Name of the bucket. Type: String Ancestor: ListBucketResult
`Prefix`	Keys that begin with the indicated prefix. Type: String Ancestor: ListBucketResult

Response Body

For information about the list response, see Listing Keys Response.

Access Control

To list the keys of a bucket you need to have been granted `READ` access on the bucket.

GetBucketAccessControlPolicy (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

The `GetBucketAccessControlPolicy` operation fetches the access control policy for a bucket.

Example

This example retrieves the access control policy for the "quotes" bucket.

`Sample Request`

```
<GetBucketAccessControlPolicy xmlns="http://doc.s3.amazonaws.com/2006-03-01">
```

```
  <Bucket>quotes</Bucket>
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</GetBucketAccessControlPolicy>
```

Sample Response

```
<AccessControlPolicy>
  <Owner>
    <ID>a9a7b886d6fd2441bf9b1c61be666e9</ID>
    <DisplayName>chriscustomer</DisplayName>
  </Owner>
  <AccessControlList>
    <Grant>
      <Grantee xsi:type="CanonicalUser">
        <ID>a9a7b886d6f41bf9b1c61be666e9</ID>
        <DisplayName>chriscustomer</DisplayName>
      </Grantee>
      <Permission>FULL_CONTROL</Permission>
    </Grant>
    <Grant>
      <Grantee xsi:type="Group">
        <URI>http://acs.amazonaws.com/groups/global/AllUsers<URI>
      </Grantee>
      <Permission>READ</Permission>
    </Grant>
  </AccessControlList>
<AccessControlPolicy>
```

Response Body

The response contains the access control policy for the bucket. For an explanation of this response, see SOAP Access Policy .

Access Control

You must have READ_ACP rights to the bucket in order to retrieve the access control policy for a bucket.

SetBucketAccessControlPolicy (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

The `SetBucketAccessControlPolicy` operation sets the Access Control Policy for an existing bucket. If successful, the previous Access Control Policy for the bucket is entirely replaced with the specified Access Control Policy.

Example

Give the specified user (usually the owner) `FULL_CONTROL` access to the "quotes" bucket.

Sample Request

```
<SetBucketAccessControlPolicy xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <Bucket>quotes</Bucket>
  <AccessControlList>
    <Grant>
      <Grantee xsi:type="CanonicalUser">
        <ID>a9a7b8863000e241bf9b1c61be666e9</ID>
        <DisplayName>chriscustomer</DisplayName>
      </Grantee>
      <Permission>FULL_CONTROL</Permission>
    </Grant>
  </AccessControlList>
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</SetBucketAccessControlPolicy >
```

Sample Response

```
<GetBucketAccessControlPolicyResponse xmlns="http://s3.amazonaws.com/doc/2006-03-01">
  <GetBucketAccessControlPolicyResponse>
    <Code>200</Code>
```

```
    <Description>OK</Description>
  </GetBucketAccessControlPolicyResponse>
</GetBucketAccessControlPolicyResponse>
```

Access Control

You must have `WRITE_ACP` rights to the bucket in order to set the access control policy for a bucket.

GetBucketLoggingStatus (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

The `GetBucketLoggingStatus` retrieves the logging status for an existing bucket.

For a general introduction to this feature, see Server Logs.

Example

`Sample Request`

```
<?xml version="1.0" encoding="utf-8"?>
    <soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://
www.w3.org/2001/XMLSchema">
      <soap:Body>
        <GetBucketLoggingStatus xmlns="http://doc.s3.amazonaws.com/2006-03-01">
          <Bucket>mybucket</Bucket>
          <AWSAccessKeyId>YOUR_AWS_ACCESS_KEY_ID</AWSAccessKeyId>
          <Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
          <Signature>YOUR_SIGNATURE_HERE</Signature>
        </GetBucketLoggingStatus>
      </soap:Body>
    </soap:Envelope>
```

Sample Response

```
<?xml version="1.0" encoding="utf-8"?>
    <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/
XMLSchema-instance" >
      <soapenv:Header>
      </soapenv:Header>
      <soapenv:Body>
        <GetBucketLoggingStatusResponse xmlns="http://s3.amazonaws.com/doc/2006-03-01">
          <GetBucketLoggingStatusResponse>
            <LoggingEnabled>
              <TargetBucket>mylogs</TargetBucket>
              <TargetPrefix>mybucket-access_log-</TargetPrefix>
            </LoggingEnabled>
          </GetBucketLoggingStatusResponse>
        </GetBucketLoggingStatusResponse>
      </soapenv:Body>
    </soapenv:Envelope>
```

Access Control

Only the owner of a bucket is permitted to invoke this operation.

SetBucketLoggingStatus (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

The `SetBucketLoggingStatus` operation updates the logging status for an existing bucket.

For a general introduction to this feature, see Server Logs.

Example

This sample request enables server access logging for the 'mybucket' bucket, and configures the logs to be delivered to 'mylogs' under prefix 'access_log-'

Sample Request

```
<?xml version="1.0" encoding="utf-8"?>
    <soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://
www.w3.org/2001/XMLSchema">
    <soap:Body>
    <SetBucketLoggingStatus xmlns="http://doc.s3.amazonaws.com/2006-03-01">
      <Bucket>myBucket</Bucket>
      <AWSAccessKeyId>YOUR_AWS_ACCESS_KEY_ID</AWSAccessKeyId>
      <Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
      <Signature>YOUR_SIGNATURE_HERE</Signature>
      <BucketLoggingStatus>
        <LoggingEnabled>
          <TargetBucket>mylogs</TargetBucket>
          <TargetPrefix>mybucket-access_log-</TargetPrefix>
        </LoggingEnabled>
      </BucketLoggingStatus>
    </SetBucketLoggingStatus>
    </soap:Body>
    :</soap:Envelope>
```

Sample Response

```
<?xml version="1.0" encoding="utf-8"?>
    <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/
XMLSchema-instance" >
      <soapenv:Header>
      </soapenv:Header>
      <soapenv:Body>
        <SetBucketLoggingStatusResponse xmlns="http://s3.amazonaws.com/doc/2006-03-01"/
>
      </soapenv:Body>
    </soapenv:Envelope>
```

Access Control

Only the owner of a bucket is permitted to invoke this operation.

Operations on Objects (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

This section describes operations you can perform on Amazon S3 objects.

Topics

- PutObjectInline (SOAP API)
- PutObject (SOAP API)
- CopyObject (SOAP API)
- GetObject (SOAP API)
- GetObjectExtended (SOAP API)
- DeleteObject (SOAP API)
- GetObjectAccessControlPolicy (SOAP API)
- SetObjectAccessControlPolicy (SOAP API)

PutObjectInline (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

The `PutObjectInline` operation adds an object to a bucket. The data for the object is provided in the body of the SOAP message.

If an object already exists in a bucket, the new object will overwrite it because Amazon S3 stores the last write request. However, Amazon S3 is a distributed system. If Amazon S3 receives multiple

write requests for the same object nearly simultaneously, all of the objects might be stored, even though only one wins in the end. Amazon S3 does not provide object locking; if you need this, make sure to build it into your application layer.

To ensure an object is not corrupted over the network, you can calculate the MD5 of an object, PUT it to Amazon S3, and compare the returned Etag to the calculated MD5 value.

PutObjectInline is not suitable for use with large objects. The system limits this operation to working with objects 1MB or smaller. PutObjectInline will fail with the `InlineDataTooLargeError` status code if the Data parameter encodes an object larger than 1MB. To upload large objects, consider using the non-inline PutObject API, or the REST API instead.

Example

This example writes some text and metadata into the "Nelson" object in the "quotes" bucket, give a user (usually the owner) `FULL_CONTROL` access to the object, and make the object readable by anonymous parties.

`Sample Request`

```
<PutObjectInline xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <Bucket>quotes</Bucket>
  <Key>Nelson</Key>
  <Metadata>
    <Name>Content-Type</Name>
    <Value>text/plain</Value>
  </Metadata>
  <Metadata>
    <Name>family</Name>
    <Value>Muntz</Value>
  </Metadata>
  <Data>aGEtaGE=</Data>
  <ContentLength>5</ContentLength>
  <AccessControlList>
    <Grant>
      <Grantee xsi:type="CanonicalUser">
        <ID>a9a7b886d6fde241bf9b1c61be666e9</ID>
        <DisplayName>chriscustomer</DisplayName>
      </Grantee>
      <Permission>FULL_CONTROL</Permission>
    </Grant>
    <Grant>
```

```
      <Grantee xsi:type="Group">
        <URI>http://acs.amazonaws.com/groups/global/AllUsers</URI>
      </Grantee>
      <Permission>READ</Permission>
    </Grant>
  </AccessControlList>
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</PutObjectInline>
```

`Sample Response`

```
<PutObjectInlineResponse xmlns="http://s3.amazonaws.com/doc/2006-03-01">
  <PutObjectInlineResponse>
    <ETag>&quot828ef3fdfa96f00ad9f27c383fc9ac7f&quot</ETag>
    <LastModified>2006-01-01T12:00:00.000Z</lastModified>
  </PutObjectInlineResponse>
</PutObjectInlineResponse>
```

Elements

- `Bucket:` The bucket in which to add the object.
- `Key:` The key to assign to the object.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

- `Metadata:` You can provide name-value metadata pairs in the metadata element. These will be stored with the object.
- `Data:` The base 64 encoded form of the data.
- `ContentLength:` The length of the data in bytes.

- `AccessControlList:` An Access Control List for the resource. This element is optional. If omitted, the requester is given `FULL_CONTROL` access to the object. If the object already exists, the preexisting access control policy is replaced.

Responses

- `ETag:` The entity tag is an MD5 hash of the object that you can use to do conditional fetches of the object using `GetObjectExtended`. The ETag only reflects changes to the contents of an object, not its metadata.
- `LastModified:` The Amazon S3 timestamp for the saved object.

Access Control

You must have `WRITE` access to the bucket in order to put objects into the bucket.

Related Resources

- PutObject (SOAP API)
- CopyObject (SOAP API)

PutObject (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

The `PutObject` operation adds an object to a bucket. The data for the object is attached as a DIME attachment.

To ensure an object is not corrupted over the network, you can calculate the MD5 of an object, PUT it to Amazon S3, and compare the returned Etag to the calculated MD5 value.

If an object already exists in a bucket, the new object will overwrite it because Amazon S3 stores the last write request. However, Amazon S3 is a distributed system. If Amazon S3 receives multiple

write requests for the same object nearly simultaneously, all of the objects might be stored, even though only one wins in the end. Amazon S3 does not provide object locking; if you need this, make sure to build it into your application layer.

Example

This example puts some data and metadata in the "Nelson" object of the "quotes" bucket, give a user (usually the owner) `FULL_CONTROL` access to the object, and make the object readable by anonymous parties. In this sample, the actual attachment is not shown.

`Sample Request`

```
<PutObject xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <Bucket>quotes</Bucket>
  <Key>Nelson</Key>
  <Metadata>
    <Name>Content-Type</Name>
    <Value>text/plain</Value>
  </Metadata>
  <Metadata>
    <Name>family</Name>
    <Value>Muntz</Value>
  </Metadata>
  <ContentLength>5</ContentLength>
  <AccessControlList>
    <Grant>
      <Grantee xsi:type="CanonicalUser">
        <ID>a9a7b886d6241bf9b1c61be666e9</ID>
        <DisplayName>chriscustomer</DisplayName>
      </Grantee>
      <Permission>FULL_CONTROL</Permission>
    </Grant>
    <Grant>
      <Grantee xsi:type="Group">
        <URI>http://acs.amazonaws.com/groups/global/AllUsers<URI>
      </Grantee>
      <Permission>READ</Permission>
    </Grant>
  </AccessControlList>
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2007-05-11T12:00:00.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</PutObject>
```

Sample Response

```
<PutObjectResponse xmlns="http://s3.amazonaws.com/doc/2006-03-01">
  <PutObjectResponse>
    <ETag>&quot;828ef3fdfa96f00ad9f27c383fc9ac7f&quot;</ETag>
    <LastModified>2006-03-01T12:00:00.183Z</LastModified>
  </PutObjectResponse>
</PutObjectResponse>
```

Elements

- `Bucket`: The bucket in which to add the object.
- `Key`: The key to assign to the object.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

- `Metadata`: You can provide name-value metadata pairs in the metadata element. These will be stored with the object.
- `ContentLength`: The length of the data in bytes.
- `AccessControlList`: An Access Control List for the resource. This element is optional. If omitted, the requester is given `FULL_CONTROL` access to the object. If the object already exists, the preexisting Access Control Policy is replaced.

Responses

- `ETag`: The entity tag is an MD5 hash of the object that you can use to do conditional fetches of the object using `GetObjectExtended`. The ETag only reflects changes to the contents of an object, not its metadata.
- `LastModified`: The Amazon S3 timestamp for the saved object.

Access Control

To put objects into a bucket, you must have `WRITE` access to the bucket.

Related Resources

- CopyObject (SOAP API)

CopyObject (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

Description

The `CopyObject` operation creates a copy of an object when you specify the key and bucket of a source object and the key and bucket of a target destination.

When copying an object, you can preserve all metadata (default) or specify new metadata. However, the ACL is not preserved and is set to `private` for the user making the request. To override the default ACL setting, specify a new ACL when generating a copy request. For more information, see Using ACLs.

All copy requests must be authenticated. Additionally, you must have *read* access to the source object and *write* access to the destination bucket. For more information, see Using Auth Access.

To only copy an object under certain conditions, such as whether the Etag matches or whether the object was modified before or after a specified date, use the request parameters `CopySourceIfUnmodifiedSince`, `CopyIfUnmodifiedSince`, `CopySourceIfMatch`, or `CopySourceIfNoneMatch`.

> **Note**
>
> You might need to configure the SOAP stack socket timeout for copying large objects.

Request Syntax

```
<CopyObject xmlns="http://bucket_name.s3.amazonaws.com/2006-03-01">
```

```
  <SourceBucket>source_bucket</SourceBucket>
  <SourceObject>source_object</SourceObject>
  <DestinationBucket>destination_bucket</DestinationBucket>
  <DestinationObject>destination_object</DestinationObject>
  <MetadataDirective>{REPLACE | COPY}</MetadataDirective>
  <Metadata>
    <Name>metadata_name</Name>
    <Value>metadata_value</Value>
  </Metadata>
  ...
  <AccessControlList>
    <Grant>
      <Grantee xsi:type="user_type">
        <ID>user_id</ID>
        <DisplayName>display_name</DisplayName>
      </Grantee>
      <Permission>permission</Permission>
    </Grant>
    ...
  </AccessControlList>
  <CopySourceIfMatch>etag</CopySourceIfMatch>
  <CopySourceIfNoneMatch>etag</CopySourceIfNoneMatch>
  <CopySourceIfModifiedSince>date_time</CopySourceIfModifiedSince>
  <CopySourceIfUnmodifiedSince>date_time</CopySourceIfUnmodifiedSince>
  <AWSAccessKeyId>AWSAccessKeyId</AWSAccessKeyId>
  <Timestamp>TimeStamp</Timestamp>
  <Signature>Signature</Signature>
</CopyObject>
```

Request Parameters

Name	Description	Required
`SourceBucket`	The name of the source bucket. Type: String Default: None Constraints: A valid source bucket.	Yes
`SourceKey`	The key name of the source object.	Yes

Name	Description	Required
	Type: String Default: None Constraints: The key for a valid source object to which you have READ access. **Important** Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more informati on, see XML related object key constraints.	
`DestinationBucket`	The name of the destination bucket. Type: String Default: None Constraints: You must have WRITE access to the destination bucket.	Yes
`DestinationKey`	The key of the destination object. Type: String Default: None Constraints: You must have WRITE access to the destination bucket.	Yes

Name	Description	Required
`MetadataDirective`	Specifies whether the metadata is copied from the source object or replaced with metadata provided in the request. Type: String Default: COPY Valid values: COPY | REPLACE Constraints: Values other than `COPY` or `REPLACE` will result in an immediate error. You cannot copy an object to itself unless the MetadataDirective header is specified and its value set to `REPLACE`.	No
`Metadata`	Specifies metadata name-value pairs to set for the object.If MetadataDirective is set to `COPY`, all metadata is ignored. Type: String Default: None Constraints: None.	No
`AccessControlList`	Grants access to users by e-mail addresses or canonical user ID. Type: String Default: None Constraints: None	No

Name	Description	Required
`CopySourceIfMatch`	Copies the object if its entity tag (ETag) matches the specified tag; otherwise return a PreconditionFailed. Type: String Default: None Constraints: None. If the Etag does not match, the object is not copied.	No
`CopySourceIfNoneMatch`	Copies the object if its entity tag (ETag) is different than the specified Etag; otherwise returns an error. Type: String Default: None Constraints: None.	No
`CopySourceIfUnmodifiedSince`	Copies the object if it hasn't been modified since the specified time; otherwise returns a PreconditionFailed. Type: dateTime Default: None	No
`CopySourceIfModifiedSince`	Copies the object if it has been modified since the specified time; otherwise returns an error. Type: dateTime Default: None	No

Response Syntax

```
<CopyObjectResponse xmlns="http://bucket_name.s3.amazonaws.com/2006-03-01">
  <CopyObjectResponse>
    <ETag>"etag"</ETag>
    <LastModified>timestamp</LastModified>
  </CopyObjectResponse>
</CopyObjectResponse>
```

Response Elements

Following is a list of response elements.

> **Note**
>
> The SOAP API does not return extra whitespace. Extra whitespace is only returned by the REST API.

Name	Description
`Etag`	Returns the etag of the new object. The ETag only reflects changes to the contents of an object, not its metadata. Type: String Ancestor: CopyObjectResult
`LastModified`	Returns the date the object was last modified. Type: String Ancestor: CopyObjectResult

For information about general response elements, see Using REST Error Response Headers.

Special Errors

There are no special errors for this operation. For information about general Amazon S3 errors, see List of error codes.

Examples

This example copies the `flotsam` object from the `pacific` bucket to the `jetsam` object of the `atlantic` bucket, preserving its metadata.

Sample Request

```
<CopyObject xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <SourceBucket>pacific</SourceBucket>
  <SourceObject>flotsam</SourceObject>
  <DestinationBucket>atlantic</DestinationBucket>
  <DestinationObject>jetsam</DestinationObject>
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2008-02-18T13:54:10.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbq7RrtSFmw=</Signature>
</CopyObject>
```

Sample Response

```
<CopyObjectResponse xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <CopyObjectResponse>
    <ETag>"828ef3fdfa96f00ad9f27c383fc9ac7f"</ETag>
    <LastModified>2008-02-18T13:54:10.183Z</LastModified>
  </CopyObjectResponse>
</CopyObjectResponse>
```

This example copies the "tweedledee" object from the wonderland bucket to the "tweedledum" object of the wonderland bucket, replacing its metadata.

Sample Request

```
<CopyObject xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <SourceBucket>wonderland</SourceBucket>
  <SourceObject>tweedledee</SourceObject>
  <DestinationBucket>wonderland</DestinationBucket>
  <DestinationObject>tweedledum</DestinationObject>
  <MetadataDirective >REPLACE</MetadataDirective >
```

```
  <Metadata>
    <Name>Content-Type</Name>
    <Value>text/plain</Value>
  </Metadata>
  <Metadata>
    <Name>relationship</Name>
    <Value>twins</Value>
  </Metadata>
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2008-02-18T13:54:10.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbq7RrtSFmw=</Signature>
</CopyObject>
```

Sample Response

```
<CopyObjectResponse xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <CopyObjectResponse>
    <ETag>"828ef3fdfa96f00ad9f27c383fc9ac7f"</ETag>
    <LastModified>2008-02-18T13:54:10.183Z</LastModified>
  </CopyObjectResponse>
</CopyObjectResponse>
```

Related Resources

- PutObject (SOAP API)
- PutObjectInline (SOAP API)

GetObject (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

The `GetObject` operation returns the current version of an object. If you try to `GetObject` an object that has a delete marker as its current version, S3 returns a 404 error. You cannot use the SOAP API to retrieve a specified version of an object. To do that, use the REST API. For more information, see Versioning. For more options, use the GetObjectExtended (SOAP API) operation.

> **Note**
>
> Object key names with the value "soap" aren't supported for virtual-hosted-style requests. For object key name values where "soap" is used, a path-style URL must be used instead.

Example

This example gets the "Nelson" object from the "quotes" bucket.

Sample Request

```
<GetObject xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <Bucket>quotes</Bucket>
  <Key>Nelson</Key>
  <GetMetadata>true</GetMetadata>
  <GetData>true</GetData>
  <InlineData>true</InlineData>
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</GetObject>
```

Sample Response

```
<GetObjectResponse xmlns="http://s3.amazonaws.com/doc/2006-03-01">
  <GetObjectResponse>
    <Status>
      <Code>200</Code>
      <Description>OK</Description>
    </Status>
    <Metadata>
      <Name>Content-Type</Name>
      <Value>text/plain</Value>
    </Metadata>
    <Metadata>
      <Name>family</Name>
      <Value>Muntz</Value>
    </Metadata>
    <Data>aGEtaGE=</Data>
    <LastModified>2006-01-01T12:00:00.000Z</LastModified>
    <ETag>&quot;828ef3fdfa96f00ad9f27c383fc9ac7f&quot;</ETag>
```

```
  </GetObjectResponse>
</GetObjectResponse>
```

Elements

- `Bucket:` The bucket from which to retrieve the object.
- `Key:` The key that identifies the object.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

- `GetMetadata:` The metadata is returned with the object if this is true.
- `GetData:` The object data is returned if this is true.
- `InlineData:` If this is true, then the data is returned, base 64-encoded, as part of the SOAP body of the response. If false, then the data is returned as a SOAP attachment. The InlineData option is not suitable for use with large objects. The system limits this operation to working with 1MB of data or less. A GetObject request with the InlineData flag set will fail with the `InlineDataTooLargeError` status code if the resulting Data parameter would have encoded more than 1MB. To download large objects, consider calling GetObject without setting the InlineData flag, or use the REST API instead.

Returned Elements

- `Metadata:` The name-value paired metadata stored with the object.
- `Data:` If InlineData was true in the request, this contains the base 64 encoded object data.
- `LastModified:` The time that the object was stored in Amazon S3.
- `ETag:` The object's entity tag. This is a hash of the object that can be used to do conditional gets. The ETag only reflects changes to the contents of an object, not its metadata.

Access Control

You can read an object only if you have been granted `READ` access to the object.

SOAP Chunked and Resumable Downloads

To provide GET flexibility, Amazon S3 supports chunked and resumable downloads.

Select from the following:

- For large object downloads, you might want to break them into smaller chunks. For more information, see Range GETs
- For GET operations that fail, you can design your application to download the remainder instead of the entire file. For more information, see REST GET Error Recovery

Range GETs

For some clients, you might want to break large downloads into smaller downloads. To break a GET into smaller units, use Range.

Before you can break a GET into smaller units, you must determine its size. For example, the following request gets the size of the bigfile object.

```
<ListBucket xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <Bucket>bigbucket</Bucket>
  <Prefix>bigfile</Prefix>
  <MaxKeys>1</MaxKeys>
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</ListBucket>
```

Amazon S3 returns the following response.

```
<ListBucketResult xmlns="http://s3.amazonaws.com/doc/2006-03-01">
  <Name>quotes</Name>
  <Prefix>N</Prefix>
  <MaxKeys>1</MaxKeys>
  <IsTruncated>false</IsTruncated>
  <Contents>
    <Key>bigfile</Key>
    <LastModified>2006-01-01T12:00:00.000Z</LastModified>
    <ETag>&quot;828ef3fdfa96f00ad9f27c383fc9ac7f&quot;</ETag>
    <Size>2023276</Size>
```

```
    <StorageClass>STANDARD</StorageClass>
    <Owner>
      <ID>bcaf1ffd86f41161ca5fb16fd081034f</ID>
      <DisplayName>bigfile</DisplayName>
     </Owner>
  </Contents>
</ListBucketResult>
```

Following is a request that downloads the first megabyte from the bigfile object.

```
<GetObject xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <Bucket>bigbucket</Bucket>
  <Key>bigfile</Key>
  <GetMetadata>true</GetMetadata>
  <GetData>true</GetData>
  <InlineData>true</InlineData>
  <ByteRangeStart>0</ByteRangeStart>
  <ByteRangeEnd>1048576</ByteRangeEnd>
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</GetObject>
```

Amazon S3 returns the first megabyte of the file and the Etag of the file.

```
<GetObjectResponse xmlns="http://s3.amazonaws.com/doc/2006-03-01">
  <GetObjectResponse>
    <Status>
      <Code>200</Code>
      <Description>OK</Description>
    </Status>
    <Metadata>
      <Name>Content-Type</Name>
      <Value>text/plain</Value>
    </Metadata>
    <Metadata>
      <Name>family</Name>
      <Value>Muntz</Value>
    </Metadata>
    <Data>--first megabyte of bigfile--</Data>
    <LastModified>2006-01-01T12:00:00.000Z</LastModified>
    <ETag>"828ef3fdfa96f00ad9f27c383fc9ac7f"</ETag>
  </GetObjectResponse>
```

```
</GetObjectResponse>
```

To ensure the file did not change since the previous portion was downloaded, specify the IfMatch element. Although the IfMatch element is not required, it is recommended for content that is likely to change.

The following is a request that gets the remainder of the file, using the IfMatch request header.

```
<GetObject xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <Bucket>bigbucket</Bucket>
  <Key>bigfile</Key>
  <GetMetadata>true</GetMetadata>
  <GetData>true</GetData>
  <InlineData>true</InlineData>
  <ByteRangeStart>10485761</ByteRangeStart>
  <ByteRangeEnd>2023276</ByteRangeEnd>
  <IfMatch>"828ef3fdfa96f00ad9f27c383fc9ac7f"</IfMatch>
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</GetObject>
```

Amazon S3 returns the following response and the remainder of the file.

```
<GetObjectResponse xmlns="http://s3.amazonaws.com/doc/2006-03-01">
  <GetObjectResponse>
    <Status>
      <Code>200</Code>
      <Description>OK</Description>
    </Status>
    <Metadata>
      <Name>Content-Type</Name>
      <Value>text/plain</Value>
    </Metadata>
    <Metadata>
      <Name>family</Name>
      <Value>>Muntz</Value>
    </Metadata>
    <Data>--remainder of bigfile--</Data>
    <LastModified>2006-01-01T12:00:00.000Z</LastModified>
    <ETag>"828ef3fdfa96f00ad9f27c383fc9ac7f"</ETag>
  </GetObjectResponse>
```

```
</GetObjectResponse>
```

Versioned GetObject

The following request returns the specified version of the object in the bucket.

```
<GetObject xmlns="http://doc.s3.amazonaws.com/2006-03-01">
<Bucket>quotes</Bucket>
<Key>Nelson</Key>
<GetMetadata>true</GetMetadata>
<GetData>true</GetData>
<InlineData>true</InlineData>
<AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
<Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
<Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</GetObject>
```

Sample Response

```
<GetObjectResponse xmlns="http://s3.amazonaws.com/doc/2006-03-01">
<GetObjectResponse>
<Status>
<Code>200</Code>
<Description>OK</Description>
</Status>
<Metadata>
<Name>Content-Type</Name>
<Value>text/plain</Value>
</Metadata>
<Metadata>
<Name>family</Name>
<Value>Muntz</Value>
</Metadata>
<Data>aGEtaGE=</Data>
<LastModified>2006-01-01T12:00:00.000Z</LastModified>
<ETag>&quot;828ef3fdfa96f00ad9f27c383fc9ac7f&quot;</ETag>
</GetObjectResponse>
</GetObjectResponse>
```

REST GET Error Recovery

If an object GET fails, you can get the rest of the file by specifying the range to download. To do so, you must get the size of the object using `ListBucket` and perform a range GET on the remainder of the file. For more information, see GetObjectExtended (SOAP API).

Related Resources

Operations on Objects (SOAP API)

GetObjectExtended (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

`GetObjectExtended` is exactly like GetObject (SOAP API), except that it supports the following additional elements that can be used to accomplish much of the same functionality provided by HTTP GET headers (go to http://www.w3.org/Protocols/rfc2616/rfc2616-sec14.html).

GetObjectExtended supports the following elements in addition to those supported by GetObject:

- `ByteRangeStart, ByteRangeEnd:` These elements specify that only a portion of the object data should be retrieved. They follow the behavior of the HTTP byte ranges (go to http://www.w3.org/Protocols/rfc2616/rfc2616-sec14.html#sec14.35).
- `IfModifiedSince:` Return the object only if the object's timestamp is later than the specified timestamp. (http://www.w3.org/Protocols/rfc2616/rfc2616-sec14.html#sec14.25)
- `IfUnmodifiedSince:` Return the object only if the object's timestamp is earlier than or equal to the specified timestamp. (go to http://www.w3.org/Protocols/rfc2616/rfc2616-sec14.html#sec14.28)
- `IfMatch:` Return the object only if its ETag matches the supplied tag(s). (go to http://www.w3.org/Protocols/rfc2616/rfc2616-sec14.html#sec14.24)
- `IfNoneMatch:` Return the object only if its ETag does not match the supplied tag(s). (go to http://www.w3.org/Protocols/rfc2616/rfc2616-sec14.html#sec14.26)

- `ReturnCompleteObjectOnConditionFailure`:ReturnCompleteObjectOnConditionFailure: If true, then if the request includes a range element and one or both of IfUnmodifiedSince/IfMatch elements, and the condition fails, return the entire object rather than a fault. This enables the If-Range functionality (go to http://www.w3.org/Protocols/rfc2616/rfc2616-sec14.html#sec14.27).

DeleteObject (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

The `DeleteObject` operation removes the specified object from Amazon S3. Once deleted, there is no method to restore or undelete an object.

> **Note**
>
> If you delete an object that does not exist, Amazon S3 will return a success (not an error message).

Example

This example deletes the "Nelson" object from the "quotes" bucket.

`Sample Request`

```
<DeleteObject xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <Bucket>quotes</Bucket>
  <Key>Nelson</Key>
  <AWSAccessKeyId> AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</DeleteObject>
```

`Sample Response`

```
<DeleteObjectResponse xmlns="http://s3.amazonaws.com/doc/2006-03-01">
  <DeleteObjectResponse>
    <Code>200</Code>
    <Description>OK</Description>
  </DeleteObjectResponse>
</DeleteObjectResponse>
```

Elements

- `Bucket`: The bucket that holds the object.
- `Key`: The key that identifies the object.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

Access Control

You can delete an object only if you have `WRITE` access to the bucket, regardless of who owns the object or what rights are granted to it.

GetObjectAccessControlPolicy (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

The `GetObjectAccessControlPolicy` operation fetches the access control policy for an object.

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

Example

This example retrieves the access control policy for the "Nelson" object from the "quotes" bucket.

Sample Request

```
<GetObjectAccessControlPolicy xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <Bucket>quotes</Bucket>
  <Key>Nelson</Key>
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</GetObjectAccessControlPolicy>
```

Sample Response

```
<AccessControlPolicy>
  <Owner>
    <ID>a9a7b886d6fd24a541bf9b1c61be666e9</ID>
    <DisplayName>chriscustomer</DisplayName>
  </Owner>
  <AccessControlList>
    <Grant>
      <Grantee xsi:type="CanonicalUser">
        <ID>a9a7b841bf9b1c61be666e9</ID>
        <DisplayName>chriscustomer</DisplayName>
      </Grantee>
      <Permission>FULL_CONTROL</Permission>
    </Grant>
    <Grant>
      <Grantee xsi:type="Group">
        <URI>http://acs.amazonaws.com/groups/global/AllUsers<URI>
      </Grantee>
      <Permission>READ</Permission>
    </Grant>
```

```
  </AccessControlList>
</AccessControlPolicy>
```

Response Body

The response contains the access control policy for the bucket. For an explanation of this response, SOAP Access Policy .

Access Control

You must have READ_ACP rights to the object in order to retrieve the access control policy for an object.

SetObjectAccessControlPolicy (SOAP API)

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

The `SetObjectAccessControlPolicy` operation sets the access control policy for an existing object. If successful, the previous access control policy for the object is entirely replaced with the specified access control policy.

Example

This example gives the specified user (usually the owner) `FULL_CONTROL` access to the "Nelson" object from the "quotes" bucket.

`Sample Request`

```
<SetObjectAccessControlPolicy xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <Bucket>quotes</Bucket>
  <Key>Nelson</Key>
  <AccessControlList>
    <Grant>
      <Grantee xsi:type="CanonicalUser">
        <ID>a9a7b886d6fd24a52fe8ca5bef65f89a64e0193f23000e241bf9b1c61be666e9</ID>
        <DisplayName>chriscustomer</DisplayName>
```

```
      </Grantee>
      <Permission>FULL_CONTROL</Permission>
    </Grant>
  </AccessControlList>
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2006-03-01T12:00:00.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</SetObjectAccessControlPolicy>
```

Sample Response

```
<SetObjectAccessControlPolicyResponse xmlns="http://s3.amazonaws.com/doc/2006-03-01">
  <SetObjectAccessControlPolicyResponse>
    <Code>200</Code>
    <Description>OK</Description>
  </SetObjectAccessControlPolicyResponse>
</SetObjectAccessControlPolicyResponse>
```

Key

> **Important**
>
> Replacement must be made for object keys containing special characters (such as carriage returns) when using XML requests. For more information, see XML related object key constraints.

Access Control

You must have `WRITE_ACP` rights to the object in order to set the access control policy for a bucket.

Authenticating SOAP requests

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

Every non-anonymous request must contain authentication information to establish the identity of the principal making the request. In SOAP, the authentication information is put into the following elements of the SOAP request:

- Your AWS Access Key ID

> **Note**
>
> When making authenticated SOAP requests, temporary security credentials are not supported. For more information about types of credentials, see Making requests.

- `Timestamp:` This must be a dateTime (go to http://www.w3.org/TR/xmlschema-2/#dateTime) in the Coordinated Universal Time (Greenwich Mean Time) time zone, such as `2009-01-01T12:00:00.000Z`. Authorization will fail if this timestamp is more than 15 minutes away from the clock on Amazon S3 servers.
- `Signature:` The RFC 2104 HMAC-SHA1 digest (go to http://www.ietf.org/rfc/rfc2104.txt) of the concatenation of "AmazonS3" + OPERATION + Timestamp, using your AWS Secret Access Key as the key. For example, in the following CreateBucket sample request, the signature element would contain the HMAC-SHA1 digest of the value "AmazonS3CreateBucket2009-01-01T12:00:00.000Z":

For example, in the following CreateBucket sample request, the signature element would contain the HMAC-SHA1 digest of the value "AmazonS3CreateBucket2009-01-01T12:00:00.000Z":

Example

```
<CreateBucket xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <Bucket>quotes</Bucket>
  <Acl>private</Acl>
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2009-01-01T12:00:00.000Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</CreateBucket>
```

> **Note**
>
> SOAP requests, both authenticated and anonymous, must be sent to Amazon S3 using SSL. Amazon S3 returns an error when you send a SOAP request over HTTP.

Important

Due to different interpretations regarding how extra time precision should be dropped, .NET users should take care not to send Amazon S3 overly specific time stamps. This can be accomplished by manually constructing `DateTime` objects with only millisecond precision.

Setting access policy with SOAP

Note

SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

Access control can be set at the time a bucket or object is written by including the "AccessControlList" element with the request to `CreateBucket`, `PutObjectInline`, or `PutObject`. The AccessControlList element is described in Identity and Access Management for Amazon S3 . If no access control list is specified with these operations, the resource is created with a default access policy that gives the requester FULL_CONTROL access (this is the case even if the request is a PutObjectInline or PutObject request for an object that already exists).

Following is a request that writes data to an object, makes the object readable by anonymous principals, and gives the specified user FULL_CONTROL rights to the bucket (Most developers will want to give themselves FULL_CONTROL access to their own bucket).

Example

Following is a request that writes data to an object and makes the object readable by anonymous principals.

`Sample Request`

```
<PutObjectInline xmlns="http://doc.s3.amazonaws.com/2006-03-01">
  <Bucket>quotes</Bucket>
  <Key>Nelson</Key>
  <Metadata>
```

```
    <Name>Content-Type</Name>
    <Value>text/plain</Value>
  </Metadata>
  <Data>aGEtaGE=</Data>
  <ContentLength>5</ContentLength>
  <AccessControlList>
    <Grant>
      <Grantee xsi:type="CanonicalUser">
        <ID>75cc57f09aa0c8caeab4f8c24e99d10f8e7faeebf76c078efc7c6caea54ba06a</ID>
        <DisplayName>chriscustomer</DisplayName>
      </Grantee>
      <Permission>FULL_CONTROL</Permission>
    </Grant>
    <Grant>
      <Grantee xsi:type="Group">
        <URI>http://acs.amazonaws.com/groups/global/AllUsers<URI>
      </Grantee>
      <Permission>READ</Permission>
    </Grant>
  </AccessControlList>
  <AWSAccessKeyId>AKIAIOSFODNN7EXAMPLE</AWSAccessKeyId>
  <Timestamp>2009-03-01T12:00:00.183Z</Timestamp>
  <Signature>Iuyz3d3P0aTou39dzbqaEXAMPLE=</Signature>
</PutObjectInline>
```

Sample Response

```
<PutObjectInlineResponse xmlns="http://s3.amazonaws.com/doc/2006-03-01">
  <PutObjectInlineResponse>
    <ETag>&quot828ef3fdfa96f00ad9f27c383fc9ac7f&quot</ETag>
    <LastModified>2009-01-01T12:00:00.000Z</LastModified>
  </PutObjectInlineResponse>
</PutObjectInlineResponse>
```

The access control policy can be read or set for an existing bucket or object using the `GetBucketAccessControlPolicy`, `GetObjectAccessControlPolicy`, `SetBucketAccessControlPolicy`, and `SetObjectAccessControlPolicy` methods. For more information, see the detailed explanation of these methods.

Common elements

You can include the following authorization-related elements with any SOAP request:

- `AWSAccessKeyId:` The AWS Access Key ID of the requester
- `Timestamp:` The current time on your system
- `Signature:` The signature for the request

SOAP Error Responses

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

In SOAP, an error result is returned to the client as a SOAP fault, with the HTTP response code 500. If you do not receive a SOAP fault, then your request was successful. The Amazon S3 SOAP fault code is comprised of a standard SOAP 1.1 fault code (either "Server" or "Client") concatenated with the Amazon S3-specific error code. For example: "Server.InternalError" or "Client.NoSuchBucket". The SOAP fault string element contains a generic, human readable error message in English. Finally, the SOAP fault detail element contains miscellaneous information relevant to the error.

For example, if you attempt to delete the object "Fred", which does not exist, the body of the SOAP response contains a "NoSuchKey" SOAP fault.

The following example shows a sample SOAP error response.

```
<soapenv:Body>
  <soapenv:Fault>
    <Faultcode>soapenv:Client.NoSuchKey</Faultcode>
    <Faultstring>The specified key does not exist.</Faultstring>
    <Detail>
      <Key>Fred</Key>
    </Detail>
  </soapenv:Fault>
  </soapenv:Body>
```

The following table explains the SOAP error response elements

Name	Description
`Detail`	Container for the key involved in the error Type: Container Ancestor: Body.Fault
`Fault`	Container for error information. Type: Container Ancestor: Body
`Faultcode`	The fault code is a string that uniquely identifies an error condition. It is meant to be read and understood by programs that detect and handle errors by type. For more information, see List of Error Codes. Type: String Ancestor: Body.Fault
`Faultstring`	The fault string contains a generic description of the error condition in English. It is intended for a human audience. Simple programs display the message directly to the end user if they encounter an error condition they don't know how or don't care to handle. Sophisticated programs with more exhaustive error handling and proper internationalization are more likely to ignore the fault string. Type: String Ancestor: Body.Fault
`Key`	Identifies the key involved in the error Type: String Ancestor: Body.Fault

Appendix: Authenticating requests (AWS signature version 2)

Important

This section describes how to authenticate requests using AWS Signature Version 2. Signature Version 2 is being turned off (deprecated), Amazon S3 will only accept API requests that are signed using Signature Version 4. For more information, see AWS Signature Version 2 turned off (deprecated) for Amazon S3

Signature Version 4 is supported in all AWS Regions, and it is the only version that is supported for new Regions. For more information, see Authenticating Requests (AWS Signature Version 4) in the *Amazon Simple Storage Service API Reference*.

Amazon S3 offers you the ability to identify what API signature version was used to sign a request. It is important to identify if any of your workflows are utilizing Signature Version 2 signing and upgrading them to use Signature Version 4 to prevent impact to your business.

- If you are using CloudTrail event logs(recommended option), please see Identifying Amazon S3 Signature Version 2 requests by using CloudTrail on how to query and identify such requests.
- If you are using the Amazon S3 Server Access logs, see Using Amazon S3 server access logs to identify requests

Topics

- Authenticating requests using the REST API (AWS signature version 2)
- Signing and authenticating REST requests (AWS signature version 2)
- Browser-based uploads using POST (AWS signature version 2)

Authenticating requests using the REST API (AWS signature version 2)

When accessing Amazon S3 using REST, you must provide the following items in your request so the request can be authenticated:

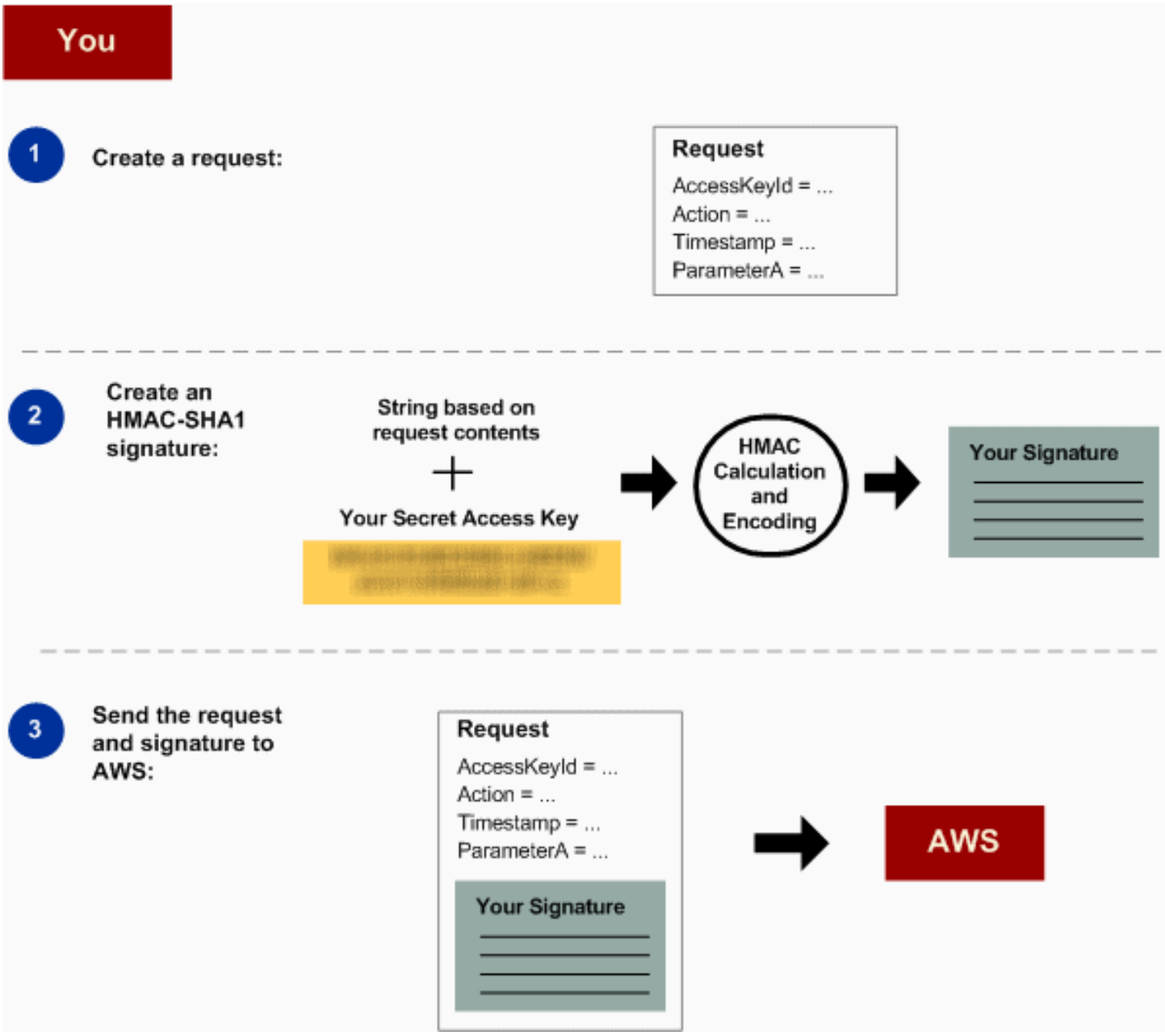
Request elements

- **AWS access key Id** – Each request must contain the access key ID of the identity you are using to send your request.
- **Signature** – Each request must contain a valid request signature, or the request is rejected.

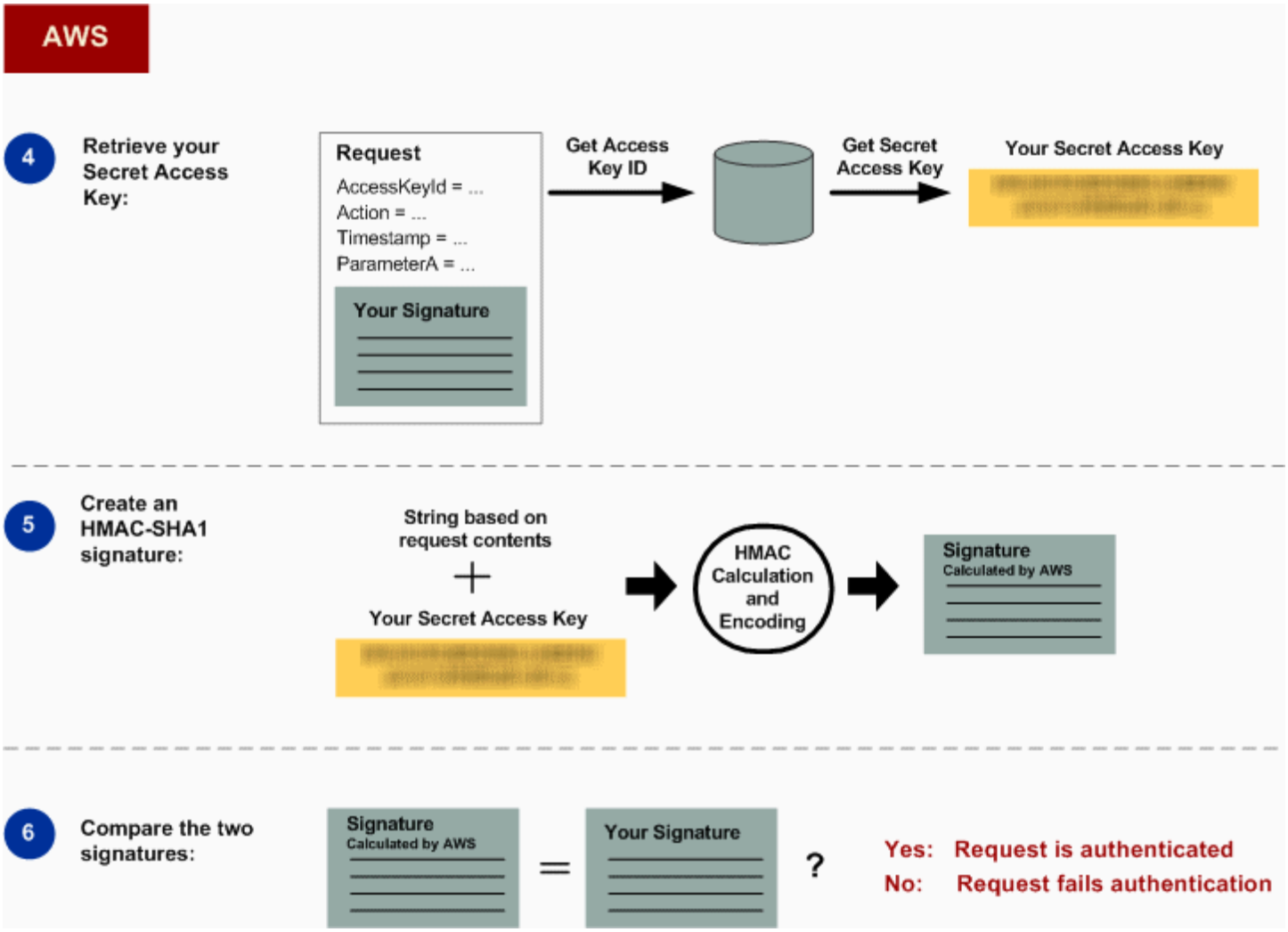
  A request signature is calculated using your secret access key, which is a shared secret known only to you and AWS.
- **Time stamp** – Each request must contain the date and time the request was created, represented as a string in UTC.
- **Date** – Each request must contain the time stamp of the request.

  Depending on the API action you're using, you can provide an expiration date and time for the request instead of or in addition to the time stamp. See the authentication topic for the particular action to determine what it requires.

Following are the general steps for authenticating requests to Amazon S3. It is assumed you have the necessary security credentials, access key ID and secret access key.



1	Construct a request to AWS.
2	Calculate the signature using your secret access key.
3	Send the request to Amazon S3. Include your access key ID and the signature in your request. Amazon S3 performs the next three steps.



4	Amazon S3 uses the access key ID to look up your secret access key.
5	Amazon S3 calculates a signature from the request data and the secret access key using the same algorithm that you used to calculate the signature you sent in the request.
6	If the signature generated by Amazon S3 matches the one you sent in the request, the request is considered authentic. If the comparison fails, the request is discarded, and Amazon S3 returns an error response.

Detailed authentication information

For detailed information about REST authentication, see Signing and authenticating REST requests (AWS signature version 2).

Signing and authenticating REST requests (AWS signature version 2)

Topics

- Using temporary security credentials
- The authentication header
- Request canonicalization for signing
- Constructing the CanonicalizedResource element
- Constructing the CanonicalizedAmzHeaders element
- Positional versus named HTTP header StringToSign elements
- Time stamp requirement
- Authentication examples
- REST request signing problems
- Query string request authentication alternative

> **Note**
>
> This topic explains authenticating requests using Signature Version 2. Amazon S3 now supports the latest Signature Version 4. This latest signature version is supported in all regions and any new regions after January 30, 2014 will support only Signature Version 4. For more information, go to Authenticating Requests (AWS Signature Version 4) in the *Amazon Simple Storage Service API Reference*.

Authentication is the process of proving your identity to the system. Identity is an important factor in Amazon S3 access control decisions. Requests are allowed or denied in part based on the identity of the requester. For example, the right to create buckets is reserved for registered developers and (by default) the right to create objects in a bucket is reserved for the owner of the bucket in question. As a developer, you'll be making requests that invoke these privileges, so you'll need to prove your identity to the system by authenticating your requests. This section shows you how.

> **Note**
>
> The content in this section does not apply to HTTP POST. For more information, see Browser-based uploads using POST (AWS signature version 2).

The Amazon S3 REST API uses a custom HTTP scheme based on a keyed-HMAC (Hash Message Authentication Code) for authentication. To authenticate a request, you first concatenate selected elements of the request to form a string. You then use your AWS secret access key to calculate the HMAC of that string. Informally, we call this process "signing the request," and we call the output of the HMAC algorithm the signature, because it simulates the security properties of a real signature. Finally, you add this signature as a parameter of the request by using the syntax described in this section.

When the system receives an authenticated request, it fetches the AWS secret access key that you claim to have and uses it in the same way to compute a signature for the message it received. It then compares the signature it calculated against the signature presented by the requester. If the two signatures match, the system concludes that the requester must have access to the AWS secret access key and therefore acts with the authority of the principal to whom the key was issued. If the two signatures do not match, the request is dropped and the system responds with an error message.

Example Authenticated Amazon S3 REST request

```
GET /photos/puppy.jpg HTTP/1.1
Host: awsexamplebucket1.us-west-1.s3.amazonaws.com
Date: Tue, 27 Mar 2007 19:36:42 +0000

Authorization: AWS AKIAIOSFODNN7EXAMPLE:
qgk2+6Sv9/oM7G3qLEjTH1a1l1g=
```

Using temporary security credentials

If you are signing your request using temporary security credentials (see Making requests), you must include the corresponding security token in your request by adding the `x-amz-security-token` header.

When you obtain temporary security credentials using the AWS Security Token Service API, the response includes temporary security credentials and a session token. You provide the session

token value in the `x-amz-security-token` header when you send requests to Amazon S3. For information about the AWS Security Token Service API provided by IAM, go to Action in the *AWS Security Token Service API Reference Guide* .

The authentication header

The Amazon S3 REST API uses the standard HTTP `Authorization` header to pass authentication information. (The name of the standard header is unfortunate because it carries authentication information, not authorization.) Under the Amazon S3 authentication scheme, the Authorization header has the following form:

```
Authorization: AWS AWSAccessKeyId:Signature
```

Developers are issued an AWS access key ID and AWS secret access key when they register. For request authentication, the `AWSAccessKeyId` element identifies the access key ID that was used to compute the signature and, indirectly, the developer making the request.

The `Signature` element is the RFC 2104 HMAC-SHA1 of selected elements from the request, and so the `Signature` part of the Authorization header will vary from request to request. If the request signature calculated by the system matches the `Signature` included with the request, the requester will have demonstrated possession of the AWS secret access key. The request will then be processed under the identity, and with the authority, of the developer to whom the key was issued.

Following is pseudogrammar that illustrates the construction of the `Authorization` request header. (In the example, \n means the Unicode code point `U+000A`, commonly called newline).

```
Authorization = "AWS" + " " + AWSAccessKeyId + ":" + Signature;

Signature = Base64( HMAC-SHA1( UTF-8-Encoding-Of(YourSecretAccessKey), UTF-8-Encoding-
Of( StringToSign ) ) );

StringToSign = HTTP-Verb + "\n" +
 Content-MD5 + "\n" +
 Content-Type + "\n" +
 Date + "\n" +
 CanonicalizedAmzHeaders +
 CanonicalizedResource;

CanonicalizedResource = [ "/" + Bucket ] +
 <HTTP-Request-URI, from the protocol name up to the query string> +
```

```
 [ subresource, if present. For example "?acl", "?location", or "?logging"];

CanonicalizedAmzHeaders = <described below>
```

HMAC-SHA1 is an algorithm defined by RFC 2104 - Keyed-Hashing for Message Authentication . The algorithm takes as input two byte-strings, a key and a message. For Amazon S3 request authentication, use your AWS secret access key (`YourSecretAccessKey`) as the key, and the UTF-8 encoding of the `StringToSign` as the message. The output of HMAC-SHA1 is also a byte string, called the digest. The `Signature` request parameter is constructed by Base64 encoding this digest.

Request canonicalization for signing

Recall that when the system receives an authenticated request, it compares the computed request signature with the signature provided in the request in `StringToSign`. For that reason, you must compute the signature by using the same method used by Amazon S3. We call the process of putting a request in an agreed-upon form for signing *canonicalization*.

Constructing the CanonicalizedResource element

`CanonicalizedResource` represents the Amazon S3 resource targeted by the request. Construct it for a REST request as follows:

1. Start with an empty string (`""`).
2. If the request specifies a bucket using the HTTP Host header (virtual hosted-style), append the bucket name preceded by a `"/"` (e.g., "/bucketname"). For path-style requests and requests that don't address a bucket, do nothing. For more information about virtual hosted-style requests, see Virtual hosting of buckets .

   For a virtual hosted-style request "https://awsexamplebucket1.s3.us-west-1.amazonaws.com/photos/puppy.jpg", the `CanonicalizedResource` is "/awsexamplebucket1".

   For the path-style request, "https://s3.us-west-1.amazonaws.com/awsexamplebucket1/photos/puppy.jpg", the `CanonicalizedResource` is "".
3. Append the path part of the un-decoded HTTP Request-URI, up-to but not including the query string.

   For a virtual hosted-style request "https://awsexamplebucket1.s3.us-west-1.amazonaws.com/photos/puppy.jpg", the `CanonicalizedResource` is "/awsexamplebucket1/photos/puppy.jpg".

For a path-style request, "https://s3.us-west-1.amazonaws.com/awsexamplebucket1/photos/puppy.jpg", the `CanonicalizedResource` is "/awsexamplebucket1/photos/puppy.jpg". At this point, the `CanonicalizedResource` is the same for both the virtual hosted-style and path-style request.

For a request that does not address a bucket, such as GET Service, append "/".

4. If the request addresses a subresource, such as `?versioning`, `?location`, `?acl`, `?lifecycle`, or `?versionid`, append the subresource, its value if it has one, and the question mark. Note that in case of multiple subresources, subresources must be lexicographically sorted by subresource name and separated by '&', e.g., ?acl&versionId=*`value`*.

   The subresources that must be included when constructing the CanonicalizedResource Element are acl, lifecycle, location, logging, notification, partNumber, policy, requestPayment, uploadId, uploads, versionId, versioning, versions, and website.

   If the request specifies query string parameters overriding the response header values (see Get Object), append the query string parameters and their values. When signing, you do not encode these values; however, when making the request, you must encode these parameter values. The query string parameters in a GET request include `response-content-type`, `response-content-language`, `response-expires`, `response-cache-control`, `response-content-disposition`, and `response-content-encoding`.

   The `delete` query string parameter must be included when you create the CanonicalizedResource for a multi-object Delete request.

Elements of the CanonicalizedResource that come from the HTTP Request-URI should be signed literally as they appear in the HTTP request, including URL-Encoding meta characters.

The `CanonicalizedResource` might be different than the HTTP Request-URI. In particular, if your request uses the HTTP `Host` header to specify a bucket, the bucket does not appear in the HTTP Request-URI. However, the `CanonicalizedResource` continues to include the bucket. Query string parameters might also appear in the Request-URI but are not included in `CanonicalizedResource`. For more information, see Virtual hosting of buckets .

Constructing the CanonicalizedAmzHeaders element

To construct the CanonicalizedAmzHeaders part of `StringToSign`, select all HTTP request headers that start with 'x-amz-' (using a case-insensitive comparison), and use the following process.

1. Convert each HTTP header name to lowercase. For example, '`X-Amz-Date`' becomes '`x-amz-date`'.
2. Sort the collection of headers lexicographically by header name.
3. Combine header fields with the same name into one "header-name:comma-separated-value-list" pair as prescribed by RFC 2616, section 4.2, without any spaces between values. For example, the two metadata headers '`x-amz-meta-username: fred`' and '`x-amz-meta-username: barney`' would be combined into the single header '`x-amz-meta-username: fred,barney`'.
4. "Unfold" long headers that span multiple lines (as allowed by RFC 2616, section 4.2) by replacing the folding spaces (including new-line) by a single space.
5. Trim any spaces around the colon in the header. For example, the header '`x-amz-meta-username: fred,barney`' would become '`x-amz-meta-username:fred,barney`'.
6. Finally, append a newline character (`U+000A`) to each canonicalized header in the resulting list. Construct the CanonicalizedResource element by concatenating all headers in this list into a single string.

Positional versus named HTTP header StringToSign elements

The first few header elements of `StringToSign` (Content-Type, Date, and Content-MD5) are positional in nature. `StringToSign` does not include the names of these headers, only their values from the request. In contrast, the '`x-amz-`' elements are named. Both the header names and the header values appear in `StringToSign`.

If a positional header called for in the definition of `StringToSign` is not present in your request (for example, `Content-Type` or `Content-MD5` are optional for PUT requests and meaningless for GET requests), substitute the empty string ("") for that position.

Time stamp requirement

A valid time stamp (using either the HTTP `Date` header or an `x-amz-date` alternative) is mandatory for authenticated requests. Furthermore, the client timestamp included with an authenticated request must be within 15 minutes of the Amazon S3 system time when the

request is received. If not, the request will fail with the `RequestTimeTooSkewed` error code. The intention of these restrictions is to limit the possibility that intercepted requests could be replayed by an adversary. For stronger protection against eavesdropping, use the HTTPS transport for authenticated requests.

> **Note**
>
> The validation constraint on request date applies only to authenticated requests that do not use query string authentication. For more information, see Query string request authentication alternative.

Some HTTP client libraries do not expose the ability to set the `Date` header for a request. If you have trouble including the value of the 'Date' header in the canonicalized headers, you can set the timestamp for the request by using an '`x-amz-date`' header instead. The value of the `x-amz-date` header must be in one of the RFC 2616 formats (http://www.ietf.org/rfc/rfc2616.txt). When an `x-amz-date` header is present in a request, the system will ignore any `Date` header when computing the request signature. Therefore, if you include the `x-amz-date` header, use the empty string for the `Date` when constructing the `StringToSign`. See the next section for an example.

Authentication examples

The examples in this section use the (non-working) credentials in the following table.

Parameter	Value
AWSAccessKeyId	`AKIAIOSFODNN7EXAMPLE`
AWSSecretAccessKey	`wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY`

In the example `StringToSigns`, formatting is not significant, and `\n` means the Unicode code point `U+000A`, commonly called newline. Also, the examples use "+0000" to designate the time zone. You can use "GMT" to designate timezone instead, but the signatures shown in the examples will be different.

Object GET

This example gets an object from the awsexamplebucket1 bucket.

Request	StringToSign

`GET /photos/puppy.jpg HTTP/1.1`
`Host: awsexamplebucket1.us-west-1.s3.amazonaws.com`
`Date: Tue, 27 Mar 2007 19:36:42 +0000`
 	
`Authorization: AWS AKIAIOSFODNN7EXAMPLE:qgk2+6Sv9/oM7G3qLEjTH1a1l1g=`
	`GET\n`
	`\n`
	`\n`
	`Tue, 27 Mar 2007 19:36:42 +0000\n`
	`/awsexamplebucket1/photos/puppy.jpg`

Note that the CanonicalizedResource includes the bucket name, but the HTTP Request-URI does not. (The bucket is specified by the Host header.)

Note

The following Python script calculates the preceding signature, using the provided parameters. You can use this script to construct your own signatures, replacing the keys and StringToSign as appropriate.

```
import base64
import hmac
from hashlib import sha1

access_key = 'AKIAIOSFODNN7EXAMPLE'.encode("UTF-8")
secret_key = 'wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY'.encode("UTF-8")

string_to_sign = 'GET\n\n\nTue, 27 Mar 2007 19:36:42 +0000\n/awsexamplebucket1/
photos/puppy.jpg'.encode("UTF-8")
signature = base64.b64encode(
                                hmac.new(
                                         secret_key, string_to_sign, sha1
                                         ).digest()
                                ).strip()


print(f"AWS {access_key.decode()}:{signature.decode()}")
```

Object PUT

This example puts an object into the awsexamplebucket1 bucket.

Request	StringToSign

`PUT /photos/puppy.jpg HTTP/1.1`
`Content-Type: image/jpeg`
`Content-Length: 94328`
`Host: awsexamplebucket1.s3.us-wes`
`t-1.amazonaws.com`
`Date: Tue, 27 Mar 2007 21:15:45 +0000`
 	
`Authorization: AWS AKIAIOSFODNN7EXAMP`
`LE:`
`iqRzw+ileNPu1fhspnRs8nOjjIA=`
	`PUT\n`
	`\n`
	`image/jpeg\n`
	`Tue, 27 Mar 2007 21:15:45 +0000\n`
	`/awsexamplebucket1/photos/puppy.jpg`

Note the Content-Type header in the request and in the StringToSign. Also note that the Content-MD5 is left blank in the StringToSign, because it is not present in the request.

List

This example lists the content of the awsexamplebucket1 bucket.

Request	StringToSign

`GET /?prefix=photos&max-keys=50&marker=puppy`
` HTTP/1.1`
`User-Agent: Mozilla/5.0`
`Host: awsexamplebucket1.s3.us-west-1.amazo`
`naws.com`
`Date: Tue, 27 Mar 2007 19:42:41 +0000`
 	
`Authorization: AWS AKIAIOSFODNN7EXAMPLE:`
`m0WP8eCtspQl5Ahe6L1SozdX9YA=`
	`GET\n`
	`\n`
	`\n`
	`Tue, 27 Mar 2007 19:42:41`
	` +0000\n`
	`/awsexamplebucket1/`

Note the trailing slash on the CanonicalizedResource and the absence of query string parameters.

Fetch

This example fetches the access control policy subresource for the 'awsexamplebucket1' bucket.

Request	StringToSign

`GET /?acl HTTP/1.1`
`Host: awsexamplebucket1.s3.us-west-1.amazonaws.com`
`Date: Tue, 27 Mar 2007 19:44:46 +0000`
 	
`Authorization: AWS AKIAIOSFODNN7EXAMPLE:82ZHiFIjc+WbcwFKGUVEQspPn+0=`
	`GET\n`
	`\n`
	`\n`
	`Tue, 27 Mar 2007 19:44:46 +0000\n`
	`/awsexamplebucket1/?acl`

Notice how the subresource query string parameter is included in the CanonicalizedResource.

Delete

This example deletes an object from the 'awsexamplebucket1' bucket using the path-style and Date alternative.

Request	StringToSign

`DELETE /awsexamplebucket1/photos/puppy.jpg HTTP/1.1`
`User-Agent: dotnet`
`Host: s3.us-west-1.amazonaws.com`
`Date: Tue, 27 Mar 2007 21:20:27 +0000`
 	
`x-amz-date: Tue, 27 Mar 2007 21:20:26 +0000`
`Authorization: AWS AKIAIOSFODNN7EXAMPLE:XbyTlbQdu9Xw5o8P4iMwPktxQd8=`
	`DELETE\n`
	`\n`
	`\n`
	`Tue, 27 Mar 2007 21:20:26 +0000\n`
	`/awsexamplebucket1/photos/puppy.jpg`

Note how we used the alternate 'x-amz-date' method of specifying the date (because our client library prevented us from setting the date, say). In this case, the `x-amz-date` takes precedence over the `Date` header. Therefore, date entry in the signature must contain the value of the `x-amz-date` header.

Upload

This example uploads an object to a CNAME style virtual hosted bucket with metadata.

Request	StringToSign

`PUT /db-backup.dat.gz HTTP/1.1`
`User-Agent: curl/7.15.5`
`Host: static.example.com:8080`
`Date: Tue, 27 Mar 2007 21:06:08 +0000`
 	
`x-amz-acl: public-read`
`content-type: application/x-download`
`Content-MD5: 4gJE4saaMU4BqNR0kLY+lw==`
`X-Amz-Meta-ReviewedBy: joe@example.com`
`X-Amz-Meta-ReviewedBy: jane@exam`
`ple.com`
`X-Amz-Meta-FileChecksum: 0x02661779`
`X-Amz-Meta-ChecksumAlgorithm: crc32`
`Content-Disposition: attachment;`
` filename=database.dat`
`Content-Encoding: gzip`
`Content-Length: 5913339`
 	
` Authorization: AWS AKIAIOSFODNN7EXAMP`
`LE:`
`jtBQa0Aq+DkULFI8qrpwIjGEx0E=`
	`PUT\n`
	`4gJE4saaMU4BqNR0kLY+lw==\n`
	`application/x-download\n`
	`Tue, 27 Mar 2007 21:06:08 +0000\n`
	
	`x-amz-acl:public-read\n`
	`x-amz-meta-checksumalgorithm:c`
	`rc32\n`
	`x-amz-meta-filechecksum:0x026`
	`61779\n`
	`x-amz-meta-reviewedby:`
	`joe@example.com,jane@example.com`
	`\n`
	`/static.example.com/db-backup.dat`
	`.gz`

Notice how the 'x-amz-' headers are sorted, trimmed of extra spaces, and converted to lowercase. Note also that multiple headers with the same name have been joined using commas to separate values.

Note how only the `Content-Type` and `Content-MD5` HTTP entity headers appear in the `StringToSign`. The other `Content-*` entity headers do not.

Again, note that the `CanonicalizedResource` includes the bucket name, but the HTTP Request-URI does not. (The bucket is specified by the Host header.)

List all my buckets

Request	StringToSign

`GET / HTTP/1.1`
`Host: s3.us-west-1.amazonaws.com`
`Date: Wed, 28 Mar 2007 01:29:59 +0000`
 	
`Authorization: AWS AKIAIOSFODNN7EXAMPLE:qGdzdERIC03wnaRNKh6OqZehG9s=`
	`GET\n`
	`\n`
	`\n`
	`Wed, 28 Mar 2007 01:29:59 +0000\n`
	`/`

Unicode keys

Request	StringToSign

`GET /dictionary/fran%C3%A7ais/pr%c3%a9f%c3%a8re HTTP/1.1`
`Host: s3.us-west-1.amazonaws.com`
`Date: Wed, 28 Mar 2007 01:49:49 +0000`
`Authorization: AWS AKIAIOSFODNN7EXAMPLE:DNEZGsoieTZ92F3bUfSPQcbGmlM=`
	`GET\n`
	`\n`
	`\n`
	`Wed, 28 Mar 2007 01:49:49 +0000\n`
	`/dictionary/fran%C3%A7ais/pr%c3%a9f%c3%a8re`

> **Note**
>
> The elements in `StringToSign` that were derived from the Request-URI are taken literally, including URL-Encoding and capitalization.

REST request signing problems

When REST request authentication fails, the system responds to the request with an XML error document. The information contained in this error document is meant to help developers diagnose the problem. In particular, the `StringToSign` element of the `SignatureDoesNotMatch` error document tells you exactly what request canonicalization the system is using.

Some toolkits silently insert headers that you do not know about beforehand, such as adding the header `Content-Type` during a PUT. In most of these cases, the value of the inserted header remains constant, allowing you to discover the missing headers by using tools such as Ethereal or tcpmon.

Query string request authentication alternative

You can authenticate certain types of requests by passing the required information as query-string parameters instead of using the `Authorization` HTTP header. This is useful for enabling direct third-party browser access to your private Amazon S3 data without proxying the request. The idea is to construct a "presigned" request and encode it as a URL that an end-user's browser can retrieve. Additionally, you can limit a presigned request by specifying an expiration time.

For more information on using query parameters to authenticate requests , see Authenticating Requests: Using Query Parameters (AWS Signature Version 4) in the *Amazon Simple Storage Service API Reference*. For examples of using the AWS SDKs to generating presigned URLs, see Sharing objects with presigned URLs .

Creating a signature

Following is an example query string authenticated Amazon S3 REST request.

```
GET /photos/puppy.jpg
?AWSAccessKeyId=AKIAIOSFODNN7EXAMPLE&Expires=1141889120&Signature=vjbyPxybdZaNmGa
%2ByT272YEAiv4%3D HTTP/1.1
Host: awsexamplebucket1.s3.us-west-1.amazonaws.com
Date: Mon, 26 Mar 2007 19:37:58 +0000
```

The query string request authentication method doesn't require any special HTTP headers. Instead, the required authentication elements are specified as query string parameters:

Query string parameter name	Example value	Description
`AWSAccessKeyId`	`AKIAIOSFODNN7EXAMPLE`	Your AWS access key ID. Specifies the AWS secret access key used to sign the request and, indirectly, the

Query string parameter name	Example value	Description
		identity of the developer making the request.
`Expires`	`1141889120`	The time when the signature expires, specified as the number of seconds since the epoch (00:00:00 UTC on January 1, 1970). A request received after this time (according to the server) will be rejected.
`Signature`	`vjbyPxybdZaNmGa%2B yT272YEAiv4%3D`	The URL encoding of the Base64 encoding of the HMAC-SHA1 of StringToSign.

The query string request authentication method differs slightly from the ordinary method but only in the format of the `Signature` request parameter and the `StringToSign` element. Following is pseudo-grammar that illustrates the query string request authentication method.

```
Signature = URL-Encode( Base64( HMAC-SHA1( YourSecretAccessKey, UTF-8-Encoding-
Of( StringToSign ) ) ) );

StringToSign = HTTP-VERB + "\n" +
    Content-MD5 + "\n" +
    Content-Type + "\n" +
    Expires + "\n" +
    CanonicalizedAmzHeaders +
    CanonicalizedResource;
```

`YourSecretAccessKey` is the AWS secret access key ID that Amazon assigns to you when you sign up to be an Amazon Web Service developer. Notice how the `Signature` is URL-Encoded to make it suitable for placement in the query string. Note also that in `StringToSign`, the HTTP `Date` positional element has been replaced with `Expires`. The `CanonicalizedAmzHeaders` and `CanonicalizedResource` are the same.

> **Note**
>
> In the query string authentication method, you do not use the `Date` or the `x-amz-date request` header when calculating the string to sign.

Query string request authentication

Request	StringToSign

`GET /photos/puppy.jpg?AWSAccessKeyId=AKIAIOSFODNN7EXAMPLE&Signature=NpgCjnDzrM%2BWFzoENXmpNDUsSn8%3D&Expires=1175139620 HTTP/1.1`
 	
`Host: awsexamplebucket1.s3.us-west-1.amazonaws.com`
	`GET\n`
	`\n`
	`\n`
	`1175139620\n`
	
	`/awsexamplebucket1/photos/puppy.jpg`

We assume that when a browser makes the GET request, it won't provide a Content-MD5 or a Content-Type header, nor will it set any x-amz- headers, so those parts of the `StringToSign` are left blank.

Using Base64 encoding

HMAC request signatures must be Base64 encoded. Base64 encoding converts the signature into a simple ASCII string that can be attached to the request. Characters that could appear in the signature string like plus (+), forward slash (/), and equals (=) must be encoded if used in a URI. For example, if the authentication code includes a plus (+) sign, encode it as %2B in the request. Encode a forward slash as %2F and equals as %3D.

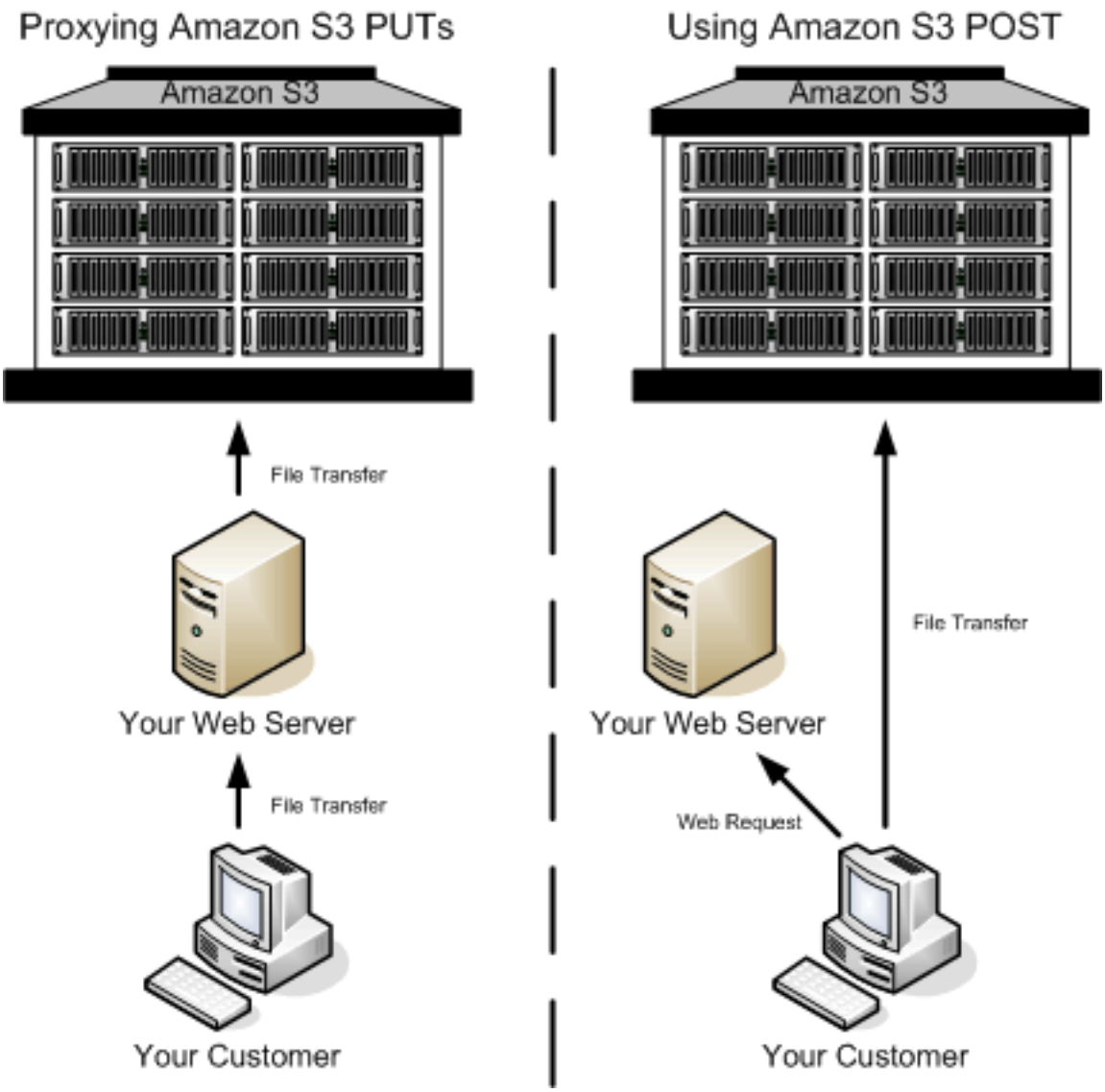
For examples of Base64 encoding, refer to the Amazon S3 Authentication examples.

Browser-based uploads using POST (AWS signature version 2)

Amazon S3 supports POST, which allows your users to upload content directly to Amazon S3. POST is designed to simplify uploads, reduce upload latency, and save you money on applications where users upload data to store in Amazon S3.

> **Note**
>
> The request authentication discussed in this section is based on AWS Signature Version 2, a protocol for authenticating inbound API requests to AWS services.
> Amazon S3 now supports Signature Version 4, a protocol for authenticating inbound API requests to AWS services, in all AWS Regions. At this time, AWS Regions created before January 30, 2014 will continue to support the previous protocol, Signature Version 2. Any new regions after January 30, 2014 will support only Signature Version 4 and therefore all requests to those regions must be made with Signature Version 4. For more information, see Authenticating Requests in Browser-Based Uploads Using POST (AWS Signature Version 4) in the *Amazon Simple Storage Service API Reference*.

The following figure shows an upload using Amazon S3 POST.



Uploading using POST

1	The user opens a web browser and accesses your web page.
2	Your web page contains an HTTP form that contains all the information necessary for the user to upload content to Amazon S3.
3	The user uploads content directly to Amazon S3.

> **Note**
>
> Query string authentication is not supported for POST.

HTML forms (AWS signature version 2)

Topics

- HTML form encoding
- HTML form declaration
- HTML form fields
- Policy construction
- Constructing a signature
- Redirection

When you communicate with Amazon S3, you normally use the REST or SOAP API to perform put, get, delete, and other operations. With POST, users upload data directly to Amazon S3 through their browsers, which cannot process the SOAP API or create a REST PUT request.

> **Note**
>
> SOAP APIs for Amazon S3 are not available for new customers, and are approaching End of Life (EOL) on October 31, 2025. We recommend that you use either the REST API or the AWS SDKs.

To allow users to upload content to Amazon S3 by using their browsers, you use HTML forms. HTML forms consist of a form declaration and form fields. The form declaration contains high-level information about the request. The form fields contain detailed information about the request, as well as the policy that is used to authenticate it and ensure that it meets the conditions that you specify.

> **Note**
>
> The form data and boundaries (excluding the contents of the file) cannot exceed 20 KB.

This section explains how to use HTML forms.

HTML form encoding

The form and policy must be UTF-8 encoded. You can apply UTF-8 encoding to the form by specifying it in the HTML heading or as a request header.

> **Note**
>
> The HTML form declaration does not accept query string authentication parameters.

The following is an example of UTF-8 encoding in the HTML heading:

```
<html>
  <head>
    ...
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
    ...
  </head>
  <body>
```

The following is an example of UTF-8 encoding in a request header:

```
Content-Type: text/html; charset=UTF-8
```

HTML form declaration

The form declaration has three components: the action, the method, and the enclosure type. If any of these values is improperly set, the request fails.

The action specifies the URL that processes the request, which must be set to the URL of the bucket. For example, if the name of your bucket is `awsexamplebucket1` and the Region is US West (N. California), the URL is `https://awsexamplebucket1.s3.us-west-1.amazonaws.com/`.

> **Note**
>
> The key name is specified in a form field.

The method must be POST.

The enclosure type (enctype) must be specified and must be set to multipart/form-data for both file uploads and text area uploads. For more information, go to RFC 1867.

Example

The following example is a form declaration for the bucket "awsexamplebucket1".

```
<form action="https://awsexamplebucket1.s3.us-west-1.amazonaws.com/" method="post"

enctype="multipart/form-data">
```

HTML form fields

The following table describes fields that can be used within an HTML form.

> **Note**
>
> The variable `${filename}` is automatically replaced with the name of the file provided by the user and is recognized by all form fields. If the browser or client provides a full or partial path to the file, only the text following the last slash (/) or backslash (\) will be used. For example, "C:\Program Files\directory1\file.txt" will be interpreted as "file.txt". If no file or file name is provided, the variable is replaced with an empty string.

Field name	Description	Required
`AWSAccessKeyId`	The AWS Access Key ID of the owner of the bucket who grants an anonymous user access for a request that satisfies the set of constraints in the policy. This field is required if the request includes a policy document.	Conditional
`acl`	An Amazon S3 access control list (ACL). If an invalid access control list is specified, an error is generated.	No

Field name	Description	Required
	Type: String Default: private Valid Values: `private` | `public-read` | `public-read-write` | `aws-exec-read` | `authenticated-read` | `bucket-owner-read` | `bucket-owner-full-control`	
`Cache-Control`, `Content-Type`, `Content-Disposition`, `Content-Encoding`, `Expires`	REST-specific headers. For more information, see PUT Object.	No
`key`	The name of the uploaded key. To use the filename provided by the user, use the ${filename} variable. For example, if user Betty uploads the file lolcatz.jpg and you specify /user/betty/${filename}, the file is stored as /user/betty/lolcatz.jpg. For more information, see Working with object metadata .	Yes
`policy`	Security policy describing what is permitted in the request. Requests without a security policy are considered anonymous and will succeed only on publicly writable buckets.	No

Field name	Description	Required
`success_action_redirect, redirect`	The URL to which the client is redirected upon successful upload. Amazon S3 appends the bucket, key, and etag values as query string parameters to the URL. If success_action_redirect is not specified, Amazon S3 returns the empty document type specified in the success_action_status field. If Amazon S3 cannot interpret the URL, it ignores the field. If the upload fails, Amazon S3 displays an error and does not redirect the user to a URL. For more information, see Redirection. **Note** The redirect field name is deprecated and support for the redirect field name will be removed in the future.	No

Field name	Description	Required
`success_action_status`	The status code returned to the client upon successful upload if success_action_redirect is not specified. Valid values are 200, 201, or 204 (default). If the value is set to 200 or 204, Amazon S3 returns an empty document with a 200 or 204 status code. If the value is set to 201, Amazon S3 returns an XML document with a 201 status code. For information about the content of the XML document, see POST Object. If the value is not set or if it is set to an invalid value, Amazon S3 returns an empty document with a 204 status code. **Note** Some versions of the Adobe Flash player do not properly handle HTTP responses with an empty body. To support uploads through Adobe Flash, we recommend setting `success_action_status` to 201.	No

Field name	Description	Required
`signature`	The HMAC signature constructed by using the secret access key that corresponds to the provided AWSAccessKeyId. This field is required if a policy document is included with the request. For more information, see Identity and Access Management for Amazon S3.	Conditional
Other field names prefixed with x-amz-meta-	User-specified metadata. Amazon S3 does not validate or use this data. For more information, see PUT Object.	No
file	File or text content. The file or content must be the last field in the form. Any fields below it are ignored. You cannot upload more than one file at a time.	Yes

Policy construction

Topics

- Expiration
- Conditions
- Condition matching
- Character escaping

The policy is a UTF-8 and Base64-encoded JSON document that specifies conditions that the request must meet and is used to authenticate the content. Depending on how you design your

policy documents, you can use them per upload, per user, for all uploads, or according to other designs that meet your needs.

> **Note**
>
> Although the policy document is optional, we highly recommend it over making a bucket publicly writable.

The following is an example of a policy document:

```
{ "expiration": "2007-12-01T12:00:00.000Z",

  "conditions": [

    {"acl": "public-read" },

    {"bucket": "awsexamplebucket1" },

    ["starts-with", "$key", "user/eric/"],

  ]

}
```

The policy document contains the expiration and conditions.

Expiration

The expiration element specifies the expiration date of the policy in ISO 8601 UTC date format. For example, "2007-12-01T12:00:00.000Z" specifies that the policy is not valid after midnight UTC on 2007-12-01. Expiration is required in a policy.

Conditions

The conditions in the policy document validate the contents of the uploaded object. Each form field that you specify in the form (except AWSAccessKeyId, signature, file, policy, and field names that have an x-ignore- prefix) must be included in the list of conditions.

> **Note**
>
> If you have multiple fields with the same name, the values must be separated by commas. For example, if you have two fields named "x-amz-meta-tag" and the first one has a value of "Ninja" and second has a value of "Stallman", you would set the policy document to `Ninja,Stallman`.
>
> All variables within the form are expanded before the policy is validated. Therefore, all condition matching should be performed against the expanded fields. For example, if you set the key field to `user/betty/${filename}`, your policy might be `[ "starts-with", "$key", "user/betty/" ]`. Do not enter `[ "starts-with", "$key", "user/betty/${filename}" ]`. For more information, see Condition matching.

The following table describes policy document conditions.

Element name	Description
acl	Specifies conditions that the ACL must meet. Supports exact matching and `starts-with` .
content-length-range	Specifies the minimum and maximum allowable size for the uploaded content. Supports range matching.
Cache-Control, Content-Type, Content-Disposition, Content-Encoding, Expires	REST-specific headers. Supports exact matching and `starts-with` .
key	The name of the uploaded key. Supports exact matching and `starts-with` .
success_action_redirect, redirect	The URL to which the client is redirected upon successful upload.

Element name	Description
	Supports exact matching and `starts-with` .
success_action_status	The status code returned to the client upon successful upload if success_action_redirect is not specified. Supports exact matching.
Other field names prefixed with x-amz-meta-	User-specified metadata. Supports exact matching and `starts-with` .

> **Note**
>
> If your toolkit adds additional fields (e.g., Flash adds filename), you must add them to the policy document. If you can control this functionality, prefix `x-ignore-` to the field so Amazon S3 ignores the feature and it won't affect future versions of this feature.

Condition matching

The following table describes condition matching types. Although you must specify one condition for each form field that you specify in the form, you can create more complex matching criteria by specifying multiple conditions for a form field.

Condition	Description
Exact Matches	Exact matches verify that fields match specific values. This example indicates that the ACL must be set to public-read: `{"acl": "public-read" }` This example is an alternate way to indicate that the ACL must be set to public-read:

Condition	Description
	`[ "eq", "$acl", "public-read" ]`
Starts With	If the value must start with a certain value, use starts-with. This example indicates that the key must start with user/betty: `["starts-with", "$key", "user/betty/"]`
Matching Any Content	To configure the policy to allow any content within a field, use starts-with with an empty value. This example allows any success_action_redirect: `["starts-with", "$success_action_redirect", ""]`
Specifying Ranges	For fields that accept ranges, separate the upper and lower ranges with a comma. This example allows a file size from 1 to 10 megabytes: `["content-length-range", 1048579, 10485760]`

Character escaping

The following table describes characters that must be escaped within a policy document.

Escape sequence	Description
\\	Backslash
\$	Dollar sign

Escape sequence	Description
\b	Backspace
\f	Form feed
\n	New line
\r	Carriage return
\t	Horizontal tab
\v	Vertical tab
\u*xxxx*	All Unicode characters

Constructing a signature

Step	Description
1	Encode the policy by using UTF-8.
2	Encode those UTF-8 bytes by using Base64.
3	Sign the policy with your secret access key by using HMAC SHA-1.
4	Encode the SHA-1 signature by using Base64.

For general information about authentication, see Identity and Access Management for Amazon S3.

Redirection

This section describes how to handle redirects.

General redirection

On completion of the POST request, the user is redirected to the location that you specified in the `success_action_redirect` field. If Amazon S3 cannot interpret the URL, it ignores the `success_action_redirect` field.

If `success_action_redirect` is not specified, Amazon S3 returns the empty document type specified in the `success_action_status` field.

If the POST request fails, Amazon S3 displays an error and does not provide a redirect.

Pre-upload redirection

If your bucket was created using <CreateBucketConfiguration>, your end users might require a redirect. If this occurs, some browsers might handle the redirect incorrectly. This is relatively rare but is most likely to occur right after a bucket is created.

Upload examples (AWS signature version 2)

Topics

- File upload
- Text area upload

> **Note**
>
> The request authentication discussed in this section is based on AWS Signature Version 2, a protocol for authenticating inbound API requests to AWS services.
> Amazon S3 now supports Signature Version 4, a protocol for authenticating inbound API requests to AWS services, in all AWS Regions. At this time, AWS Regions created before January 30, 2014 will continue to support the previous protocol, Signature Version 2. Any new regions after January 30, 2014 will support only Signature Version 4 and therefore all requests to those regions must be made with Signature Version 4. For more information, see Examples: Browser-Based Upload using HTTP POST (Using AWS Signature Version 4) in the *Amazon Simple Storage Service API Reference*.

File upload

This example shows the complete process for constructing a policy and form that can be used to upload a file attachment.

Policy and form construction

The following policy supports uploads to Amazon S3 for the awsexamplebucket1 bucket.

```
{ "expiration": "2007-12-01T12:00:00.000Z",
  "conditions": [
    {"bucket": "awsexamplebucket1"},
    ["starts-with", "$key", "user/eric/"],
    {"acl": "public-read"},
    {"success_action_redirect": "https://awsexamplebucket1.s3.us-west-1.amazonaws.com/
successful_upload.html"},
    ["starts-with", "$Content-Type", "image/"],
    {"x-amz-meta-uuid": "14365123651274"},
    ["starts-with", "$x-amz-meta-tag", ""]
  ]
}
```

This policy requires the following:

- The upload must occur before 12:00 UTC on December 1, 2007.
- The content must be uploaded to the awsexamplebucket1 bucket.
- The key must start with "user/eric/".
- The ACL is set to public-read.
- The success_action_redirect is set to https://awsexamplebucket1.s3.us-west-1.amazonaws.com/successful_upload.html.
- The object is an image file.
- The x-amz-meta-uuid tag must be set to 14365123651274.
- The x-amz-meta-tag can contain any value.

The following is a Base64-encoded version of this policy.


```
eyAiZXhwaXJhdGlvbiI6ICIyMDA3LTEyLTAxVDEyOjAwOjAwLjAwMFoiLAogICJjb25kaXRpb25zIjogWwogICAgeyJidWN
```

Using your credentials create a signature, for example `0RavWzkygo6QX9caELEqKi9kDbU=` is the signature for the preceding policy document.

The following form supports a POST request to the amzn-s3-demo-bucket bucket that uses this policy.

```
<html>
  <head>
    ...
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
    ...
  </head>
  <body>
  ...
  <form action="https://amzn-s3-demo-bucket.s3.us-west-1.amazonaws.com/" method="post"
 enctype="multipart/form-data">
    Key to upload: <input type="input" name="key" value="user/eric/" /><br />
    <input type="hidden" name="acl" value="public-read" />
    <input type="hidden" name="success_action_redirect" value="https://
awsexamplebucket1.s3.us-west-1.amazonaws.com/successful_upload.html" />
    Content-Type: <input type="input" name="Content-Type" value="image/jpeg" /><br />
    <input type="hidden" name="x-amz-meta-uuid" value="14365123651274" />
    Tags for File: <input type="input" name="x-amz-meta-tag" value="" /><br />
    <input type="hidden" name="AWSAccessKeyId" value="AKIAIOSFODNN7EXAMPLE" />
    <input type="hidden" name="Policy" value="POLICY" />
    <input type="hidden" name="Signature" value="SIGNATURE" />
    File: <input type="file" name="file" /> <br />
    <!-- The elements after this will be ignored -->
    <input type="submit" name="submit" value="Upload to Amazon S3" />
  </form>
  ...
</html>
```

Sample request

This request assumes that the image uploaded is 117,108 bytes; the image data is not included.

```
POST / HTTP/1.1
Host: awsexamplebucket1.s3.us-west-1.amazonaws.com
User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.8.1.10) Gecko/20071115
 Firefox/2.0.0.10
Accept: text/xml,application/xml,application/xhtml+xml,text/html;q=0.9,text/
plain;q=0.8,image/png,*/*;q=0.5
```

```
Accept-Language: en-us,en;q=0.5
Accept-Encoding: gzip,deflate
Accept-Charset: ISO-8859-1,utf-8;q=0.7,*;q=0.7
Keep-Alive: 300
Connection: keep-alive
Content-Type: multipart/form-data; boundary=9431149156168
Content-Length: 118698

--9431149156168
Content-Disposition: form-data; name="key"

user/eric/MyPicture.jpg
--9431149156168
Content-Disposition: form-data; name="acl"

public-read
--9431149156168
Content-Disposition: form-data; name="success_action_redirect"

https://awsexamplebucket1.s3.us-west-1.amazonaws.com/successful_upload.html
--9431149156168
Content-Disposition: form-data; name="Content-Type"

image/jpeg
--9431149156168
Content-Disposition: form-data; name="x-amz-meta-uuid"

14365123651274
--9431149156168
Content-Disposition: form-data; name="x-amz-meta-tag"

Some,Tag,For,Picture
--9431149156168
Content-Disposition: form-data; name="AWSAccessKeyId"

AKIAIOSFODNN7EXAMPLE
--9431149156168
Content-Disposition: form-data; name="Policy"

eyAiZXhwaXJhdGlvbiI6ICIyMDA3LTEyLTAxVDEyOjAwOjAwLjAwMFoiLAogICJjb25kaXRpb25zIjogWwogICAgeyJidWN
--9431149156168
Content-Disposition: form-data; name="Signature"

0RavWzkygo6QX9caELEqKi9kDbU=
```

```
--9431149156168
Content-Disposition: form-data; name="file"; filename="MyFilename.jpg"
Content-Type: image/jpeg

...file content...
--9431149156168
Content-Disposition: form-data; name="submit"

Upload to Amazon S3
--9431149156168--
```

Sample response

```
HTTP/1.1 303 Redirect
x-amz-request-id: 1AEE782442F35865
x-amz-id-2: cxzFLJRatFHy+NGtaDFRR8YvI9BHmgLxjvJzNiGGICARZ/mVXHj7T+qQKhdpzHFh
Content-Type: application/xml
Date: Wed, 14 Nov 2007 21:21:33 GMT
Connection: close
Location: https://awsexamplebucket1.s3.us-west-1.amazonaws.com/
successful_upload.html?bucket=awsexamplebucket1&key=user/eric/
MyPicture.jpg&etag=&quot;39d459dfbc0faabbb5e179358dfb94c3&quot;
Server: AmazonS3
```

Text area upload

Topics

- Policy and form construction
- Sample request
- Sample response

The following example shows the complete process for constructing a policy and form to upload a text area. Uploading a text area is useful for submitting user-created content, such as blog postings.

Policy and form construction

The following policy supports text area uploads to Amazon S3 for the awsexamplebucket1 bucket.

```
{ "expiration": "2007-12-01T12:00:00.000Z",
  "conditions": [
```

```
    {"bucket": "awsexamplebucket1"},
    ["starts-with", "$key", "user/eric/"],
    {"acl": "public-read"},
    {"success_action_redirect": "https://awsexamplebucket1.s3.us-west-1.amazonaws.com/
new_post.html"},
    ["eq", "$Content-Type", "text/html"],
    {"x-amz-meta-uuid": "14365123651274"},
    ["starts-with", "$x-amz-meta-tag", ""]
  ]
}
```

This policy requires the following:

- The upload must occur before 12:00 GMT on 2007-12-01.
- The content must be uploaded to the awsexamplebucket1 bucket.
- The key must start with "user/eric/".
- The ACL is set to public-read.
- The success_action_redirect is set to https://awsexamplebucket1.s3.us-west-1.amazonaws.com/new_post.html.
- The object is HTML text.
- The x-amz-meta-uuid tag must be set to 14365123651274.
- The x-amz-meta-tag can contain any value.

Following is a Base64-encoded version of this policy.


```
eyAiZXhwaXJhdGlvbiI6ICIyMDA3LTEyLTAxVDEyOjAwOjAwLjAwMFoiLAogICJjb25kaXR
pb25zIjogWwogICAgeyJidWNrZXQiOiAiam9obnNtaXRoIn0sCiAgICBbInN0YXJ0cy13aXRoIiwgIiRrZXkiLCAidXNlci
LAogICAgeyJhY2wiOiAicHVibGljLXJlYWQifSwKICAgIHsic3VjY2Vzc19hY3Rpb25fcmVkaXJlY3QiOiAiaHR0cDovL2p
C5zMy5hbWF6b25hd3MuY29tL25ld19wb3N0Lmh0bWwifSwKICAgIFsiZXEiLCAiJENvbnRlbnQtVHlwZSIsICJ0ZXh0L2h0
CAgIHsieC1hbXotbWV0YS11dWlkIjogIjE0MzY1MTIzNjUxMjc0In0sCiAgICBbInN0YXJ0cy13aXRoIiwgIiR4LWFtei1t
IsICIiXQogIF0KfQo=
```


Using your credentials, create a signature. For example, `qA7FWXKq6VvU68lI9KdveT1cWgF=` is the signature for the preceding policy document.

The following form supports a POST request to the amzn-s3-demo-bucket bucket that uses this policy.

```
<html>
```

```
  <head>
    ...
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
    ...
  </head>
  <body>
  ...
  <form action="https://amzn-s3-demo-bucket.s3.us-west-1.amazonaws.com/" method="post"
 enctype="multipart/form-data">
    Key to upload: <input type="input" name="key" value="user/eric/" /><br />
    <input type="hidden" name="acl" value="public-read" />
    <input type="hidden" name="success_action_redirect" value="https://
awsexamplebucket1.s3.us-west-1.amazonaws.com/new_post.html" />
    <input type="hidden" name="Content-Type" value="text/html" />
    <input type="hidden" name="x-amz-meta-uuid" value="14365123651274" />
    Tags for File: <input type="input" name="x-amz-meta-tag" value="" /><br />
    <input type="hidden" name="AWSAccessKeyId" value="AKIAIOSFODNN7EXAMPLE" />
    <input type="hidden" name="Policy" value="POLICY" />
    <input type="hidden" name="Signature" value="SIGNATURE" />
    Entry: <textarea name="file" cols="60" rows="10">

Your blog post goes here.

    </textarea><br />
    <!-- The elements after this will be ignored -->
    <input type="submit" name="submit" value="Upload to Amazon S3" />
  </form>
  ...
</html>
```

Sample request

This request assumes that the image uploaded is 117,108 bytes; the image data is not included.

```
POST / HTTP/1.1
Host: awsexamplebucket1.s3.us-west-1.amazonaws.com
User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.8.1.10) Gecko/20071115
 Firefox/2.0.0.10
Accept: text/xml,application/xml,application/xhtml+xml,text/html;q=0.9,text/
plain;q=0.8,image/png,*/*;q=0.5
Accept-Language: en-us,en;q=0.5
Accept-Encoding: gzip,deflate
Accept-Charset: ISO-8859-1,utf-8;q=0.7,*;q=0.7
Keep-Alive: 300
```

```
Connection: keep-alive
Content-Type: multipart/form-data; boundary=178521717625888
Content-Length: 118635

-178521717625888
Content-Disposition: form-data; name="key"

ser/eric/NewEntry.html
--178521717625888
Content-Disposition: form-data; name="acl"

public-read
--178521717625888
Content-Disposition: form-data; name="success_action_redirect"

https://awsexamplebucket1.s3.us-west-1.amazonaws.com/new_post.html
--178521717625888
Content-Disposition: form-data; name="Content-Type"

text/html
--178521717625888
Content-Disposition: form-data; name="x-amz-meta-uuid"

14365123651274
--178521717625888
Content-Disposition: form-data; name="x-amz-meta-tag"

Interesting Post
--178521717625888
Content-Disposition: form-data; name="AWSAccessKeyId"

AKIAIOSFODNN7EXAMPLE
--178521717625888
Content-Disposition: form-data; name="Policy"
eyAiZXhwaXJhdGlvbiI6ICIyMDA3LTEyLTAxVDEyOjAwOjAwLjAwMFoiLAogICJjb25kaXRpb25zIjogWwogICAgeyJidWN

--178521717625888
Content-Disposition: form-data; name="Signature"

qA7FWXKq6VvU68lI9KdveT1cWgF=
--178521717625888
Content-Disposition: form-data; name="file"

...content goes here...
```

```
--178521717625888
Content-Disposition: form-data; name="submit"

Upload to Amazon S3
--178521717625888--
```

Sample response

```
HTTP/1.1 303 Redirect
x-amz-request-id: 1AEE782442F35865
x-amz-id-2: cxzFLJRatFHy+NGtaDFRR8YvI9BHmgLxjvJzNiGGICARZ/mVXHj7T+qQKhdpzHFh
Content-Type: application/xml
Date: Wed, 14 Nov 2007 21:21:33 GMT
Connection: close
Location: https://awsexamplebucket1.s3.us-west-1.amazonaws.com/new_post.html?
bucket=awsexamplebucket1&key=user/eric/
NewEntry.html&etag=40c3271af26b7f1672e41b8a274d28d4
Server: AmazonS3
```

POST with adobe flash (AWS signature version 2)

This section describes how to use POST with Adobe Flash.

Adobe flash player security

By default, the Adobe Flash Player security model prohibits Adobe Flash Players from making network connections to servers outside the domain that serves the SWF file.

To override the default, you must upload a publicly readable crossdomain.xml file to the bucket that will accept POST uploads. The following is a sample crossdomain.xml file.

```
<?xml version="1.0"?>
<!DOCTYPE cross-domain-policy SYSTEM
"http://www.macromedia.com/xml/dtds/cross-domain-policy.dtd">
<cross-domain-policy>
<allow-access-from domain="*" secure="false" />
</cross-domain-policy>
```

> **Note**
>
> For more information about the Adobe Flash security model, go to the Adobe website.

Adding the crossdomain.xml file to your bucket allows any Adobe Flash Player to connect to the crossdomain.xml file within your bucket; however, it does not grant access to the actual Amazon S3 bucket.

Adobe flash considerations

The FileReference API in Adobe Flash adds the `Filename` form field to the POST request. When you build Adobe Flash applications that upload to Amazon S3 by using the FileReference API action, include the following condition in your policy:

```
['starts-with', '$Filename', '']
```

Some versions of the Adobe Flash Player do not properly handle HTTP responses that have an empty body. To configure POST to return a response that does not have an empty body, set `success_action_status` to 201. Amazon S3 will then return an XML document with a 201 status code. For information about the content of the XML document, see POST Object. For information about form fields, see HTML form fields.

Appendix: Lifecycle Configuration APIs (Deprecated)

Bucket lifecycle configuration is updated to support filters based on object tags. That is, you can now specify a rule that specifies key name prefix, one or more object tags, or both to select a subset of objects to which the rule applies. The APIs have been updated accordingly. The following topics describes the prior version of the PUT and GET bucket lifecycle operations for backward compatibility.

Topics

- PUT Bucket lifecycle (Deprecated)
- GET Bucket lifecycle (Deprecated)

PUT Bucket lifecycle (Deprecated)

Description

> **Important**
>
> For an updated version of this API, see PutBucketLifecycleConfiguration. This version has been deprecated. Existing lifecycle configurations will work. For new lifecycle configurations, use the updated API.

Creates a new lifecycle configuration for the bucket or replaces an existing lifecycle configuration. For information about lifecycle configuration, see Object Lifecycle Management in the *Amazon Simple Storage Service User Guide*.

Permissions

By default, all Amazon S3 resources, including buckets, objects, and related subresources (for example, lifecycle configuration and website configuration) are private. Only the resource owner, the AWS account that created the resource, can access it. The resource owner can optionally grant access permissions to others by writing an access policy. For this operation, users must get the `s3:PutLifecycleConfiguration` permission.

You can also explicitly deny permissions. Explicit denial also supersedes any other permissions. If you want to prevent users or accounts from removing or deleting objects from your bucket, you must deny them permissions for the following actions:

- `s3:DeleteObject`
- `s3:DeleteObjectVersion`
- `s3:PutLifecycleConfiguration`

For more information about permissions, see Managing Access Permissions to Your Amazon S3 Resources in the *Amazon Simple Storage Service User Guide*.

Requests

Syntax

```
PUT /?lifecycle HTTP/1.1
Host: bucketname.s3.amazonaws.com
Content-Length: length
Date: date
Authorization: authorization string
Content-MD5: MD5

Lifecycle configuration in the request body
```

For details about authorization strings, see Authenticating Requests (AWS Signature Version 4).

Request Parameters

This implementation of the operation does not use request parameters.

Request Headers

Name	Description	Required
`Content-MD5`	The base64-encoded 128-bit MD5 digest of the data. You must use this header as a message integrity check to verify that the request body was not corrupted in transit. For more information, see RFC 1864. Type: String Default: None	Yes

Request Body

In the request, you specify the lifecycle configuration in the request body. The lifecycle configuration is specified as XML. The following is an example of a basic lifecycle configuration. It specifies one rule. The `Prefix` in the rule identifies objects to which the rule applies. The rule also specifies two actions (`Transition`and `Expiration`). Each action specifies a timeline when

Amazon S3 should perform the action. The `Status` indicates whether the rule is enabled or disabled.

```
<LifecycleConfiguration>
    <Rule>
        <ID>sample-rule</ID>
        <Prefix>key-prefix</Prefix>
        <Status>rule-status</Status>
        <Transition>
           <Date>value</Date>
           <StorageClass>storage class</StorageClass>
        </Transition>
        <Expiration>
           <Days>value</Days>
        </Expiration>
    </Rule>
</LifecycleConfiguration>
```

If the state of your bucket is versioning-enabled or versioning-suspended, you can have many versions of the same object: one current version and zero or more noncurrent versions. The following lifecycle configuration specifies the actions (`NoncurrentVersionTransition`, `NoncurrentVersionExpiration`) that are specific to noncurrent object versions.

```
<LifecycleConfiguration>
    <Rule>
        <ID>sample-rule</ID>
        <Prefix>key-prefix</Prefix>
        <Status>rule-status</Status>
        <NoncurrentVersionTransition>
           <NoncurrentDays>value</NoncurrentDays>
           <StorageClass>storage class</StorageClass>
        </NoncurrentVersionTransition>
        <NoncurrentVersionExpiration>
           <NoncurrentDays>value</NoncurrentDays>
        </NoncurrentVersionExpiration>
    </Rule>
</LifecycleConfiguration>
```

You can use the multipart upload API to upload large objects in parts. For more information about multipart uploads, see Multipart Upload Overview in the *Amazon Simple Storage Service User Guide*. With lifecycle configuration, you can tell Amazon S3 to cancel incomplete multipart

uploads, which are identified by the key name prefix specified in the rule, if they don't complete within a specified number of days. When Amazon S3 cancels a multipart upload, it deletes all parts associated with the upload. This ensures that you don't have incomplete multipart uploads that have left parts stored in Amazon S3, so you don't have to pay storage costs for them. The following is an example lifecycle configuration that specifies a rule with the `AbortIncompleteMultipartUpload` action. This action tells Amazon S3 to cancel incomplete multipart uploads seven days after initiation.

```
<LifecycleConfiguration>
    <Rule>
        <ID>sample-rule</ID>
        <Prefix>SomeKeyPrefix/</Prefix>
        <Status>rule-status</Status>
        <AbortIncompleteMultipartUpload>
          <DaysAfterInitiation>7</DaysAfterInitiation>
        </AbortIncompleteMultipartUpload>
    </Rule>
</LifecycleConfiguration>
```

The following table describes the XML elements in the lifecycle configuration.

Name	Description	Required
`AbortIncompleteMultipartUpload`	Container for specifying when an incomplete multipart upload becomes eligible for an abort operation. Child: `DaysAfterInitiation` Type: Container Ancestor: `Rule`	Yes, if no other action is specified for the rule
`Date`	Date when you want Amazon S3 to take the action. For more information, see Lifecycle Rules: Based on a Specific Date in the *Amazon Simple Storage Service User Guide*.	Yes, if `Days` and `ExpiredObjectDelet`

Name	Description	Required
	The date value must conform to ISO 8601 format. The time is always midnight UTC. Type: String Ancestor: `Expiration` or `Transition`	`eMarker` are absent
`Days`	Specifies the number of days after object creation when the specific rule action takes effect. Type: Nonnegative Integer when used with `Transition`, Positive Integer when used with `Expiration` Ancestor: `Expiration`, `Transition`	Yes, if `Date` and `ExpiredObjectDeleteMarker` are absent
`DaysAfterInitiation`	Specifies the number of days after initiating a multipart upload when the multipart upload must be completed. If it does not complete by the specified number of days, it becomes eligible for an abort operation and Amazon S3 cancels the incomplete multipart upload. Type: Positive Integer Ancestor: `AbortIncompleteMultipartUpload`	Yes, if a parent tag is specified

Name	Description	Required
`Expiration`	This action specifies a period in an object's lifetime when Amazon S3 should take the appropriate expiration action. The action Amazon S3 takes depends on whether the bucket is versioning-enabled. • If versioning has never been enabled on the bucket, Amazon S3 deletes the only copy of the object permanently. • If the bucket is versioning-enabled (or versioning is suspended), the action applies only to the current version of the object. A versioning-enabled bucket can have many versions of the same object: one current version and zero or more noncurrent versions. Instead of deleting the current version, Amazon S3 makes it a noncurrent version by adding a delete marker as the new current version. **Important** If a bucket's state is versioning-suspended, Amazon S3 creates a delete marker with version ID `null`. If you have a version with version ID `null`, Amazon S3 overwrites that version.	Yes, if no other action is present in the `Rule`.

Name	Description	Required
	Note To set the expiration for noncurrent objects, use the `NoncurrentVersionExpiration` action. Type: Container Children: Days or Date Ancestor: Rule	
`ID`	Unique identifier for the rule. The value cannot be longer than 255 characters. Type: String Ancestor: Rule	No
`LifecycleConfiguration`	Container for lifecycle rules. You can add as many as 1000 rules. Type: Container Children: Rule Ancestor: None	Yes

Name	Description	Required
`ExpiredObjectDeleteMarker`	On a versioned bucket (a versioning-enabled or versioning-suspended bucket), you can add this element in the lifecycle configuration to tell Amazon S3 to delete expired object delete markers. For an example, see Example 8: Removing Expired Object Delete Markers in the *Amazon Simple Storage Service User Guide*. Don't add it to a non-versioned bucket, because that type of bucket cannot include delete markers. Type: String Valid values: true | false (the value `false` is allowed, but it is no-op, which means that Amazon S3 will not take action) Ancestor: `Expiration`	Yes, if `Date` and `Days` are absent
`NoncurrentDays`	Specifies the number of days an object is noncurrent before Amazon S3 can perform the associated action. For information about the noncurrent days calculations, see How Amazon S3 Calculates When an Object Became Noncurrent in the *Amazon Simple Storage Service User Guide*. Type: Nonnegative Integer when used with `NoncurrentVersionTransition`, Positive Integer when used with `NoncurrentVersionExpiration` Ancestor: `NoncurrentVersionExpiration` or `NoncurrentVersionTransition`	Yes

Name	Description	Required
`NoncurrentVersionExpiration`	Specifies when noncurrent object versions expire. Upon expiration, Amazon S3 permanently deletes the noncurrent object versions. Set this lifecycle configuration action on a bucket that has versioning enabled (or suspended) to tell Amazon S3 to delete noncurrent object versions at a specific period in the object's lifetime. Type: Container Children: NoncurrentDays Ancestor: Rule	Yes, if no other action is present in the `Rule`
`NoncurrentVersionTransition`	Container for the transition rule that describes when noncurrent objects transition to the `STANDARD_IA`, `ONEZONE_IA`, or GLACIER storage class. If your bucket is versioning-enabled (or if versioning is suspended), you can set this action to tell Amazon S3 to transition noncurrent object versions at a specific period in the object's lifetime. Type: Container Children: NoncurrentDays and StorageClass Ancestor: Rule	Yes, if no other action is present in the `Rule`

Name	Description	Required
`Prefix`	Object key prefix that identifies one or more objects to which the rule applies. Type: String Ancestor: Rule	Yes
`Rule`	Container for a lifecycle rule. A lifecycle configuration can contain as many as 1000 rules. Type: Container Ancestor:LifecycleConfiguration	Yes
`Status`	If enabled, Amazon S3 executes the rule as scheduled. If it is disabled, Amazon S3 ignores the rule. Type: String Ancestor: Rule Valid values: Enabled, Disabled	Yes
`StorageClass`	Specifies the Amazon S3 storage class to which you want the object to transition. Type: String Ancestor: Transition and NoncurrentVersionTransition Valid values: STANDARD_IA | ONEZONE_IA | GLACIER	Yes This element is required only if you specify one or both its ancestors.

Name	Description	Required
`Transition`	This action specifies a period in the objects' lifetime when Amazon S3 should transition them to the `STANDARD_IA` , `ONEZONE_IA` , or GLACIER storage class. When this action is in effect, what Amazon S3 does depends on whether the bucket is versioning-enabled. • If versioning has never been enabled on the bucket, Amazon S3 transitions the only copy of the object to the specified storage class. • If your bucket is versioning-enabled (or versioning is suspended), Amazon S3 transitions only the current versions of objects identified in the rule. **Note** A versioning-enabled bucket can have many versions of an object. This action has no effect on noncurrent object versions. To transition noncurrent objects, you must use the `NoncurrentVersionTransition` action. Type: Container Children: Days or Date, and StorageClass	Yes, if no other action is present in the `Rule`

Name	Description	Required
	Ancestor: Rule	

Responses

Response Headers

This implementation of the operation uses only response headers that are common to most responses. For more information, see Common Response Headers.

Response Elements

This implementation of the operation does not return response elements.

Special Errors

This implementation of the operation does not return special errors. For general information about Amazon S3 errors and a list of error codes, see Error Responses.

Examples

Example 1: Add Lifecycle Configuration to a Bucket That Is Not Versioning-enabled

The following lifecycle configuration specifies two rules, each with one action.

- The Transition action tells Amazon S3 to transition objects with the "documents/" prefix to the GLACIER storage class 30 days after creation.
- The Expiration action tells Amazon S3 to delete objects with the "logs/" prefix 365 days after creation.

```
<LifecycleConfiguration>
  <Rule>
    <ID>id1</ID>
    <Prefix>documents/</Prefix>
    <Status>Enabled</Status>
    <Transition>
      <Days>30</Days>
      <StorageClass>GLACIER</StorageClass>
    </Transition>
```

```
  </Rule>
  <Rule>
    <ID>id2</ID>
    <Prefix>logs/</Prefix>
    <Status>Enabled</Status>
    <Expiration>
      <Days>365</Days>
    </Expiration>
  </Rule>
</LifecycleConfiguration>
```

The following is a sample `PUT /?lifecycle` request that adds the preceding lifecycle configuration to the `examplebucket` bucket.

```
PUT /?lifecycle HTTP/1.1
Host: examplebucket.s3.amazonaws.com
x-amz-date: Wed, 14 May 2014 02:11:21 GMT
Content-MD5: q6yJDlIkcBaGGfb3QLY69A==
Authorization: authorization string
Content-Length: 415

<LifecycleConfiguration>
  <Rule>
    <ID>id1</ID>
    <Prefix>documents/</Prefix>
    <Status>Enabled</Status>
    <Transition>
      <Days>30</Days>
      <StorageClass>GLACIER</StorageClass>
    </Transition>
  </Rule>
  <Rule>
    <ID>id2</ID>
    <Prefix>logs/</Prefix>
    <Status>Enabled</Status>
    <Expiration>
      <Days>365</Days>
    </Expiration>
  </Rule>
</LifecycleConfiguration>
```

The following is a sample response.

```
HTTP/1.1 200 OK
x-amz-id-2: r+qR7+nhXtJDDIJ0JJYcd+1j5nM/rUFiiiZ/fNbDOsd3JUE8NWMLNHXmvPfwMpdc
x-amz-request-id: 9E26D08072A8EF9E
Date: Wed, 14 May 2014 02:11:22 GMT
Content-Length: 0
Server: AmazonS3
```

Example 2: Add Lifecycle Configuration to a Versioning-enabled Bucket

The following lifecycle configuration specifies two rules, each with one action for Amazon S3 to perform. You specify these actions when your bucket is versioning-enabled or versioning is suspended:

- The `NoncurrentVersionExpiration` action tells Amazon S3 to expire noncurrent versions of objects with the "logs/" prefix 100 days after the objects become noncurrent.
- The `NoncurrentVersionTransition` action tells Amazon S3 to transition noncurrent versions of objects with the "documents/" prefix to the GLACIER storage class 30 days after they become noncurrent.

```
<LifeCycleConfiguration>
  <Rule>
    <ID>DeleteAfterBecomingNonCurrent</ID>
    <Prefix>logs/</Prefix>
    <Status>Enabled</Status>
    <NoncurrentVersionExpiration>
      <NoncurrentDays>100</NoncurrentDays>
    </NoncurrentVersionExpiration>
  </Rule>
  <Rule>
    <ID>TransitionAfterBecomingNonCurrent</ID>
    <Prefix>documents/</Prefix>
    <Status>Enabled</Status>
    <NoncurrentVersionTransition>
      <NoncurrentDays>30</NoncurrentDays>
      <StorageClass>GLACIER</StorageClass>
    </NoncurrentVersionTransition>
  </Rule>
</LifeCycleConfiguration>
```

The following is a sample `PUT /?lifecycle` request that adds the preceding lifecycle configuration to the `examplebucket` bucket.

```
PUT /?lifecycle HTTP/1.1
Host: examplebucket.s3.amazonaws.com
x-amz-date: Wed, 14 May 2014 02:21:48 GMT
Content-MD5: 96rxH9mDqVNKkaZDddgnw==
Authorization: authorization string
Content-Length: 598

<LifeCycleConfiguration>
  <Rule>
    <ID>DeleteAfterBecomingNonCurrent</ID>
    <Prefix>logs/</Prefix>
    <Status>Enabled</Status>
    <NoncurrentVersionExpiration>
      <NoncurrentDays>1</NoncurrentDays>
    </NoncurrentVersionExpiration>
  </Rule>
  <Rule>
    <ID>TransitionSoonAfterBecomingNonCurrent</ID>
    <Prefix>documents/</Prefix>
    <Status>Enabled</Status>
    <NoncurrentVersionTransition>
      <NoncurrentDays>0</NoncurrentDays>
      <StorageClass>GLACIER</StorageClass>
    </NoncurrentVersionTransition>
  </Rule>
</LifeCycleConfiguration>
```

The following is a sample response.

```
HTTP/1.1 200 OK
x-amz-id-2: aXQ+KbIrmMmoO//3bMdDTw/CnjArwje+J49Hf+j44yRb/VmbIkgIO5A+PT98Cp/6k07hf
+LD2mY=
x-amz-request-id: 02D7EC4C10381EB1
Date: Wed, 14 May 2014 02:21:50 GMT
Content-Length: 0
Server: AmazonS3
```

Additional Examples

For more examples of transitioning objects to storage classes such as STANDARD_IA or ONEZONE_IA, see Examples of Lifecycle Configuration.

Related Resources

- GetBucketLifecycleConfiguration
- POST Object restore
- By default, a resource owner—in this case, a bucket owner, which is the AWS account that created the bucket—can perform any of the operations. A resource owner can also grant others permission to perform the operation. For more information, see the following topics in the *Amazon Simple Storage Service User Guide*:
  - Specifying Permissions in a Policy
  - Managing Access Permissions to Your Amazon S3 Resources

GET Bucket lifecycle (Deprecated)

Description

> **Important**
>
> For an updated version of this API, see GetBucketLifecycleConfiguration. If you configured a bucket lifecycle using the <filter> element, you should see an updated version of this topic. This topic is provided for backward compatibility.

Returns the `lifecycle` configuration information set on the bucket. For information about lifecycle configuration, go to Object Lifecycle Management in the *Amazon Simple Storage Service User Guide*.

To use this operation, you must have permission to perform the `s3:GetLifecycleConfiguration` action. The bucket owner has this permission by default. The bucket owner can grant this permission to others. For more information about permissions, see Managing Access Permissions to Your Amazon S3 Resources in the *Amazon Simple Storage Service User Guide*.

Requests

Syntax

```
GET /?lifecycle HTTP/1.1
Host: bucketname.s3.amazonaws.com
Date: date
Authorization: authorization string (see Authenticating Requests (AWS Signature Version
  4))
```

Request Parameters

This implementation of the operation does not use request parameters.

Request Headers

This implementation of the operation uses only request headers that are common to all operations. For more information, see Common Request Headers.

Request Elements

This implementation of the operation does not use request elements.

Responses

Response Headers

This implementation of the operation uses only response headers that are common to most responses. For more information, see Common Response Headers.

Response Elements

This implementation of `GET` returns the following response elements.

Name	Description	Required
`AbortIncompleteMultipartUpload`	Container for specifying when an incomplete multipart upload becomes eligible for an abort operation. Child: `DaysAfterInitiation` Type: Container Ancestor: `Rule`	Yes, if no other action is specified for the rule
`Date`	Date when you want Amazon S3 to take the action. For more information, see Lifecycle Rules: Based on a Specific Date in the *Amazon Simple Storage Service User Guide*. The date value must conform to the ISO 8601 format. The time is always midnight UTC. Type: String Ancestor: `Expiration` or `Transition`	Yes, if `Days` and `ExpiredObjectDeleteMarker` are absent

Name	Description	Required
`Days`	Specifies the number of days after object creation when the specific rule action takes effect. The object's eligibility time is calculated as creation time + the number of days with the resulting time rounded to midnight UTC of the next day. Type: Non-negative Integer when used with `Transition` , Positive Integer when used with `Expiration` . Ancestor: `Transition` or `Expiration`	Yes, if `Date` and `ExpiredObjectDeleteMarker` are absent
`DaysAfterInitiation`	Specifies the number of days after initiating a multipart upload when the multipart upload must be completed. If it does not complete by the specified number of days, it becomes eligible for an abort operation and Amazon S3 cancels the incomplete multipart upload. Type: Positive Integer Ancestor: `AbortIncompleteMultipartUpload`	Yes, if `Date` is absent

Name	Description	Required
`Expiration`	This action specifies a period in the object's lifetime when Amazon S3 should take the appropriate expiration action. The expiration action occurs only on objects that are eligible according to the period specified in the child `Date` or `Days` element. The action Amazon S3 takes depends on whether the bucket is versioning enabled. • If versioning has never been enabled on the bucket, Amazon S3 deletes the only copy of the object permanently. • Otherwise, if your bucket is versioning-enabled (or versioning is suspended), the action applies only to the current version of the object. Buckets that are versioning-enabled or versioning-suspended can have many versions of the same object: one current version, and zero or more noncurrent versions. Instead of deleting the current version, Amazon S3 makes it a noncurrent version by adding a delete marker as the new current version. **Important** If the state of a bucket is versioning-suspended, Amazon S3 creates a delete marker with version ID `null`. If you have a version with	Yes, if the parent tag is specified

Name	Description	Required
	version ID `null`, then Amazon S3 overwrites that version. **Note** To set the expiration for noncurrent objects, you must use the `NoncurrentVersionExpiration` action. Type: Container Children: Days or Date Ancestor: Rule	
`ID`	Unique identifier for the rule. The value cannot be longer than 255 characters. Type: String Ancestor: Rule	No
`LifecycleConfiguration`	Container for lifecycle rules. You can add as many as 1000 rules. Type: Container Children: Rule Ancestor: None	Yes

Name	Description	Required
`ExpiredObjectDeleteMarker`	On a versioned bucket (versioning-enabled or versioning-suspended bucket), this element indicates whether Amazon S3 will delete any expired object delete markers in the bucket. For an example, go to Example 8: Specify Expiration Action to Remove Expired Object Delete Markers in the *Amazon Simple Storage Service User Guide*. Type: String Valid values: true | false (the value false is allowed but it is no-op, Amazon S3 doesn't take action if the value is false) Ancestor: `Expiration`	Yes, if `Date` and `Days` are absent
`NoncurrentDays`	Specifies the number of days that an object is noncurrent before Amazon S3 can perform the associated action. For information about calculating noncurrent days, see Lifecycle Rules Based on the Number of Days in the *Amazon Simple Storage Service User Guide*. Type: Nonnegative Integer when used with `NoncurrentVersionTransition`, Positive Integer when used with `NoncurrentVersionExpiration` Ancestor: `NoncurrentVersionExpiration` or `NoncurrentVersionTransition`	Yes, only if the ancestor is present

Name	Description	Required
`NoncurrentVersionExpiration`	Specifies when noncurrent object versions expire. Upon expiration, Amazon S3 permanently deletes the noncurrent object versions. Set this lifecycle configuration action on a bucket that has versioning enabled (or suspended) to request that Amazon S3 delete noncurrent object versions at a specific period in the object's lifetime. Type: Container Children: NoncurrentDays Ancestor: Rule	Yes, if no other action is present in the `Rule`
`NoncurrentVersionTransition`	Container for the transition rule that describes when noncurrent objects transition to the `STANDARD_IA`, `ONEZONE_IA`, or the GLACIER storage class. If your bucket is versioning-enabled (or versioning is suspended), you can set this action to request Amazon S3 to transition noncurrent object versions to the GLACIER storage class at a specific period in the object's lifetime. Type: Container Children: NoncurrentDays and StorageClass Ancestor: Rule	Yes, if no other action is present in the `Rule`

Name	Description	Required
`Prefix`	Object key prefix identifying one or more objects to which the rule applies. Type: String Ancestor: Rule	Yes
`Rule`	Container for a lifecycle rule. Type: Container Ancestor: LifecycleConfiguration	Yes
`Status`	If Enabled, Amazon S3 executes the rule as scheduled. If Disabled, Amazon S3 ignores the rule. Type: String Ancestor: Rule Valid values: Enabled or Disabled	Yes
`StorageClass`	Specifies the Amazon S3 storage class to which you want to transition the object. Type: String Ancestor: Transition and NoncurrentVersionTransition Valid values: `STANDARD_IA` | `ONEZONE_IA` | GLACIER	Yes

Name	Description	Required
`Transition`	This action specifies a period in the objects' lifetime when Amazon S3 should transition them to the `STANDARD_IA` , `ONEZONE_IA` , or GLACIER storage class. When this action is in effect, what Amazon S3 does depends on whether the bucket is versioning-enabled. • If versioning has never been enabled on the bucket, Amazon S3 transitions the only copy of the object to the specified storage class. • When your bucket is versioning-enabled (or versioning is suspended), Amazon S3 transitions only the current versions of the objects identified in the rule. **Note** A versioning-enabled or versioning-suspended bucket can contain many versions of an object. This action has no effect on the noncurrent object versions. To transition noncurrent objects, you must use the `NoncurrentVersionTransition` action. Type: Container	Yes, if no other action is present in the `Rule`

Name	Description	Required
	Children: Days or Date, and StorageClass Ancestor: Rule	

Special Errors

Error Code	Description	HTTP Status Code	SOAP Fault Code Prefix
`NoSuchLifecycleConfiguration`	The lifecycle configuration does not exist.	404 Not Found	Client

For general information about Amazon S3 errors and a list of error codes, see Error responses.

Examples

Example 1: Retrieve a Lifecycle Subresource

This example is a GET request to retrieve the `lifecycle` subresource from the specified bucket, and an example response with the returned lifecycle configuration.

Sample Request

```
GET /?lifecycle HTTP/1.1
Host: examplebucket.s3.amazonaws.com
x-amz-date: Thu, 15 Nov 2012 00:17:21 GMT
Authorization: signatureValue
```

Sample Response

```
HTTP/1.1 200 OK
x-amz-id-2: ITnGT1y4RyTmXa3rPi4hklTXouTf0hccUjo0iCPjz6FnfIutBj3M7fPGlWO2SEWp
x-amz-request-id: 51991C342C575321
Date: Thu, 15 Nov 2012 00:17:23 GMT
Server: AmazonS3
Content-Length: 358
```

```
<?xml version="1.0" encoding="UTF-8"?>
<LifecycleConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
    <Rule>
        <ID>Archive and then delete rule</ID>
        <Prefix>projectdocs/</Prefix>
        <Status>Enabled</Status>
       <Transition>
           <Days>30</Days>
           <StorageClass>STANDARD_IA</StorageClass>
        </Transition>
        <Transition>
           <Days>365</Days>
           <StorageClass>GLACIER</StorageClass>
        </Transition>
        <Expiration>
           <Days>3650</Days>
        </Expiration>
    </Rule>
</LifecycleConfiguration>
```

Related Resources

- PutBucketLifecycleConfiguration
- DeleteBucketLifecycle