Object Storage Service

Go SDK Developer Guide

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1 Before You Start (SDK for Python)

This section describes the version updates, compatibility, and important notes about Object Storage Service (OBS) SDK for Python.

Version Updates and Compatibility

Table 1-1 describes the version updates and compatibility with earlier versions of OBS SDK for Python. For details about the version revision records, see ChangeLog.

Table 1-1 Version updates and compatibility of OBS SDK for Python

Version	Update	Description	Compatible or Not
v3.24.3	• Resolved issues	• Optimized some code.	Yes
v3.23.12	• Resolved issues	• Resolved the issue of inconsistent **contentType** when uploading a folder using **putFile**.	Yes
v3.23.9.1	• New features • Resolved issues	• Supported the fragment expiration configurations in the action mentioned in **Configuring Lifecycle Rules for a Bucket (SDK for Python)**. • Resolved the issue where a **read of closed file** error is reported during an upload retry.	Yes

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Version	Update	Description	Compatible or Not
v3.23.5	• New features • Resolved issues	• Added the function of adding user-defined request headers. • Supported storage information collection based on storage class by calling the API for **obtaining the bucket storage information**. • Resolved the issue where regular expression matching fails when ECS uses a proxy to obtain credentials for accessing OBS.	Yes
v3.22.2	• New features	• Added APIs related to fusion buckets. • Made compatibility changes for Python3 HTTPS parameters.	Yes
Earlier than v3.22.2	-	• End of matching. You are advised to upgrade the version.	-

Important Notes

- Make sure that you are familiar with basic OBS concepts, such as **buckets**, **objects**, **access keys (AKs/SKs)**, and **endpoints and domain names**.
- Some features are available only in some regions. If **405** HTTP status code is returned for a call of a certain feature API, check whether the region supports this feature.
- The namespace is incompatible with earlier OBS versions (2.1.*x*). All modules are saved in the **obs** package.
- API functions are compatible with earlier OBS versions (2.1.*x*).

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2 API Overview of OBS SDK for Python

Table 2-1 describes the APIs provided by OBS SDK for Python. You can click an API name in the table to see its detailed information and sample code.

SDK API Overview

Table 2-1 APIs provided by OBS SDK for Python

Interface	Method	Function
Creating a Bucket (SDK for Python)	ObsClient.createBucket	Creates a bucket.
Obtaining a Bucket List (SDK for Python)	ObsClient.listBuckets	Returns a list of buckets in alphabetical order.
Checking Whether a Bucket Exists (SDK for Python)	ObsClient.headBucket	Determines whether a bucket exists.
Deleting a Bucket (SDK for Python)	ObsClient.deleteBucket	Deletes an empty bucket.
Listing Objects in a Bucket (SDK for Python)	ObsClient.listObjects	Returns some or all (up to 1,000) of the objects in a bucket.
Listing Object Versions in a Bucket (SDK for Python)	ObsClient.listVersions	Lists some or all (up to 1,000) of the object versions in a bucket.
Listing Multipart Uploads (SDK for Python)	ObsClient.listMultipartUploads	Lists ongoing multipart uploads.

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Interface	Method	Function
Obtaining Bucket Metadata (SDK for Python)	ObsClient.getBucketMetadata	Sends a HEAD request to a bucket to obtain the bucket metadata such as CORS rules (if set), the storage class, and other information.
Obtaining the Region of a Bucket (SDK for Python)	ObsClient.getBucketLocation	Returns the region where the bucket is created.
Obtaining Storage Information of a Bucket (SDK for Python)	ObsClient.getBucketStorageInfo	Returns the storage information of a bucket, including the number of objects and the space occupied by the objects in the bucket.
Configuring a Storage Quota (SDK for Python)	ObsClient.setBucketQuota	Sets a storage quota for a bucket.
Obtaining a Bucket Storage Quota (SDK for Python)	ObsClient.getBucketQuota	Returns the storage quota of a bucket.
Configuring a Storage Class for a Bucket (SDK for Python)	ObsClient.setBucketStoragePolicy	Configures a storage class for a bucket.
Obtaining the Storage Class of a Bucket (SDK for Python)	ObsClient.getBucketStoragePolicy	Returns the storage class of a bucket.
Configuring a Bucket ACL (SDK for Python)	ObsClient.setBucketAcl	Configures a bucket ACL.
Obtaining a Bucket ACL (SDK for Python)	ObsClient.getBucketAcl	Obtains a bucket ACL.
Configuring Logging for a Bucket (SDK for Python)	ObsClient.setBucketLogging	Configures logging for a bucket.
Obtaining the Logging Configuration of a Bucket (SDK for Python)	ObsClient.getBucketLogging	Returns the logging configuration of a bucket.
Configuring a Bucket Policy (SDK for Python)	ObsClient.setBucketPolicy	Configures a bucket policy. If the bucket already has a policy, the policy will be overwritten by the one specified in this request.

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Interface	Method	Function
Obtaining the Policy of a Bucket (SDK for Python)	ObsClient.getBucketPolicy	Returns the policy of a bucket.
Deleting a Bucket Policy (SDK for Python)	ObsClient.deleteBucketPolicy	Deletes the policy of a bucket.
Configuring Lifecycle Rules for a Bucket (SDK for Python)	ObsClient.setBucketLifecycle	Configures lifecycle rules for a bucket to periodically transition objects between storage classes or delete objects.
Obtaining the Lifecycle Configuration of a Bucket (SDK for Python)	ObsClient.getBucketLifecycle	Returns the lifecycle configuration of a bucket.
Deleting the Lifecycle Configuration of a Bucket (SDK for Python)	ObsClient.deleteBucketLifecycle	Deletes all lifecycle rules of a bucket.
Configuring Static Website Hosting for a Bucket (SDK for Python)	ObsClient.setBucketWebsite	Configures static website hosting for a bucket.
Obtaining Static Website Hosting for a Bucket (SDK for Python)	ObsClient.getBucketWebsite	Returns the static website hosting configuration of a bucket.
Deleting Static Website Hosting for a Bucket (SDK for Python)	ObsClient.deleteBucketWebsite	Deletes the static website hosting configurations of a bucket.
Configuring Versioning for a Bucket (SDK for Python)	ObsClient.setBucketVersioning	Configures versioning for a bucket.
Obtaining the Versioning Status of a Bucket (SDK for Python)	ObsClient.getBucketVersioning	Returns the versioning status of a bucket.
Configuring CORS for a Bucket (SDK for Python)	ObsClient.setBucketCors	Configures CORS for a bucket to allow cross-origin requests.

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Interface	Method	Function
Obtaining the CORS Configuration of a Bucket (SDK for Python)	ObsClient.getBucketCors	Returns the CORS rules of a bucket.
Deleting the CORS Configuration of a Bucket (SDK for Python)	ObsClient.deleteBucketCors	Deletes the CORS configuration of a bucket.
Configuring Tags for a Bucket (SDK for Python)	ObsClient.setBucketTagging	Configures tags for a bucket.
Obtaining Bucket Tags (SDK for Python)	ObsClient.getBucketTagging	Returns the tags of a bucket.
Deleting Bucket Tags (SDK for Python)	ObsClient.deleteBucketTagging	Deletes the tags of a bucket.
Object Upload Overview (SDK for Python)	ObsClient.putContent	Uploads an object to a bucket.
Uploading an Object - File-Based (SDK for Python)	ObsClient.putFile	Uploads a file or folder to a bucket.
Uploading an Object - Append (SDK for Python)	ObsClient.appendObject	Appends content to an uploaded object.
Object Download Overview (SDK for Python)	ObsClient.getObject	Downloads an object from a bucket.
Copying an Object (SDK for Python)	ObsClient.copyObject	Creates a copy for a specified object.
Deleting an Object (SDK for Python)	ObsClient.deleteObject	Deletes a single object from a bucket.
Batch Deleting Objects (SDK for Python)	ObsClient.deleteObjects	Deletes multiple objects from a bucket in a batch.
Obtaining Object Metadata (SDK for Python)	ObsClient.getObjectMetadata	Returns the object metadata.
Modifying Object Metadata (SDK for Python)	ObsClient.setObjectMetadata	Modifies the metadata for an object.

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Interface	Method	Function
Configuring an Object ACL (SDK for Python)	ObsClient.setObjectAcl	Configures an ACL for an object in a specified bucket.
Obtaining an Object ACL (SDK for Python)	ObsClient.getObjectAcl	Obtains the ACL of an object in a specified bucket.
Initiating a Multipart Upload (SDK for Python)	ObsClient.initiateMultipartUpload	Initiates a multipart upload in a bucket.
Uploading a Part (SDK for Python)	ObsClient.uploadPart	Uploads parts to a bucket by specifying the multipart upload ID.
Copying a Part (SDK for Python)	ObsClient.copyPart	Copies a part to a specified bucket by specifying the multipart upload ID.
Listing Uploaded Parts (SDK for Python)	ObsClient.listParts	Returns the uploaded parts in a bucket by specifying the multipart upload ID.
Assembling Parts (SDK for Python)	ObsClient.completeMultipartUpload	Completes a multipart upload based on the multipart upload ID.
Aborting a Multipart Upload (SDK for Python)	ObsClient.abortMultipartUpload	Aborts a multipart upload in a bucket by specifying the multipart upload ID.
Restoring an Archive Object	ObsClient.restoreObject	Restores an Archive object.
Creating a Signed URL (SDK for Python)	ObsClient.createSignedUrl	Creates a signed URL based on the specified AK and SK, HTTP method, and request parameters.
Generating Authentication Parameters for Browser-Based Uploads (SDK for Python)	ObsClient.createPostSignature	Creates request parameters for authentication to enable browser-based upload with POST.

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Interface	Method	Function
Uploading an Object - Resumable (SDK for Python)	ObsClient.uploadFile	Enables resumable uploads of objects in the event of unstable network connections or program crashes.
Downloading an Object - Resumable (SDK for Python)	ObsClient.downloadFile	Adds the resumable function to the partial download API.

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3 Preparations (SDK for Python)

Before using OBS SDK for Python to access Huawei Cloud OBS, you need to prepare the service and development environments. To prepare the service environment, you must get a HUAWEI ID and an access key. Both of them are necessary for interaction between OBS SDK for Python and OBS. To ensure successful SDK installation and SDK-based code development and running, you should also set up a local development environment, for example, installing dependencies and development tools.

Preparing a HUAWEI ID

Before using OBS, you must create a HUAWEI ID. For details, see **Creating a HUAWEI ID and Enabling Huawei Cloud Services**.

Preparing Access Keys

Access keys consist of two parts: an access key ID (AK) and a secret access key (SK). OBS uses access keys to sign requests to make sure that only authorized accounts can access specified OBS resources. Programmatic access must be enabled for an IAM user before the IAM user can get access keys. To enable programmatic access, see **Viewing or Modifying IAM User Information**. Access keys are explained as follows:

- One AK maps to only one user but one user can have multiple AKs. OBS authenticates users by their AKs.
- An SK is required for accessing OBS. Authentication information is generated based on the SK and request headers. AKs and SKs are in one-to-one match.

Access keys are classified into permanent access keys (AK/SK) and temporary access keys (AK/SK and security token). Each user can create at most two permanent access keys. Temporary access keys must be used within a given validity period. Once expired, they must be requested again. For security purposes, you are advised to use temporary access keys to access OBS. If you want to use permanent access keys, periodically update them. The following describes how to obtain two types of access keys.

- To get permanent access keys, do as follows:
  a. Log in to the **management console**.

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b. In the upper right corner, hover over the username and choose **My Credentials**.
c. On the **My Credentials** page, click **Access Keys** in the navigation pane.
d. On the **Access Keys** page, click **Create Access Key**.
e. In the displayed dialog box, enter the login password and verification code.

NOTE

- If you have not bound an email address or a mobile number yet, only the login password is required.
- If you have bound both an email address and a mobile number, you can use either of them for verification.

f. Click **OK**.
g. Click **Download**. The access key file is automatically saved to your browser's default download path.
h. Open the downloaded **credentials.csv** file to obtain the access keys (AK and SK).

NOTE

- Each user can create a maximum of two valid access key pairs.
- Keep AKs and SKs properly to prevent information leakage. If you click **Cancel** in the download dialog box, the access keys will not be downloaded and cannot be downloaded later. You can create a new AK/SK pair if needed.

- To get temporary access keys, refer to the following:

  Temporary access keys are issued by the system and are only valid for 15 minutes to 24 hours. Once expired, they must be requested again. They follow the principle of least privilege. When a temporary AK/SK pair is used for authentication, a security token must be used at the same time.

  To obtain them, see **Obtaining a Temporary AK/SK and a Security Token**.

NOTICE

OBS is a global service. When obtaining temporary access keys, set the token scope to **domain** to apply the token to global services. Global services are not differentiated by any project or region.

Setting Up a Development Environment

- Download a proper Python version from the **Python official website** and install it.
  - Recommended Python 2.*x* version: 2.7.*x*
  - Recommended Python 3.*x* versions: 3.6, 3.7, 3.8, 3.9, 3.10, and 3.11

NOTE

Python 3.5 and earlier versions are not recommended. If you need to use these versions, run the **pip install secrets** command to install the secrets module. You can install python2-secrets on Python 2.7.

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- Download the latest community version of PyCharm from the **PyCharm official website**.
- Run **pip install pycryptodome==3.10.1** to install the cryptographic library.

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4 Downloading and Installing an SDK (SDK for Python)

This topic provides the download links and installation methods of OBS SDK for Python.

Downloading OBS SDK for Python

Latest version of OBS Python SDK source code: **Download**

Installing OBS SDK for Python

You can use the methods listed in **Table 4-1** to install OBS SDK for Python.

Table 4-1 Methods of installing OBS SDK for Python

No.	Method
1	**(Recommended) Installing the SDK Using pip**
2	**Installing the SDK Using the Source Code**
3	**Installing the SDK Using setuptools**

Method 1: (Recommended) Installing the SDK Using pip

Step 1 Run the **pip -V** command to check the pip version and ensure that pip is installed.

Step 2 Run **pip install esdk-obs-python --trusted-host pypi.org** to start the SDK installation.

----End

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NOTE

- If pip has not been installed, install it following the instructions on the **pip official website**.
- In a Windows operating system, the message "Not internal or external command" is displayed when you run the pip command. In this case, add the pip installation directory (generally the **Scripts** folder in the directory where the Python is located) to the **Path** environment variable.
- You may need to restart the computer for the environment variables to take effect.

Method 2: Installing the SDK Using the Source Code

The following procedures show an example of installing the latest version of OBS Python SDK.

Step 1 **Download** the SDK package and decompress it.

Step 2 Run **pip install pycryptodome==3.10.1** to install the cryptographic library.

Step 3 Decompress the development package to obtain folder **src** (SDK source code), folder **examples** (sample code), file **README.md** (feature description file of SDK versions), and file **log.conf** (SDK log configuration file).

Step 4 Use PyCharm to create a project, copy the folders and files obtained in the previous step to the project, right-click folder **src**, and choose **Mark Directory as** > **Sources Root**.

NOTE

After the configuration, the directory structure is similar to the following:

```
├── examples
├── src
├── log.conf
└── README.md
```

----End

Method 3: Installing the SDK Using setuptools

The following procedures show an example of installing the latest version of OBS Python SDK.

Step 1 **Download** the SDK package and decompress it.

Step 2 Download and install **setuptools**.

Step 3 On the command-line interface (CLI), go to folder **src** under the directory where the development package is decompressed.

Step 4 Run the **python setup.py install** command to install the SDK.

Step 5 After the installation, check whether a folder named **esdk_obs_python-<versionId>-*.egg** is generated in **Lib/site-package** under the Python installation directory.

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NOTE

- If you use this method to install the SDK, you need to delete folder **esdk_obs_python-*<versionId>*-*.egg** when you re-install the SDK.
- If SDK modules cannot be loaded after you have performed the previous steps, you can directly add the absolute path of the **src** directory in OBS Python SDK to the **sys.path** list.

----End

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5 Getting Started (SDK for Python)

Creating an AK and SK

OBS employs access keys (AK and SK) for signature verification to ensure that only authorized accounts can access specified OBS resources. Detailed explanations of access keys are as follows:

- AK is short for Access Key ID. One AK maps to only one user but one user can have multiple AKs. OBS authenticates users by their AKs.
- SK is short for Secret Access Key, which is used to access OBS. You can generate authentication information based on SKs and request headers. An SK maps to an AK, and they group into a pair.

Access keys are permanent. There are also temporary security credentials (consisting of an AK/SK pair and a security token). Each user can create a maximum of two valid AK/SK pairs. Temporary security credentials can only be used to access OBS within the specified validity period. Once they expire, they must be requested again. For security purposes, you are advised to use temporary security credentials to access OBS. If you want to use permanent access keys, periodically update them.

- To get permanent access keys, do as follows:
  a. Log in to the **management console**.
  b. In the upper right corner, hover your cursor over the username and choose **My Credentials**.
  c. On the **My Credentials** page, click **Access Keys** in the navigation pane.
  d. On the **Access Keys** page, click **Create Access Key**.

     NOTE

     Each user can create a maximum of two valid AK/SK pairs.

  e. In the **Create Access Key** dialog box, enter a description (recommended), and click **OK**.
  f. (Optional) In the displayed **Identity Verification** dialog box, select a verification method, enter the verification code, and click **OK**.
  g. In the displayed dialog box, click **Download** to save the access keys to your browser's default download path.

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h. Open the downloaded **credentials.csv** file to obtain the access keys (AK and SK).

NOTE

- In the **credentials.csv** file, the AK is the value in the **Access Key ID** column, and the SK is the one in the **Secret Access Key** column.
- Keep the access keys properly to prevent information leakage. If you click **Cancel** in the download dialog box, the access keys will not be downloaded and cannot be downloaded later. You can create new access keys if required.

- To get temporary security credentials, refer to the following:

  Temporary security credentials are issued by the system and are only valid for 15 minutes to 24 hours. They follow the principle of least privilege. When using temporary security credentials, you must use an AK/SK pair and a security token together.

  To obtain them, see **Obtaining a Temporary AK/SK and a Security Token**.

NOTICE

OBS is a global service. When obtaining temporary access keys, set the token scope to **domain** to apply the token to global services. Global services are not differentiated by any project or region.

Initializing an Instance of ObsClient

Each time you want to send an HTTP/HTTPS request to OBS, you must create an ObsClient instance. Sample code is as follows:

```
# Import the module.
from obs import ObsClient

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.com"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
# Use the instance to access OBS.

# Close ObsClient.
obsClient.close()
```

NOTE

For more information, see chapter **Initialization**.

For details about log configuration, see **Log Initialization (SDK for Python)**.

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Creating a Bucket

A bucket is a global namespace of OBS and is a data container. It functions as a root directory of a file system and can store objects.

This example creates a bucket named **examplebucket** and specifies its location, ACL, storage class, and redundancy type.

```
from obs import CreateBucketHeader, HeadPermission
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Add additional headers to specify a private bucket in the Standard storage class that supports multi-AZ storage.
    header = CreateBucketHeader(aclControl=HeadPermission.PRIVATE, storageClass="STANDARD", availableZone="3az")
    # Specify the region where the bucket is to be created. The region must be the same as that in the endpoint passed. eu-west-101 is used as an example.
    location = "eu-west-101"
    bucketName = "examplebucket"
    # Create a bucket.
    resp = obsClient.createBucket(bucketName, header, location)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Create Bucket Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Create Bucket Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Create Bucket Failed')
    print(traceback.format_exc())
```

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NOTE

- Bucket names are globally unique. Ensure that the bucket you create is named differently from any other bucket.
- A bucket name:
  - Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed.
  - Cannot be formatted as an IP address.
  - Cannot start or end with a hyphen (-) or period (.).
  - Cannot contain two consecutive periods (..), for example, **my..bucket**.
  - Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**.
- If you repeatedly create buckets of the same name, no error will be reported and the bucket attributes comply with those specified in the first creation request.
- For more information, see **Creating a Bucket**.

Uploading an Object

This example uploads a text.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
# Before running the sample code, ensure that the environment variables AccessKeyID and SecretAccessKey have been configured.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Specify the text to be uploaded.
    content = 'Hello OBS'
    # Upload the text.
    resp = obsClient.putContent(bucketName, objectKey, content)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Put Content Succeeded')
        print('requestId:', resp.requestId)
        print('etag:', resp.body.etag)
    else:
        print('Put Content Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Put Content Failed')
    print(traceback.format_exc())
```

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NOTE

For more information, see **Object Upload Overview**.

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6 Initialization (SDK for Python)

6.1 Initializing an Instance of ObsClient (SDK for Python)

Function

ObsClient functions as the Python client for accessing OBS. It offers users a series of APIs for interaction with OBS. These APIs are used for managing resources, such as buckets and objects, stored in OBS.

Method

```
ObsClient(access_key_id, secret_access_key, server)
```

Constructor Parameter Description

Parameter	Description	Recommended Value
access_key_id	Access key ID (AK). It is left blank by default, which indicates that anonymous users are allowed for access.	N/A
secret_access_key	Secret access key (SK). It is left blank by default, which indicates that anonymous users are allowed for access.	N/A
security_token	Security token in the temporary access keys. To obtain a temporary access key and security token, see **Obtaining a Temporary Access Key and Security Token Through a Token**.	N/A

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Parameter	Description	Recommended Value
server	Server address for accessing OBS. It consists of a protocol type, domain name, and port number, for example, **https://*your-endpoint*:443**. For security purposes, you are advised to use HTTPS.	N/A
max_retry_count	Maximum number of retries when an HTTP/HTTPS connection is abnormal. The default value is **3**.	[1,5]
max_redirect_count	Maximum number of times that the HTTP/HTTPS request is redirected. The default value is **10**.	[1,10]
timeout	Timeout period (in seconds) of an HTTP/HTTPS request. The default value is **60**.	[10,60]
ssl_verify	Verification of server certificate parameters to check whether the server certificate matches the client certificate. The options are as follows: ● Path to the server-side root certificate file in PEM format ● **True**: The certificate list will be obtained from the root certificate library and the certificates of the operating system (Windows only) will be verified. ● **False**: The server-side certificates will not be verified. The default value is **False**.	N/A
custom_ciphers	Algorithm suite used for HTTPS link establishment.	N/A
chunk_size	Chunk size (in bytes) set for reading and writing socket streams. The default value is **65536**.	Default
long_conn_mode	Whether to enable the persistent connection mode. The default value is **False**.	N/A
proxy_host	Host IP address of the proxy server. This value is left blank by default. **NOTE** Do not specify **http://** or **https://** for the proxy server's host address.	N/A

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Parameter	Description	Recommended Value
proxy_port	Port number of the proxy server. This value is left blank by default.	N/A
proxy_username	User name used for connecting to the proxy server. This value is left blank by default.	N/A
proxy_password	Password used for connecting to the proxy server. This value is left blank by default.	N/A
is_cname	Whether to use a user-defined domain name to access OBS. The default value is **False**. For details, see **User-Defined Domain Name Configuration**. **NOTE** To protect your services from being affected by the takeover of Huawei Cloud public domain names by relevant organizations, you are advised to use a user-defined domain name to access a bucket.	N/A
security_providers	How an access key is obtained. The default value is **None**. **NOTE** The value of **security_providers** must be in a list. The default value **None** indicates the default search methods to obtain the access keys from the environment variables or from ECSs. If this parameter is specified, the default search methods are not provided. Instead, the search methods specified by **security_providers** are used.	N/A

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Parameter	Description	Recommended Value
security_provider_policy	Specifies the allowed access key search policy. The default value is **None**. **NOTE** • This parameter is used to set the search policy. The default value **None** indicates the specified access keys are displayed. In addition, if the access key parameters are specified, **security_provider_policy** is ignored. • If **security_provider_policy** is set to **OBS_DEFAULT**, the access keys are obtained by searching in sequence. • If **security_provider_policy** is set to the predefined methods (ENV or ECS), the access keys are obtained using the corresponding method.	N/A

NOTE

- Parameters whose recommended value is **N/A** need to be set according to the actual conditions.
- If the network is unstable, you are advised to set a larger value for **timeout**.
- If the value of **server** does not contain any protocol, HTTPS is used by default.

NOTICE

- If the persistent connection mode is enabled, you must call **ObsClient.close** to close ObsClient explicitly to reclaim connection resources.
- For the sake of high DNS resolution performance and OBS reliability, you can set **server** only to the domain name of OBS, instead of the IP address.

Code Examples

- You can create an instance of ObsClient by using a constructor function. Sample code for creating an instance of ObsClient using permanent access keys (AK/SK):

```
# Import the module.
from obs import ObsClient

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.com"
```

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```
# Create an obsClient instance.
Specify a security token.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)

# Use the instance to access OBS.

# Close ObsClient.
obsClient.close()
```

- Sample code for creating an instance of ObsClient using temporary access keys (AK/SK and security token):

```
# Import the module.
from obs import ObsClient

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.com"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(
    access_key_id=ak,
    secret_access_key=sk,
    server=server,
    security_token=security_token
)

# Use the instance to access OBS.

# Close ObsClient.
obsClient.close()
```

- Specify the method of obtaining temporary access keys:
  - Sample code for obtaining the access key from environment variables using a single method:

```
# Import the module.
from obs import ObsClient
from obs import loadtoken

# Create an instance of ObsClient.
# Provide ENV to obtain the access keys.
obsClient = ObsClient(
    server='https://your-endpoint',
    security_providers=[loadtoken.ENV]
)

# Use the instance to access OBS.

# Close ObsClient.
obsClient.close()
```

- You can also create an instance of ObsClient by using temporary access keys obtained by configuring system environment variables or by accessing an ECS.
  - Sample code for creating an instance of ObsClient using ENV:

```
# Import the module.
from obs import ObsClient

# Create an instance of ObsClient.
```

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```
# Provide ENV to obtain the access keys.
obsClient = ObsClient(
    server='https://your-endpoint',
    security_provider_policy='ENV'
)

# Use the instance to access OBS.

# Close ObsClient.
obsClient.close()
```

NOTE

In the preceding method, access keys are searched from the environment variables of the current system. The **OBS_ACCESS_KEY_ID** and **OBS_SECRET_ACCESS_KEY** fields need to be defined in the corresponding environment variables. If temporary access keys are used, the **OBS_SECURITY_TOKEN** field must also be defined in the environment variables.

- Sample code for creating an instance of ObsClient using ECS:

```
# Import the module.
from obs import ObsClient

# Create an instance of ObsClient.
# Provide ECS to obtain the temporary access keys.
obsClient = ObsClient(
    server='https://your-endpoint',
    security_provider_policy='ECS'
)

# Use the instance to access OBS.

# Close ObsClient.
obsClient.close()
```

NOTE

When an application is deployed on an ECS, temporary access keys can be obtained automatically using the preceding methods and updated periodically.

If the client reports error 401, check whether an agency has been added during ECS creation.

NOTICE

When obtaining temporary access keys using this method, ensure that the UTC time of the server is the same as that of the environment where the application is deployed. Otherwise, the temporary access keys may fail to be updated.

- In addition to the preceding methods, you can also search in sequence to obtain the corresponding access keys from the environment variables and ECSs.
  - You can set **security_provider_policy** to **OBS_DEFAULT** to specify that ObsClient searches for access keys in sequence.

```
# Import the module.
from obs import ObsClient

# Create an instance of ObsClient.
# Search for access keys from environment variables and ECSs in sequence.
obsClient = ObsClient(
    server='https://your-endpoint',
    security_provider_policy='OBS_DEFAULT'
)
```

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```
# Use the instance to access OBS.

# Close ObsClient.
obsClient.close()
```

NOTE

In the preceding method, **security_provider_policy** is set to **OBS_DEFAULT**, which specifies that ObsClient searches for access keys in sequence from the predefined list. By default, the system provides two predefined search methods: obtaining the access keys from the environment variables and obtaining from ECSs. ObsClient searches for the access keys from the environment variables first and then from ECSs. In this case, ObsClient is created using the first pair of access keys obtained in the search.

NOTE

- The project can contain one or more instances of **ObsClient**.
- ObsClient is thread secure and can be simultaneously used by multiple threads.

6.2 Initializing a bucketClient Instance (SDK for Python)

Function

BucketClient functions as the Python client for accessing an OBS bucket. It offers users a series of APIs for interaction with OBS. These APIs are used for managing resources, such as buckets and objects, stored in OBS.

Except for **ObsClient.listBuckets**, **ObsClient.downloadFile**, **Obsclient.uploadFile**, **ObsClient.createPostSignature**, and **ObsClient.createSignedUrl**, **BucketClient** implements the same APIs as **ObsClient**, including the same functions and parameters, with the **bucketName** parameter omitted.

Method

```
obsClient.bucketClient(
    bucketName='*** Your Bucket Name ***'
)
```

Constructor Parameter Description

Parameter	Type	Mandatory (Yes/No)	Description
bucket_name	str	Yes	Name of the bucket client to be created

Code Examples

```
# Import the module.
from obs import ObsClient
```

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```
# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.com"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)

# Create an instance of BucketClient.
bucketClient = obsClient.bucketClient('bucketname')
# Create a Bucket.
resp = bucketClient.createBucket()
if resp.status < 300:
    print('requestId:', resp.requestId)
else:
    print('errorCode:', resp.errorCode)
    print('errorMessage:', resp.errorMessage)
```

NOTE

Except for **ObsClient.listBuckets**, **ObsClient.downloadFile**, **Obsclient.uploadFile**, **ObsClient.createPostSignature**, and **ObsClient.createSignedUrl**, **BucketClient** can implement the same APIs as **ObsClient**, including the same functions and parameters, with the **bucketName** parameter omitted.

6.3 Log Initialization (SDK for Python)

Function

You can enable the SDK log function to record log information generated during API calling into log files for subsequent data analysis or fault location. The procedure is as follows:

1. Find file **log.conf** in the OBS Python SDK (obtained from **GitHub**). The content format is as follows:

```
[LOGCONF]

#Configure log file dir
LogFileDir            = ./logs

#Configure log file name
LogFileName        = eSDK-OBS-PYTHON.log

#Configure log file size, unit:MB
LogFileSize        = 30

#Configure max log file numbers
LogFileNumber      = 5

#Configure log level for log file (DEBUG | INFO | WARNING | ERROR)
LogFileLevel       = INFO

#Configure whether to print log to console (Yes:1 No:0)
PrintLogToConsole  = 0
```

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```
#Configure log level for console (DEBUG | INFO | WARNING | ERROR)
PrintLogLevel       = WARNING
```

2. Modify parameters in the **log.conf** file as needed.
3. Call **ObsClient.initLog** to enable the logging function.

NOTE

- The logging function is disabled by default. You need to enable it manually.
- For details about SDK logs, see **Log Analysis**.
- You can change the log file permissions in the system based on your actual needs.

NOTICE

The log module of the OBS Python SDK is thread secure but not process secure. If ObsClient is used in multi-process scenarios, you must configure an independent log path for each instance of ObsClient to prevent conflicts when multiple processes write logs concurrently.

Method

```
obsClient.initLog(
    log_config='*** Your Log Configuration Parameters ***',
    log_name='*** Your Log Name ***'
)
```

Constructor Parameter Description

Parameter	Type	Mandatory (Yes/No)	Description
log_config	LogConf	Yes	Log configuration parameter
log_name	str	No	Log name

Table 6-1 LogConf

Parameter	Type	Mandatory (Yes/No)	Description
config_file	str	Yes	Path to the log configuration file
sec	str	No	Section name in the log configuration file. The default value is **LOGCONF**.

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Code Examples

```
# Import the module.
from obs import ObsClient

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.com"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)

# Import the log module.
from obs import LogConf

# Specify the path to the log configuration file and initialize logs of ObsClient.
obsClient.initLog(LogConf('./log.conf'), '*** Your Log Name ***')

# Use ObsClient to access OBS.

# Disable ObsClient logging.
obsClient.close()
```

6.4 SDK Common Result Objects (SDK for Python)

Function

Each time an ObsClient related API is called (excluding **ObsClient.createSignedUrl** and **ObsClient.createPostSignature**), an SDK common result object will be returned. You can obtain the HTTP status code from this object to check whether the operation is successful.

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Parameter Description

Table 6-2 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None

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Parameter	Type	Description
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

The following is an example of a successful returned result:

```
{
    'status': 200,
    'reason': 'OK',
    'body': {
    ...The details are omitted here.
    },
    'requestId': '000001**********B5512',
    'header': [...The header is omitted.]
}
```

Code Examples

```
try:
    resp = obsClient.getObject('bucketname', 'objectname', loadStreamInMemory=True)

    if resp.status < 300:
        print('requestId:', resp.requestId)
        # Obtain the object content.
        print('buffer:', resp.body.buffer)
```

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```
        print('size:', resp.body.size)
    else:
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    import traceback
    print(traceback.format_exc())
```

NOTE

In a binary download, if **loadStreamInMemory** is set to **True**, the object content is contained in the **body.buffer** parameter in the returned result.

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7 Bucket-Related APIs (SDK for Python)

7.1 Creating a Bucket (SDK for Python)

Function

This API creates an OBS bucket. Buckets are containers for storing objects (files uploaded to OBS) in OBS.

When creating a bucket, you can also configure parameters such as the storage class, region, and access control list (ACL) as needed.

Restrictions

- To create a bucket, you must have the **obs:bucket:CreateBucket** permission. IAM is recommended for granting permissions. For details, see **IAM Custom Policies**.
- When creating a bucket, if you use the endpoint **obs.myhuaweicloud.eu** for client initialization, you do not have to specify a region (indicated by **location**) where the bucket will be created, because OBS automatically creates the bucket in the EU-Dublin (eu-west-101) region. However, if the endpoint you use is not **obs.myhuaweicloud.eu**, you must specify a region that matches the used endpoint, or status code **400** is returned.

  For example, if the endpoint used for initialization is **obs.eu-west-101.myhuaweicloud.eu**, you must set **Location** to **eu-west-101** when creating a bucket.
- A maximum of 100 buckets (regardless of regions) can be created for an account. There is no limit on the number and size of objects in a bucket.
- The created bucket name must be unique in OBS. If you repeatedly create buckets with the same name in the same region, an HTTP status code **200** will be returned. In other cases, creating a bucket with an existing bucket name will have an HTTP status code **409** returned, indicating that such a bucket already exists.
- The name of a deleted bucket can be reused for another bucket or a parallel file system at least 30 minutes after the deletion.

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Method

ObsClient.createBucket(bucketName, header, location, extensionHeaders)

Request Parameters

Table 7-1 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. **Default value**: None
header	**CreateBucketHeader**	No	**Explanation:** Headers in the request used for configuring the storage class, redundancy policy, and other basic information about the bucket **Value range**: See **Table 7-2**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
location	str	Yes if the region where the OBS service resides is not the default region	**Explanation:** Region where a bucket will be created. **Restrictions:** If the endpoint used is **obs.myhuaweicloud.eu**, this parameter is not required. If any other endpoints are used, this parameter is required. **Default value**: If **obs.myhuaweicloud.eu** is used as the endpoint and no region is specified, **eu-west-101** (the EU-Dublin region) is used by default.
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

Table 7-2 CreateBucketHeader

Parameter	Type	Mandatory (Yes/No)	Description
aclControl	str	No	**Explanation:** ACL that can be pre-defined during bucket creation **Value range**: For details, see **HeadPermission**. **Default value**: PRIVATE

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Parameter	Type	Mandatory (Yes/No)	Description
storageClass	str	No	**Explanation:** Bucket storage class that can be pre-defined during bucket creation **Value range**: See **Table 7-4**. **Default value**: **STANDARD**
extensionGrants	list of **ExtensionGrant**	No	**Explanation:** Extended permission list that can be specified during bucket creation **Value range**: See **Table 7-5**. **Default value**: None
availableZone	str	No	**Explanation:** Data redundancy type that can be specified during bucket creation **Restrictions:** Multi-AZ redundancy is not available for Archive storage. If the region where the bucket is located does not support multi-AZ storage, single-AZ storage is used by default. **Value range**: To configure multi-AZ storage for the bucket, set this parameter to **3az**. To configure single-AZ storage (default value assigned by OBS) for the bucket, you do not need to specify this parameter. **Default value**: If this parameter is left blank, single AZ is used by default.

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Parameter	Type	Mandatory (Yes/No)	Description
epid	str	No	**Explanation:** Enterprise project ID that can be specified during bucket creation. If you have enabled Enterprise Project Management Service (EPS), you can obtain the project ID from the EPS console. **Restrictions:** The value of **Epid** is a Universally Unique Identifier (UUID). **Epid** is not required if you have not enabled EPS yet. Example: **9892d768-2d13-450f-aac7-ed0e44c2585f** **Value range**: See **How Do I Obtain an Enterprise Project ID?** **Default value**: None
isPFS	bool	No	**Explanation:** Whether a parallel file system is created **Value range**: • **True**: A parallel file system is created. • **False**: A bucket is created. **Default value**: **False**

Table 7-3 HeadPermission

Constant	Default Value	Description
HeadPermission.PRIVATE	private	Private read/write A bucket or object can only be accessed by its owner.

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Constant	Default Value	Description
HeadPermission.PUBLIC_READ	public-read	Public read and private write If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket. If it is granted on an object, anyone can read the content and metadata of the object.
HeadPermission.PUBLIC_READ_WRITE	public-read-write	Public read/write If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart upload tasks. If it is granted on an object, anyone can read the content and metadata of the object.
HeadPermission.PUBLIC_READ_DELIVERED	public-read-delivered	Public read on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions, and read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_DELIVERED** cannot be applied to objects.
HeadPermission.PUBLIC_READ_WRITE_DELIVERED	public-read-write-delivered	Public read/write on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart uploads. They can also read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_WRITE_DELIVERED** cannot be applied to objects.

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Constant	Default Value	Description
HeadPermission.BUCKET_OWNER_FULL_CONTROL	bucket-owner-full-control	If this permission is granted on an object, only the bucket and object owners have the full control over the object. By default, if you upload an object to a bucket owned by another user, the bucket owner does not have the permissions on your object. After you grant this permission to the bucket owner, the bucket owner can have full control over your object.

Table 7-4 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

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Table 7-5 ExtensionGrant

Parameter	Type	Mandatory (Yes/No)	Description
granteeId	str	No	**Explanation:** Account (domain) ID of the grantee **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None
permission	str	No	**Explanation:** Custom permissions for the bucket **Value range**: You can select one or more permissions from **Table 7-6**. **Default value**: None

Table 7-6 Permission

Constant	Description
READ	Read permission A grantee with this permission for a bucket can obtain the list of objects, multipart uploads, bucket metadata, and object versions in the bucket. A grantee with this permission for an object can obtain the object content and metadata.
WRITE	Write permission A grantee with this permission for a bucket can upload, overwrite, and delete any object or part in the bucket. Such permission for an object is not applicable.
READ_ACP	Permission to read ACL configurations A grantee with this permission can obtain the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently.

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Constant	Description
WRITE_ACP	Permission to modify ACL configurations A grantee with this permission can update the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently. A grantee with this permission can modify the ACL, thus obtaining full access permissions.
FULL_CONTROL	Full control access, including read and write permissions for a bucket and its ACL, or for an object and its ACL. A grantee with this permission for a bucket has **READ**, **WRITE**, **READ_ACP**, and **WRITE_ACP** permissions for the bucket. A grantee with this permission for an object has **READ**, **READ_ACP**, and **WRITE_ACP** permissions for the object.

Responses

Table 7-7 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-8 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None

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Parameter	Type	Description
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None

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Parameter	Type	Description
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example creates a bucket named **examplebucket** and specifies its location, ACL, storage class, and redundancy type.

```
from obs import CreateBucketHeader, HeadPermission
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Add additional headers to specify a private bucket in the Standard storage class that supports multi-AZ storage.
    header = CreateBucketHeader(aclControl=HeadPermission.PRIVATE, storageClass="STANDARD", availableZone="3az")
    # Specify the region where the bucket is to be created. The region must be the same as that in the endpoint passed. eu-west-101 is used as an example.
    location = "eu-west-101"
    bucketName = "examplebucket"
    # Create a bucket.
    resp = obsClient.createBucket(bucketName, header, location)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Create Bucket Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Create Bucket Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Create Bucket Failed')
    print(traceback.format_exc())
```

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Helpful Links

- Creating a Bucket
- Bucket Creation Sample Code on GitHub
- OBS Error Codes
- Why Am I Unable to Create a Bucket?

7.2 Obtaining a Bucket List (SDK for Python)

Function

OBS buckets are containers for storing objects you upload to OBS. This API returns a list of all buckets that meet the specified conditions in all regions of the current account. Returned buckets are listed in alphabetical order by bucket name.

Restrictions

- To obtain a bucket list, you must have the **obs:bucket:ListAllMyBuckets** permission. IAM is recommended for granting permissions. For details, see **IAM Custom Policies**.

Method

ObsClient.listBuckets(isQueryLocation, extensionHeaders)

Request Parameters

Table 7-9 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
isQueryLocation	bool	No	**Explanation:** Whether to query the bucket location **Value range**: • True: The bucket location is queried. • False: The bucket location is not queried. **Default value**: False

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Parameter	Type	Mandatory (Yes/No)	Description
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

Responses

Table 7-10 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-11 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None

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Parameter	Type	Description
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None

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Parameter	Type	Description
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 7-12 GetResult.body

GetResult.body Type	Description
ListBucketsResponse	**Explanation:** Returned results for obtaining the bucket list. For details, see **Table 7-13**.

Table 7-13 ListBucketsResponse

Parameter	Type	Description
buckets	list of **Bucket**	**Explanation:** List of buckets **Value range**: See **Table 7-14**.
owner	**Owner**	**Explanation:** Bucket owner **Value range**: See **Table 7-15**.

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Table 7-14 Bucket

Parameter	Type	Description
name	str	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. **Default value**: None
create_date	str	**Explanation:** Time when the bucket was created. **Default value**: None
location	str	**Explanation:** Region where a bucket is located **Restrictions:** If the endpoint used is **obs.myhuaweicloud.eu**, this parameter is not required. If any other endpoints are used, this parameter is required. **Default value**: If **obs.myhuaweicloud.eu** is used as the endpoint and no region is specified, **eu-west-101** (the EU-Dublin region) is used by default.

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Parameter	Type	Description
bucket_type	str	**Explanation:** Bucket type. **Value range**: • Object bucket: **OBJECT** • Parallel file system: **POSIX** **Default value**: None

Table 7-15 Owner

Parameter	Type	Mandatory (Yes/No)	Description
owner_id	str	Yes if used as a request parameter	**Explanation:** Account (domain) ID of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None
owner_name	str	No if used as a request parameter	**Explanation:** Account name of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

Code Examples

This example lists all buckets and queries the bucket region.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://
```

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```
support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
# List buckets and set isQueryLocation to True to query the bucket region.
    resp = obsClient.listBuckets(True)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('List Buckets Succeeded')
        print('requestId:', resp.requestId)
        print('name:', resp.body.owner.owner_id)
        print('create_date:', resp.body.owner.owner_name)
        index = 1
        for bucket in resp.body.buckets:
            print('bucket [' + str(index) + ']')
            print('name:', bucket.name)
            print('create_date:', bucket.create_date)
            print('location:', bucket.location)
            index += 1
    else:
        print('List Buckets Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('List Buckets Failed')
    print(traceback.format_exc())
```

Helpful Links

- Listing Buckets
- OBS Error Codes

7.3 Checking Whether a Bucket Exists (SDK for Python)

Function

This API checks whether a bucket exists. If an HTTP status code **200** is returned, the bucket exists. If **404** is returned, the bucket does not exist.

Restrictions

- To determine whether a bucket exists, you must be the bucket owner or have the required permission (**obs:bucket:HeadBucket** in IAM or **HeadBucket** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.headBucket(bucketName, extensionHeaders)

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Request Parameters

Table 7-16 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Table 7-17 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-18 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example checks whether bucket **examplebucket** exists.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
```

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```
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Check whether the bucket exists.
    resp = obsClient.headBucket(bucketName)
    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Head Bucket Succeeded')
        print('Bucket exists')
    elif resp.status == 404:
        print('Head Bucket Failed')
        print('Bucket does not exist')
    else:
        print('Head Bucket Failed')
        print('status:', resp.status)
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Head Bucket Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Obtaining Bucket Metadata**. The same REST API is used to determine whether a bucket exists and to obtain bucket metadata.
- **OBS Error Codes**
- **FAQ for Buckets and Objects**

7.4 Deleting a Bucket (SDK for Python)

Function

This API deletes an empty bucket. You can delete buckets you no longer use to free up space. The name of a deleted bucket can be reused for another bucket at least 30 minutes after the deletion.

NOTE

The data you deleted from OBS cannot be recovered on Huawei Cloud. Exercise caution when using this API.

Restrictions

- Only empty buckets can be deleted. An empty bucket means that:
  - The bucket does not contain any object (including noncurrent versions and delete markers).

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  - The bucket does not contain any fragments, which means that there are no multipart uploads that have not been completed in the bucket.
- To delete a bucket, you must be the bucket owner or have the required permission (**obs:bucket:DeleteBucket** in IAM or **DeleteBucket** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.deleteBucket(bucketName, extensionHeaders)

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Request Parameters

Table 7-19 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Table 7-20 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-21 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example deletes bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
```

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```
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Delete the bucket.
    resp = obsClient.deleteBucket(bucketName)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Delete Bucket Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Delete Bucket Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Delete Bucket Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Deleting an Object**
- **Managing Fragments**
- **Listing Objects** and **Listing Initiated Multipart Uploads in a Bucket**. These two operations can help you determine whether a bucket is empty.
- **Deleting Buckets**
- **Bucket Deletion Sample Code on GitHub**
- **OBS Error Codes**
- **Why Can't I Delete a Bucket?**

7.5 Listing Objects in a Bucket (SDK for Python)

Function

This API lists some or all of the objects in a bucket. You can use parameters such as the prefix, number of returned objects, and start position to list objects that meet specified criteria. Returned objects are listed in alphabetical order by object name.

Restrictions

- A maximum of 1,000 objects can be listed for each API call.
- To list objects in a bucket, you must be the bucket owner or have the required permission (**obs:bucket:ListBucket** in IAM or **ListBucket** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

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Method

ObsClient.listObjects(bucketName, prefix, marker, max_keys, delimiter, extensionHeaders)

Request Parameters

Table 7-22 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
prefix	str	No	**Explanation:** Name prefix that the objects to be listed must contain. Assume that you have the following objects: **logs/day1**, **logs/day2**, **logs/day3**, and **ExampleObject.jpg**. If you specify **logs/** as the prefix, **logs/day1**, **logs/day2**, and **logs/day3** will be returned. If you leave this parameter blank, all objects in the bucket will be returned. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
marker	str	No	**Explanation:** Name of the object to start with when listing objects in a bucket. All objects following this object are listed in alphabetical order by object name. Assume that you have the following objects: **test/a**, **test/b**, **test/c**, and **test/d**. If you specify **test/b** as the marker, **test/c** and **test/d** are returned. **Restrictions:** This parameter is only used for listing objects with a single version. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
max_keys	int	No	**Explanation:** The maximum number of objects returned in the response in alphabetical order **Value range**: The value ranges from **1** to **1000**. If the specified value is greater than **1000**, only 1,000 objects are returned. **Default value**: 1000

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Parameter	Type	Mandatory (Yes/No)	Description
delimiter	str	No	**Explanation:** This parameter is used to group object names. If a prefix is specified, objects with the same string from the prefix to the first delimiter are grouped into one **CommonPrefix**. If no prefix is specified, objects with the same string from the first character to the first delimiter are grouped into one **CommonPrefix**. Assume that a bucket has objects **abcd**, **abcde**, and **bbcde** in it. If **delimiter** is set to **d** and **prefix** is set to **a**, objects **abcd** and **abcde** are grouped into a **CommonPrefix** with **abcd** as the prefix. If only **delimiter** is set to **d**, objects **abcd** and **abcde** are grouped into a **CommonPrefix** with **abcd** as the prefix, and **bbcde** is grouped separately into another **CommonPrefix** with **bbcd** as the prefix. For a parallel file system, if this parameter is not specified, all the content in the directory is recursively listed by default, including the content in subdirectories. In big data scenarios, parallel file systems usually have multiple directory levels and each directory level has a large number of files. In such case, you are advised to configure **[delimiter=/]** to list the content in the current directory but exclude the content in subdirectories, thereby making the listing more efficient. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None
encoding_type	str	No	**Explanation:** Encoding type for some elements in the response. If delimiter, key_marker, prefix, nextKeyMarker, and key contain control characters that are not supported by the XML 1.0 standard, you can set encoding_type to encode delimiter, key_marker, prefix (including the Prefix in commonPrefixes), nextKeyMarker, and key in the response. **Value range**: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied to elements.

Responses

Table 7-23 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

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Table 7-24 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 7-25 GetResult.body

GetResult.body Type	Description
ListObjectsResponse	**Explanation:** See **Table 7-26**.

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Table 7-26 ListObjectsResponse

Parameter	Type	Description
name	str	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
location	str	**Explanation:** Region where a bucket is located **Restrictions:** If the endpoint used is **obs.myhuaweicloud.eu**, this parameter is not required. If any other endpoints are used, this parameter is required. **Default value**: If **obs.myhuaweicloud.eu** is used as the endpoint and no region is specified, **eu-west-101** (the EU-Dublin region) is used by default.

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Parameter	Type	Description
prefix	str	**Explanation:** Name prefix that the objects to be listed must contain. Assume that you have the following objects: **logs/day1**, **logs/day2**, **logs/day3**, and **ExampleObject.jpg**. If you specify **logs/** as the prefix, **logs/day1**, **logs/day2**, and **logs/day3** will be returned. If you leave this parameter blank, all objects in the bucket will be returned. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
marker	str	**Explanation:** Name of the object to start with when listing objects in a bucket. All objects following this object are listed in alphabetical order by object name. Assume that you have the following objects: **test/a**, **test/b**, **test/c**, and **test/d**. If you specify **test/b** as the marker, **test/c** and **test/d** are returned. **Restrictions:** This parameter is only used for listing objects with a single version. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Description
delimiter	str	**Explanation:** This parameter is used to group object names. If a prefix is specified, objects with the same string from the prefix to the first delimiter are grouped into one **CommonPrefix**. If no prefix is specified, objects with the same string from the first character to the first delimiter are grouped into one **CommonPrefix**. Assume that a bucket has objects **abcd**, **abcde**, and **bbcde** in it. If **delimiter** is set to **d** and **prefix** is set to **a**, objects **abcd** and **abcde** are grouped into a **commonPrefix** with **abcd** as the prefix. If only **delimiter** is set to **d**, objects **abcd** and **abcde** are grouped into a **commonPrefix** with **abcd** as the prefix, and **bbcde** is grouped separately into another **commonPrefix** with **bbcd** as the prefix. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
max_keys	int	**Explanation:** The maximum number of objects returned in the response in alphabetical order **Value range**: The value ranges from **1** to **1000**. If the specified value is greater than **1000**, only 1,000 objects are returned. **Default value**: 1000

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Parameter	Type	Description
is_truncated	bool	**Explanation:** Whether all results are returned in the response **Value range**: • **True** indicates that not all results are returned. • **False** indicates that all results are returned. **Default value**: None
next_marker	str	**Explanation:** Object name to start with upon next request for listing objects **Value range**: An object name string **Default value**: None
contents	list of **Content**	**Explanation:** List of objects in the bucket **Value range**: See **Table 7-27**.
commonPrefixs	list of **CommonPrefix**	**Explanation:** List of object name prefixes grouped according to the **delimiter** parameter (if specified) **Value range**: See **Table 7-29**.

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Parameter	Type	Description
encoding_type	str	**Explanation:** Encoding type for some elements in the response. If delimiter, key_marker, prefix, nextKeyMarker, and key contain control characters that are not supported by the XML 1.0 standard, you can set encoding_type to encode delimiter, key_marker, prefix (including the Prefix in commonPrefixes), nextKeyMarker, and key in the response. **Value range**: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied to elements.

Table 7-27 Content

Parameter	Type	Description
key	str	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Description
lastModified	str	**Explanation:** Time when the last modification was made to the object **Restrictions:** The time must be in the ISO8601 format. Example: **2018-01-01T00:00:00.000Z** **Default value**: None
etag	str	**Explanation:** Base64-encoded, 128-bit MD5 value of an object. ETag is the unique identifier of the object contents and is used to determine whether the contents of an object are changed. For example, if the ETag value is **A** when an object is uploaded and is **B** when the object is downloaded, this indicates the contents of the object are changed. The ETag reflects changes only to the contents of an object, not its metadata. Objects created by the upload and copy operations have unique ETags after being encrypted using MD5. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None
size	int	**Explanation:** Object size **Value range**: The value ranges from 0 TB to 48.8 TB, in bytes. **Default value**: None
owner	**Owner**	**Explanation:** Object owner **Value range**: See **Table 7-28**.

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Parameter	Type	Description
storageClass	str	**Explanation:** Storage class of the object **Value range**: • If the storage class is Standard, leave this parameter blank. • For details about the available storage classes, see **Table 7-30**. **Default value**: None
isAppendable	bool	**Explanation:** Whether the object is appendable **Value range**: **True**: The object is appendable. **False**: The object is not appendable. **Default value**: None

Table 7-28 Owner

Parameter	Type	Mandatory (Yes/No)	Description
owner_id	str	Yes if used as a request parameter	**Explanation:** Account (domain) ID of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
owner_name	str	No if used as a request parameter	**Explanation:** Account name of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

Table 7-29 CommonPrefix

Parameter	Type	Description
prefix	str	**Explanation:** List of object name prefixes grouped according to the **delimiter** parameter (if specified) **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

Table 7-30 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.

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Parameter	Type	Description
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

Code Examples

All elements stored in OBS buckets are called objects. Folders are objects whose sizes are 0 and whose names end with a slash (/). You can use the folder name as the prefix to list objects in a folder. This example lists objects with **test/** as the prefix in bucket **examplebucket**. A maximum of 100 objects can be returned at a time.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    # Specify an object prefix.
    prefix = 'test/'
    # Specify the maximum number of objects to be listed at a time. 100 is used as an example.
    max_keys = 100
    # List objects in the bucket.
    resp = obsClient.listObjects(bucketName, prefix, max_keys=max_keys, encoding_type='url')

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('List Objects Succeeded')
        print('requestId:', resp.requestId)
        print('name:', resp.body.name)
        print('prefix:', resp.body.prefix)
        print('max_keys:', resp.body.max_keys)
        print('is_truncated:', resp.body.is_truncated)
        index = 1
        for content in resp.body.contents:
```

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```
            print('object [' + str(index) + ']')
            print('key:', content.key)
            print('lastModified:', content.lastModified)
            print('etag:', content.etag)
            print('size:', content.size)
            print('storageClass:', content.storageClass)
            print('owner_id:', content.owner.owner_id)
            print('owner_name:', content.owner.owner_name)
            index += 1
    else:
        print('List Objects Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('List Objects Failed')
    print(traceback.format_exc())
```

Sample Code (for Listing over 1,000 Objects)

```
try:
    max_num = 1000
    mark = None
    index = 1
    while True:
        resp = obsClient.listObjects('bucketname', marker=mark, max_keys=max_num, encoding_type='url')
        if resp.status < 300:
            print('requestId:', resp.requestId)
            print('name:', resp.body.name)
            print('prefix:', resp.body.prefix)
            print('max_keys:', resp.body.max_keys)
            print('is_truncated:', resp.body.is_truncated)
            for content in resp.body.contents:
                print('object [' + str(index) + ']')
                print('key:', content.key)
                print('lastModified:', content.lastModified)
                print('etag:', content.etag)
                print('size:', content.size)
                print('storageClass:', content.storageClass)
                print('owner_id:', content.owner.owner_id)
                print('owner_name:', content.owner.owner_name)
                index += 1
            if resp.body.is_truncated is True:
                mark = resp.body.next_marker
            else:
                break
        else:
            print('errorCode:', resp.errorCode)
            print('errorMessage:', resp.errorMessage)
            break
except:
    import traceback
    print(traceback.format_exc())
```

Helpful Links

- **Listing Objects in a Bucket**
- **Object Listing Sample Code on GitHub**
- **OBS Error Codes**
- **FAQ for Buckets and Objects**

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7.6 Listing Object Versions in a Bucket (SDK for Python)

Function

This API lists some or all of the object versions in a bucket. You can use parameters such as the prefix, number of returned object versions, and start position to list the object versions that meet specified criteria. Returned object versions are listed in alphabetical order by object name.

Restrictions

- To list object versions in a bucket, you must be the bucket owner or have the required permission (**obs:bucket:ListBucketVersions** in IAM or **ListBucketVersions** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.listVersions(bucketName, version, extensionHeaders)

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Request Parameters

Table 7-31 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
version	Versions	No	**Explanation:** Object name to start with when listing object versions in a bucket. All object versions following this parameter are listed in alphabetical order. **Restrictions:** This parameter is only used for listing objects with multiple versions. **Value range**: See **Table 7-32**. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

Table 7-32 Versions

Parameter	Type	Mandatory (Yes/No)	Description
prefix	str	No	**Explanation:** Name prefix that the objects to be listed must contain **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
key_marker	str	No	**Explanation:** Object name to start with when listing object versions in a bucket. All object versions following the value specified by this parameter are listed in alphabetical order. **Restrictions:** This parameter is only used for listing objects with multiple versions. **Value range**: The value of **nextKeyMarker** in the response body of the last request **Default value**: None
max_keys	int or str	No	**Explanation:** The maximum number of objects returned in the response in alphabetical order **Value range**: The value ranges from **1** to **1000**. If the specified value is greater than **1000**, only 1,000 objects are returned. **Default value**: **1000**

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Parameter	Type	Mandatory (Yes/No)	Description
delimiter	str	No	**Explanation:** This parameter is used to group object names. If a prefix is specified, objects with the same string from the prefix to the first delimiter are grouped into one **CommonPrefix**. If no prefix is specified, objects with the same string from the first character to the first delimiter are grouped into one **CommonPrefix**. Assume that a bucket has objects **abcd**, **abcde**, and **bbcde** in it. If **delimiter** is set to **d** and **prefix** is set to **a**, objects **abcd** and **abcde** are grouped into a **CommonPrefix** with **abcd** as the prefix. If only **delimiter** is set to **d**, objects **abcd** and **abcde** are grouped into a **CommonPrefix** with **abcd** as the prefix, and **bbcde** is grouped separately into another **CommonPrefix** with **bbcd** as the prefix. For a parallel file system, if this parameter is not specified, all the content in the directory is recursively listed by default, including the content in subdirectories. In big data scenarios, parallel file systems usually have multiple directory levels and each directory level has a large number of files. In such case, you are advised to configure **[delimiter=/]** to list the content in the current directory but exclude the content in subdirectories, thereby making the listing more efficient. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
version_id_marker	str	No	**Explanation:** Version ID to start with when listing objects in a bucket. All objects are listed in alphabetical order by object name and version ID. This parameter must be used together with **key_marker**. **key_marker** specifies the object name, and **version_id_marker** specifies the version of the specified object. **Restrictions:** • This parameter is only used for listing objects with multiple versions. • If the value of **version_id_marker** is not a version ID specified by **key_marker**, **version_id_marker** does not take effect. **Value range**: Object version ID, that is, the value of **nextVersionIdMarker** in the response body of the last request **Default value**: None
encoding_type	str	No	**Explanation:** Encoding type for some elements in the response. If delimiter, key_marker, prefix, nextKeyMarker, and key contain control characters that are not supported by the XML 1.0 standard, you can set encoding_type to encode delimiter, key_marker, prefix (including the Prefix in commonPrefixes), nextKeyMarker, and key in the response. **Value range**: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied to elements.

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Responses

Table 7-33 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-34 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 7-35 GetResult.body

GetResult.body Type	Description
ObjectVersions	**Explanation:** Response to the request for listing object versions in a bucket

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Table 7-36 ObjectVersions

Parameter	Type	Description
head	**ObjectVersionHead**	**Explanation:** Response header of the request for listing object versions in a bucket **Value range**: See **Table 7-37**.
versions	list of **ObjectVersion**	**Explanation:** List of object versions in the bucket **Value range**: See **Table 7-38**.
markers	list of **ObjectDeleteMarker**	**Explanation:** List of delete markers in the bucket **Value range**: See **Table 7-39**.
commonPrefixs	list of **CommonPrefix**	**Explanation:** List of object name prefixes grouped according to the **delimiter** parameter (if specified) **Value range**: See **Table 7-41**.
encoding_type	str	**Explanation:** Encoding type for some elements in the response. If delimiter, key_marker, prefix, nextKeyMarker, and key contain control characters that are not supported by the XML 1.0 standard, you can set encoding_type to encode delimiter, key_marker, prefix (including the Prefix in commonPrefixes), nextKeyMarker, and key in the response. **Value range**: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied to elements.

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Table 7-37 ObjectVersionHead

Parameter	Type	Description
name	str	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None
location	str	**Explanation:** Region where a bucket is located **Restrictions:** If the endpoint used is **obs.myhuaweicloud.eu**, this parameter is not required. If any other endpoints are used, this parameter is required. **Default value**: If **obs.myhuaweicloud.eu** is used as the endpoint and no region is specified, **eu-west-101** (the EU-Dublin region) is used by default.

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Parameter	Type	Description
delimiter	str	**Explanation:** This parameter is used to group object names. If a prefix is specified, objects with the same string from the prefix to the first delimiter are grouped into one **commonPrefix**. If no prefix is specified, objects with the same string from the first character to the first delimiter are grouped into one **commonPrefix**. Assume that a bucket has objects **abcd**, **abcde**, and **bbcde** in it. If **delimiter** is set to **d** and **prefix** is set to **a**, objects **abcd** and **abcde** are grouped into a **commonPrefix** with **abcd** as the prefix. If only **delimiter** is set to **d**, objects **abcd** and **abcde** are grouped into a **commonPrefix** with **abcd** as the prefix, and **bbcde** is grouped separately into another **commonPrefix** with **bbcd** as the prefix. For a parallel file system, if this parameter is not specified, all the content in the directory is recursively listed by default, including the content in subdirectories. In big data scenarios, parallel file systems usually have multiple directory levels and each directory level has a large number of files. In such case, you are advised to configure **[delimiter=/]** to list the content in the current directory but exclude the content in subdirectories, thereby making the listing more efficient. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Description
prefix	str	**Explanation:** Name prefix that the objects to be listed must contain Assume that you have the following objects: **logs/day1**, **logs/day2**, **logs/day3**, and **ExampleObject.jpg**. If you specify **logs/** as the prefix, **logs/day1**, **logs/day2**, and **logs/day3** will be returned. If you leave this parameter blank, all objects in the bucket will be returned. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
keyMarker	str	**Explanation:** Object name to start with for listing object versions **Restrictions:** This parameter is only used for listing objects with multiple versions. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
versionIdMarker	str	**Explanation:** Version ID to start with for listing versioning objects, which is consistent with that set in the request **Restrictions:** This parameter is only used for listing objects with multiple versions. **Value range**: The value must contain 32 characters.
nextKeyMarker	str	**Explanation:** Object name to start with for the next request for listing object versions **Value range**: An object name string

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Parameter	Type	Description
nextVersionIdMarker	str	**Explanation:** Version ID to start with upon the next request for listing object versions. It is used with the **nextKeyMarker** parameter. **Value range**: The value must contain 32 characters.
maxKeys	int	**Explanation:** The maximum number of objects returned in the response in alphabetical order **Value range**: The value ranges from **1** to **1000**. If the specified value is greater than **1000**, only 1,000 objects are returned. **Default value**: **1000**
isTruncated	bool	**Explanation:** Whether all results are returned in the response **Value range**: • **True** indicates that not all results are returned. • **False** indicates that all results are returned.
encoding_type	str	**Explanation:** Encoding type for some elements in the response. If **delimiter**, **key_marker**, **prefix**, **nextKeyMarker**, and **key** contain control characters that are not supported by the XML 1.0 standard, you can set **encoding_type** to encode **delimiter**, **key_marker**, **prefix** (including the **Prefix** in **commonPrefixes**), **nextKeyMarker**, and **key** in the response. **Value range**: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied to elements.

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Table 7-38 ObjectVersion

Parameter	Type	Description
key	str	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
versionId	str	**Explanation:** Object version ID **Value range**: The value must contain 32 characters. **Default value**: None
lastModified	str	**Explanation:** Time when the last modification was made to the object **Restrictions:** The time must be in the ISO8601 format, for example, **2018-01-01T00:00:00.000Z**. **Default value**: None

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Parameter	Type	Description
etag	str	**Explanation:** Base64-encoded, 128-bit MD5 value of an object. ETag is the unique identifier of the object contents and is used to determine whether the contents of an object are changed. For example, if the ETag value is **A** when an object is uploaded and is **B** when the object is downloaded, this indicates the contents of the object are changed. The ETag reflects changes only to the contents of an object, not its metadata. Objects created by the upload and copy operations have unique ETags after being encrypted using MD5. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None
size	int	**Explanation:** Object size **Value range**: The value ranges from 0 TB to 48.8 TB, in bytes. **Default value**: None
owner	**Owner**	**Explanation:** Object owner **Value range**: See **Table 7-40**.
storageClass	str	**Explanation:** Storage class of the object **Value range**: • If the storage class is Standard, leave this parameter blank. • For details about the available storage classes, see **Table 7-42**.

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Parameter	Type	Description
isLatest	bool	**Explanation:** Whether the object is of the latest version **Value range**: • **True** indicates that the version is the latest. • **False** indicates that the version is not the latest. **Default value**: None
isAppendable	bool	**Explanation:** Whether the object is an appendable object **Default value**: None

Table 7-39 ObjectDeleteMarker

Parameter	Type	Description
key	str	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
versionId	str	**Explanation:** Object version ID **Value range**: The value must contain 32 characters. **Default value**: None

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Parameter	Type	Description
isLatest	bool	**Explanation:** Whether the object is of the latest version **Value range**: • **True** indicates that the version is the latest. • **False** indicates that the version is not the latest. **Default value**: None
lastModified	str	**Explanation:** Time when the last modification was made to the object **Restrictions:** The time must be in the ISO8601 format, for example, **2018-01-01T00:00:00.000Z**. **Default value**: None
owner	**Owner**	**Explanation:** Object owner **Value range**: See **Table 7-40**.

Table 7-40 Owner

Parameter	Type	Mandatory (Yes/No)	Description
owner_id	str	Yes if used as a request parameter	**Explanation:** Account (domain) ID of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
owner_name	str	No if used as a request parameter	**Explanation:** Account name of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

Table 7-41 CommonPrefix

Parameter	Type	Description
prefix	str	**Explanation:** List of object name prefixes grouped according to the **delimiter** parameter (if specified) **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

Table 7-42 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.

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Parameter	Type	Description
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

Code Examples

This example lists the first 100 objects with **test/** as the prefix in bucket **examplebucket** in alphabetical order.

```
from obs import ObsClient
from obs import Versions
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Specify an object prefix.
    prefix='test/'
    max_keys=100
    # List object versions in a bucket.
    resp = obsClient.listVersions(bucketName, version=Versions(prefix, max_keys, encoding_type='url'))
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('List Versions Succeeded')
        print('requestId:', resp.requestId)
        print('name:', resp.body.head.name)
        print('prefix:', resp.body.head.prefix)
        print('maxKeys:', resp.body.head.maxKeys)
        print('isTruncated:', resp.body.head.isTruncated)
        index = 1
        for version in resp.body.versions:
            print('version [' + str(index) + ']')
            print('key:', version.key)
            print('versionId:', version.versionId)
            print('lastModified:', version.lastModified)
```

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```
            print('etag:', version.etag)
            print('size:', version.size)
            print('storageClass:', version.storageClass)
            print('owner_id:', version.owner.owner_id)
            print('owner_name:', version.owner.owner_name)
            index += 1

        index = 1
        for marker in resp.body.markers:
            print('marker [' + str(index) + ']')
            print('key:', marker.key)
            print('versionId:', marker.versionId)
            print('lastModified:', marker.lastModified)
            print('owner_id:', marker.owner.owner_id)
            print('owner_name:', marker.owner.owner_name)
            index += 1
    else:
        print('List Versions Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('List Versions Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Listing Objects in a Bucket**
- **GitHub (Sample Code for Listing Object Versions)**
- **OBS Error Codes**
- **FAQ for Buckets and Objects**

7.7 Obtaining Bucket Metadata (SDK for Python)

Function

This API returns information about a bucket, including the storage class, region, CORS rules, and redundancy policy.

Restrictions

- To obtain bucket metadata, you must be the bucket owner or have the required permission (**obs:bucket:HeadBucket** in IAM or **HeadBucket** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.getBucketMetadata(bucketName, origin, requestHeaders, extensionHeaders)

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Request Parameters

Table 7-43 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
origin	str	No	**Explanation:** Origin of the cross-domain request specified by the preflight request. Generally, it is a domain name. **Restrictions:** You can configure one or more rules and use at most one wildcard character (*) in each rule. If you want to configure multiple rules, separate them using a line breaker. **Default value**: None
requestHeaders	str	No	**Explanation:** HTTP headers in a cross-origin request Only CORS requests matching the allowed headers are valid. **Restrictions:** You can enter multiple allowed headers, with one separated from another using a line break. Each header can contain one wildcard character (*) at most. Spaces, ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Table 7-44 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-45 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 7-46 GetResult.body

GetResult.body Type	Description
GetBucketMetadataResponse	**Explanation:** Response to the request for obtaining bucket metadata

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Table 7-47 GetBucketMetadataResponse

Parameter	Type	Description
location	str	**Explanation:** Region where a bucket is located **Restrictions:** If the endpoint used is **obs.myhuaweicloud.eu**, this parameter is not required. If any other endpoints are used, this parameter is required. **Default value**: If **obs.myhuaweicloud.eu** is used as the endpoint and no region is specified, **eu-west-101** (the EU-Dublin region) is used by default.
storageClass	str	**Explanation:** Storage class of the bucket. For details, see **Table 7-48**. **Default value**: None
accessContorlAllo-wOrigin	str	**Explanation:** If **Origin** in the request meets the CORS rules of the bucket, **AllowedOrigin** specified in the CORS rules is returned. **AllowedOrigin** indicates the origin from which the requests can access the bucket. **Restrictions:** Domain name of the origin. Each origin can contain only one wildcard character (*), for example, **https://*.vbs.example.com**. **Default value**: None

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Parameter	Type	Description
accessContorlAllow-Headers	str	**Explanation:** If **RequestHeader** in the request meets the CORS rules of the bucket, **AllowedHeader** specified in the CORS rules is returned. **AllowedHeader** indicates the allowed headers for cross-origin requests. Only CORS requests matching the allowed headers are valid. **Restrictions:** Each header can contain only one wildcard character (*). Spaces, ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None
accessContorlAllow-Methods	str	**Explanation:** **AllowedMethod** in the CORS rules of the bucket. It specifies the HTTP method of cross-origin requests, that is, the operation type of buckets and objects. **Value range**: The following HTTP methods are supported: ● GET ● PUT ● HEAD ● POST ● DELETE **Default value**: None

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Parameter	Type	Description
accessContorlExpo-seHeaders	str	**Explanation:** **ExposeHeader** in the CORS rules of the bucket. It specifies the CORS-allowed additional headers in the response. These headers provide additional information to clients. By default, your browser can only access headers **Content-Length** and **Content-Type**. If your browser needs to access other headers, add them to a list of the allowed additional headers. **Restrictions:** Spaces, wildcard characters (*), ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None
accessContorlMax-Age	int	**Explanation:** **MaxAgeSeconds** in the CORS rules of the bucket. It specifies the time your client can cache the response for a cross-origin request. **Restrictions:** Each CORS rule can contain only one **MaxAgeSeconds**. **Value range**: An integer greater than or equal to 0, in seconds **Default value**: 100
obsVersion	str	**Explanation:** OBS version of the bucket **Value range**: • **3.0** indicates the latest OBS version. • **--** indicates any version earlier than 3.0. **Default value**: None

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Parameter	Type	Description
availableZone	str	**Explanation:** Data redundancy type that can be specified during bucket creation **Restrictions:** Multi-AZ redundancy is not available for Archive storage. If the region where the bucket is located does not support multi-AZ storage, single-AZ storage is used by default. **Value range**: If multi-AZ storage is configured for the bucket, **3az** is returned. If single-AZ storage is configured for the bucket, **None** is returned. **Default value**: None
epid	str	**Explanation:** Enterprise project ID that can be specified during bucket creation. If you have enabled Enterprise Project Management Service (EPS), you can obtain the project ID from the EPS console. **Restrictions:** The value of **Epid** is a UUID. **Epid** is not required if you have not enabled EPS yet. Example: **9892d768-2d13-450f-aac7-ed0e44c2585f** **Value range**: See **How Do I Obtain an Enterprise Project ID?** **Default value**: None

Table 7-48 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.

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Parameter	Type	Description
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

Code Examples

This example returns the metadata of bucket **examplebucket**. The origin of the cross-origin request is **http://www.a.com** and the HTTP header is **x-obs-header**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Specify the origin (usually a domain name) of the cross-origin request.
    origin='http://www.a.com'
    # Specify the HTTP headers of the cross-origin request.
    requestHeaders='x-obs-header'
    # Obtain the bucket metadata.
    resp = obsClient.getBucketMetadata(bucketName,origin,requestHeaders)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Bucket Metadata Succeeded')
        print('requestId:', resp.requestId)
        print('storageClass:', resp.body.storageClass)
        print('accessContorlAllowOrigin:', resp.body.accessContorlAllowOrigin)
        print('accessContorlMaxAge:', resp.body.accessContorlMaxAge)
```

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```
        print('accessContorlExposeHeaders:', resp.body.accessContorlExposeHeaders)
        print('accessContorlAllowMethods:', resp.body.accessContorlAllowMethods)
        print('accessContorlAllowHeaders:', resp.body.accessContorlAllowHeaders)
    else:
        print('Get Bucket Metadata Failed')
        print('requestId:', resp.requestId)
        print('status:', resp.status)
except:
    print('Get Bucket Metadata Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Obtaining Bucket Metadata**
- **(GitHub) Sample Code for Obtaining Bucket Metadata**
- **OBS Error Codes**
- **FAQ for Buckets and Objects**

7.8 Obtaining the Region of a Bucket (SDK for Python)

Function

This API returns the region of a bucket.

Restrictions

- To obtain the region of a bucket, you must be the bucket owner or have the required permission (**obs:bucket:GetBucketLocation** in IAM or **GetBucketLocation** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.getBucketLocation(bucketName, extensionHeaders)

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Request Parameters

Table 7-49 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Table 7-50 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-51 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

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Table 7-52 GetResult.body

GetResult.body Type	Description
LocationResponse	**Explanation:** Response to the request for obtaining a bucket location

Table 7-53 LocationResponse

Parameter	Type	Description
location	str	**Explanation:** Region where a bucket is located **Restrictions:** If the endpoint used is **obs.myhuaweicloud.eu**, this parameter is not required. If any other endpoints are used, this parameter is required. **Default value**: If **obs.myhuaweicloud.eu** is used as the endpoint and no region is specified, **eu-west-101** (the EU-Dublin region) is used by default.

Code Examples

This example returns the region where bucket **examplebucket** is located.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Obtain the bucket region.
    resp = obsClient.getBucketLocation(bucketName)
```

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```
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Bucket Location Succeeded')
        print('requestId:', resp.requestId)
        print('location:', resp.body.location)
    else:
        print('Get Bucket Location Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Bucket Location Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Obtaining the Region of a Bucket**
- **(GitHub) Sample Code for Obtaining the Region of a Bucket**
- **OBS Error Codes**
- **FAQ for Buckets and Objects**

7.9 Obtaining Storage Information of a Bucket (SDK for Python)

Function

This API returns the storage information of a bucket, including the number of objects and the space occupied by the objects in the bucket.

NOTE

OBS measures bucket storage statistics in the background and does not update the storage information in real time. So, you are advised not to perform real-time verification on the storage information.

Restrictions

- To obtain the storage information of a bucket, you must be the bucket owner or have the required permission (**obs:bucket:GetBucketStorage** in IAM or **GetBucketStorage** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.getBucketStorageInfo(bucketName, extensionHeaders)

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Request Parameters

Table 7-54 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Table 7-55 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-56 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

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Table 7-57 GetResult.body

GetResult.body Type	Description
GetBucketStorageInfoResponse	**Explanation:** Response result of the request for obtaining storage information about a bucket

Table 7-58 GetBucketStorageInfoResponse

Parameter	Type	Description
size	long	**Explanation:** Bucket size **Default value**: None
objectNumber	int	**Explanation:** Number of objects in the bucket **Default value**: None

Code Examples

This example returns the storage information of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Obtain bucket storage information.
    resp = obsClient.getBucketStorageInfo(bucketName)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Bucket StorageInfo Succeeded')
        print('requestId:', resp.requestId)
        print('size:', resp.body.size)
```

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```
        print('objectNumber:', resp.body.objectNumber)
    else:
        print('Get Bucket StorageInfo Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Bucket StorageInfo Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Obtaining Storage Information of a Bucket**
- **(GitHub) Sample Code for Obtaining Storage Information of a Bucket**
- **OBS Error Codes**
- **FAQ for Buckets and Objects**

7.10 Configuring a Storage Quota (SDK for Python)

Function

A quota limits the maximum capacity allowed in a bucket. By default, there is no limit on the storage capacity of the entire OBS system or a single bucket, and any number of objects can be stored. You can set a storage quota to control the total size of objects that can be uploaded to the bucket. After the storage quota has been reached, object upload will fail.

A quota limit does not apply to the objects uploaded before the quota is configured. If the specified quota is already smaller than the total size of existing objects in the bucket, the existing objects in the bucket will not be deleted, but no more object can be uploaded to the bucket later. In this case, to upload new objects, you must delete some existing objects to make the used space below the quota limit.

Restrictions

- A bucket storage quota must be a non-negative integer expressed in bytes. The maximum value is $2^{63} - 1$.
- OBS does not provide an API for deleting bucket storage quotas. You can set the bucket storage quota to **0** to cancel the limit.
- To configure a storage quota for a bucket, you must be the bucket owner or have the required permission (**obs:bucket:PutBucketQuota** in IAM or **PutBucketQuota** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.setBucketQuota(bucketName, quota, extensionHeaders)

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Request Parameters

Table 7-59 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
quota	int	Yes	**Explanation:** Bucket quota **Value range**: An integer greater than or equal to 0, in bytes **Default value**: **0**, indicating that there is no limit on the bucket quota.

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Parameter	Type	Mandatory (Yes/No)	Description
extensionHeaders	dict	No	**Explanation:** Extension headers **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

Responses

Table 7-60 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-61 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None

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Parameter	Type	Description
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None

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Parameter	Type	Description
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example configures a 1 GB quota for bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    # Specify a 1 GB quota (measured in bytes) for the bucket.
    quota = 1024 * 1024 * 1024
    # Configure a quota for the bucket.
    resp = obsClient.setBucketQuota(bucketName, quota)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Set Bucket Quota Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Set Bucket Quota Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Set Bucket Quota Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Configuring a Bucket Storage Quota**

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- **(GitHub) Sample Code for Configuring a Storage Quota**
- **OBS Error Codes**
- **FAQ for Buckets and Objects**

7.11 Obtaining a Bucket Storage Quota (SDK for Python)

Function

This API returns the storage quota (upper limit of the storage capacity) of a bucket. If the quota is 0, there is no upper limit on the bucket capacity.

Restrictions

- A bucket storage quota must be a non-negative integer expressed in bytes. The maximum value is $2^{63} - 1$.
- A bucket owner with a frozen account in arrears is not allowed to query the bucket storage quota.
- To obtain the storage quota of a bucket, you must be the bucket owner or have the required permission (**obs:bucket:GetBucketQuota** in IAM or **GetBucketQuota** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.getBucketQuota(bucketName, extensionHeaders)

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Request Parameters

Table 7-62 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Table 7-63 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-64 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 7-65 GetResult.body

GetResult.body Type	Description
GetBucketQuotaResponse	**Explanation:** Response result of the request for obtaining the storage capacity quota of a bucket

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Table 7-66 GetBucketQuotaResponse

Parameter	Type	Description
quota	int	**Explanation:** Bucket quota **Value range**: An integer greater than or equal to 0, in bytes **Default value**: **0**, indicating that there is no limit on the bucket quota.

Code Examples

This example returns the quota of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Obtain the bucket quota.
    resp = obsClient.getBucketQuota(bucketName)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Bucket Quota Succeeded')
        print('requestId:', resp.requestId)
        print('quota:', resp.body.quota)
    else:
        print('Get Bucket Quota Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Bucket Quota Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Querying Bucket Storage Quota**

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- **(GitHub) Sample Code for Obtaining Bucket Storage Quota**
- **OBS Error Codes**
- **FAQ for Buckets and Objects**

7.12 Configuring a Storage Class for a Bucket (SDK for Python)

Function

This API configures a storage class for a bucket. If you do not specify a storage class when uploading or copying an object, or initiating a multipart upload, the object inherits the bucket's storage class.

Restrictions

- To configure a storage class for a bucket, you must be the bucket owner or have the required permission (**obs:PutBucketStoragePolicy** in IAM or **PutBucketStoragePolicy** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.setBucketStoragePolicy(bucketName, storageClass, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
storageClass	str	Yes	**Explanation:** Storage class of the bucket **Value range**: See **Table 7-67**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
extensionHeaders	dict	No	**Explanation:** Extension headers **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

Table 7-67 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

Responses

Type	Description
GetResult	**Explanation:** SDK common results

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Table 7-68 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None

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Parameter	Type	Description
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example sets the storage class of bucket **examplebucket** to **Standard**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"
```

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```
# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify
security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    # Set the storage class of the bucket to Standard.
    storageClass = 'STANDARD'
    # Configure the storage class for the bucket.
    resp = obsClient.setBucketStoragePolicy(bucketName, storageClass)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Set Bucket StoragePolicy Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Set Bucket StoragePolicy Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Set Bucket StoragePolicy Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Configuring Storage Class for a Bucket**
- **OBS Error Codes**
- **FAQ for Buckets and Objects**

7.13 Obtaining the Storage Class of a Bucket (SDK for Python)

Function

This API returns the storage class of a bucket.

Restrictions

- To obtain a bucket's storage class, you must be the bucket owner or have the required permission (**obs:bucket:GetBucketStoragePolicy** in IAM or **GetBucketStoragePolicy** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.getBucketStoragePolicy(bucketName, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-69 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

GetResult.body Type	Description
GetBucketStoragePolicyResponse	**Explanation:** Response to the request for obtaining the storage class of a bucket

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Table 7-70 GetBucketStoragePolicyResponse

Parameter	Type	Description
storageClass	str	**Explanation:** **Storage class** of the bucket

Table 7-71 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

Code Examples

This example returns the storage class of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
```

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```
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Obtain the bucket's storage class.
    resp = obsClient.getBucketStoragePolicy(bucketName)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Bucket StoragePolicy Succeeded')
        print('requestId:', resp.requestId)
        print('storageClass:', resp.body.storageClass)
    else:
        print('Get Bucket StoragePolicy Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Bucket StoragePolicy Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Obtaining a Bucket's Storage Class**
- **OBS Error Codes**
- **FAQ for Buckets and Objects**

7.14 Configuring a Bucket ACL (SDK for Python)

Function

Access control lists (ACLs) allow resource owners to grant other accounts the permissions to access resources. By default, only the resource owner has full control over resources when a bucket or object is created. That is, the bucket creator has full control over the bucket, and the object uploader has full control over the object. Other accounts do not have the permissions to access resources. If resource owners want to grant other accounts the read and write permissions on resources, they can use ACLs. ACLs grant permissions to accounts. After an account is granted permissions, both the account and its IAM users can access the resources.

For more information, see **ACLs**.

Restrictions

- A bucket can have up to 100 ACL rules.
- To configure an ACL for a bucket, you must be the bucket owner or have the required permission (**obs:bucket:PutBucketAcl** in IAM or **PutBucketAcl** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

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Method

ObsClient.setBucketAcl(bucketName, acl, aclControl, extensionHeaders)

Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
acl	ACL	No	**Explanation:** Bucket ACL. **Value range**: See **Table 7-72**. **Default value**: None **NOTE** **acl** and **aclControl** are mutually exclusive.
aclControl	str	No	**Explanation:** Pre-defined ACL. **Value range**: For details, see **HeadPermission**. **Default value**: None **NOTE** **acl** and **aclControl** are mutually exclusive.
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Table 7-72 ACL

Parameter	Type	Mandatory (Yes/No)	Description
owner	**Owner**	Yes if used as a request parameter	**Explanation:** Bucket owner information. For details, see **Table 7-75**. **Restrictions:** **Owner** and **Grants** must be used together and they cannot be used with **aclControl**. **Default value**: None
grants	list of **Grant**	Yes if used as a request parameter	**Explanation:** List of grantees' permission information. For details, see **Table 7-76**. **Default value**: None
delivered	bool	No if used as a request parameter	**Explanation:** Whether the bucket ACL is applied to all objects in the bucket **Value range**: **True**: The bucket ACL is applied to all objects in the bucket. **False**: The bucket ACL is not applied to all objects in the bucket. **Default value**: False

Table 7-73 Permission

Constant	Description
READ	Read permission A grantee with this permission for a bucket can obtain the list of objects, multipart uploads, bucket metadata, and object versions in the bucket. A grantee with this permission for an object can obtain the object content and metadata.

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Constant	Description
WRITE	Write permission A grantee with this permission for a bucket can upload, overwrite, and delete any object or part in the bucket. Such permission for an object is not applicable.
READ_ACP	Permission to read ACL configurations A grantee with this permission can obtain the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently.
WRITE_ACP	Permission to modify ACL configurations A grantee with this permission can update the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently. A grantee with this permission can modify the ACL, thus obtaining full access permissions.
FULL_CONTROL	Full control access, including read and write permissions for a bucket and its ACL, or for an object and its ACL. A grantee with this permission for a bucket has **READ**, **WRITE**, **READ_ACP**, and **WRITE_ACP** permissions for the bucket. A grantee with this permission for an object has **READ**, **READ_ACP**, and **WRITE_ACP** permissions for the object.

Table 7-74 HeadPermission

Constant	Default Value	Description
HeadPermission.PRIVATE	private	Private read/write A bucket or object can only be accessed by its owner.
HeadPermission.PUBLIC_READ	public-read	Public read and private write If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket. If it is granted on an object, anyone can read the content and metadata of the object.

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Constant	Default Value	Description
HeadPermission.PUBLIC_READ_WRITE	public-read-write	Public read/write If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart upload tasks. If it is granted on an object, anyone can read the content and metadata of the object.
HeadPermission.PUBLIC_READ_DELIVERED	public-read-delivered	Public read on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions, and read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_DELIVERED** cannot be applied to objects.
HeadPermission.PUBLIC_READ_WRITE_DELIVERED	public-read-write-delivered	Public read/write on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart uploads. They can also read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_WRITE_DELIVERED** cannot be applied to objects.

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Constant	Default Value	Description
HeadPermission.BUCKET_OWNER_FULL_CONTROL	bucket-owner-full-control	If this permission is granted on an object, only the bucket and object owners have the full control over the object. By default, if you upload an object to a bucket owned by another user, the bucket owner does not have the permissions on your object. After you grant this permission to the bucket owner, the bucket owner can have full control over your object.

Table 7-75 Owner

Parameter	Type	Mandatory (Yes/No)	Description
owner_id	str	Yes if used as a request parameter	**Explanation:** Account (domain) ID of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None
owner_name	str	No if used as a request parameter	**Explanation:** Account name of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

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Table 7-76 Grant

Parameter	Type	Mandatory (Yes/No)	Description
grantee	Grantee	Yes if used as a request parameter	**Explanation:** Grantee information. For details, see **Table 7-77**.
permission	str	Yes if used as a request parameter	**Explanation:** Granted permission **Value range**: You can select one or more permissions from **Table 7-73**. **Default value**: None
delivered	bool	No if used as a request parameter	**Explanation:** Whether the bucket ACL is applied to all objects in the bucket **Value range**: **True**: The bucket ACL is applied to all objects in the bucket. **False**: The bucket ACL is not applied to all objects in the bucket. **Default value**: False

Table 7-77 Grantee

Parameter	Type	Mandatory (Yes/No)	Description
grantee_id	str	Yes if the parameter is used as a request parameter and **group** is left blank	**Explanation:** Account (domain) ID of the grantee. **Value range**: To obtain an account ID, see **Obtaining the Account ID**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
grantee_name	str	No if used as a request parameter	**Explanation:** Username of the grantee. For details, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Restrictions:** • Cannot contain full-width characters. • Starts with a letter. • Contains 6 to 32 characters. • Contains only letters, digits, hyphens (-), and underscores (_). **Default value**: None
group	str	Yes if the parameter is used as a request parameter and **grantee_id** is left blank	**Explanation:** Authorized user group **Value range**: See **Table 7-78**. **Default value**: None

NOTE

The authorized entity can be an individual user or a user group. **grantee_id** and **grantee_name** must be used together and they cannot be used with **group**.

Table 7-78 Group

Constant	Description
ALL_USERS	All users
AUTHENTICATED_USERS	Authorized users. This constant is deprecated.
LOG_DELIVERY	Log delivery group. This constant is deprecated.

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Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-79 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example sets the ACL permission control for bucket **examplebucket** to public read for all users and to read and write for an IAM user (**userid**).

```
from obs import ObsClient, HeadPermission
from obs import ACL
from obs import Owner
from obs import Grantee
from obs import Grant
from obs import Group
from obs import Permission
import os
```

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```
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify the account ID of the bucket owner (ownerid as an example).
    owner_id = 'ownerid'
    owner = Owner(owner_id=owner_id)
    # Specify the IAM user ID (userid).
    grantee1 = Grantee(grantee_id='userid')
    # Specify all users.
    grantee2 = Grantee(group=Group.ALL_USERS)
    # Grant the read and write permissions to the specified IAM user.
    grant1 = Grant(grantee=grantee1, permission=Permission.READ)
    grant2 = Grant(grantee=grantee1, permission=Permission.WRITE)
    # Grant the read permission to all users.
    grant3 = Grant(grantee=grantee2, permission=Permission.READ)
    # Set the ACL permission control for bucket examplebucket to public read for all users and to read and write for the IAM user.
    acl = ACL(owner=owner, grants=[grant1, grant2, grant3])
    bucketName = "examplebucket"
    # Set the bucket ACL.
    resp = obsClient.setBucketAcl(bucketName, acl)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Set Bucket Acl Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Set Bucket Acl Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Set Bucket Acl Failed')
    print(traceback.format_exc())
```

Helpful Links

- Configuring a Bucket ACL
- (GitHub) Sample Code for Configuring a Bucket ACL
- OBS Error Codes
- Access Control FAQ

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7.15 Obtaining a Bucket ACL (SDK for Python)

Function

Access control lists (ACLs) allow resource owners to grant other accounts the permissions to access resources. By default, only the resource owner has full control over resources when a bucket or object is created. That is, the bucket creator has full control over the bucket, and the object uploader has full control over the object. Other accounts do not have the permissions to access resources. If resource owners want to grant other accounts the read and write permissions on resources, they can use ACLs. ACLs grant permissions to accounts. After an account is granted permissions, both the account and its IAM users can access the resources.

For more information, see **ACLs**.

This API returns the ACL of a bucket.

Restrictions

- To obtain the ACL of a bucket, you must be the bucket owner or have the required permission (**obs:bucket:GetBucketAcl** in IAM or **GetBucketAcl** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.getBucketAcl(bucketName, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-80 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

GetResult.body Type	Description
ACL	**Explanation:** ACL configuration of the bucket.

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Table 7-81 ACL

Parameter	Type	Mandatory (Yes/No)	Description
owner	**Owner**	Yes if used as a request parameter	**Explanation:** Bucket owner. For details, see **Table 7-82**.
grants	list of **Grant**	Yes if used as a request parameter	**Explanation:** Grantees' permission information. For details, see **Table 7-83**.
delivered	bool	No if used as a request parameter	**Explanation:** Whether the bucket ACL is applied to all objects in the bucket **Value range**: **True**: The bucket ACL is applied to all objects in the bucket. **False**: The bucket ACL is not applied to all objects in the bucket. **Default value**: False

Table 7-82 Owner

Parameter	Type	Mandatory (Yes/No)	Description
owner_id	str	Yes if used as a request parameter	**Explanation:** Account (domain) ID of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
owner_name	str	No if used as a request parameter	**Explanation:** Account name of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

Table 7-83 Grant

Parameter	Type	Mandatory (Yes/No)	Description
grantee	**Grantee**	Yes if used as a request parameter	**Explanation:** Grantee information. For details, see **Table 7-84**. **Default value**: None
permission	str	Yes if used as a request parameter	**Explanation:** Granted permission. For details, see **Table 7-85**. **Default value**: None
delivered	bool	No if used as a request parameter	**Explanation:** Whether the bucket ACL is applied to all objects in the bucket **Value range**: **True**: The bucket ACL is applied to all objects in the bucket. **False**: The bucket ACL is not applied to all objects in the bucket. **Default value**: False

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Table 7-84 Grantee

Parameter	Type	Mandatory (Yes/No)	Description
grantee_id	str	Yes if the parameter is used as a request parameter and **group** is left blank	**Explanation:** Account (domain) ID of the grantee. **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None
grantee_name	str	No if used as a request parameter	**Explanation:** Username of the grantee. **Restrictions:** • Cannot contain full-width characters. • Starts with a letter. • Contains 6 to 32 characters. • Contains only letters, digits, hyphens (-), and underscores (_). **Default value**: None
group	str	Yes if the parameter is used as a request parameter and **grantee_id** is left blank	**Explanation:** Authorized user group **Value range**: See **Table 7-86**. **Default value**: None

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Table 7-85 Permission

Constant	Description
READ	Read permission A grantee with this permission for a bucket can obtain the list of objects, multipart uploads, bucket metadata, and object versions in the bucket. A grantee with this permission for an object can obtain the object content and metadata.
WRITE	Write permission A grantee with this permission for a bucket can upload, overwrite, and delete any object or part in the bucket. Such permission for an object is not applicable.
READ_ACP	Permission to read ACL configurations A grantee with this permission can obtain the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently.
WRITE_ACP	Permission to modify ACL configurations A grantee with this permission can update the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently. A grantee with this permission can modify the ACL, thus obtaining full access permissions.
FULL_CONTROL	Full control access, including read and write permissions for a bucket and its ACL, or for an object and its ACL. A grantee with this permission for a bucket has **READ**, **WRITE**, **READ_ACP**, and **WRITE_ACP** permissions for the bucket. A grantee with this permission for an object has **READ**, **READ_ACP**, and **WRITE_ACP** permissions for the object.

NOTE

The authorized entity can be an individual user or a user group. **grantee_id** and **grantee_name** must be used together and they cannot be used with **group**.

Table 7-86 Group

Constant	Description
ALL_USERS	All users
AUTHENTICATED_USERS	Authorized users. This constant is deprecated.

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Constant	Description
LOG_DELIVERY	Log delivery group. This constant is deprecated.

Code Examples

This example returns the ACL information of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Obtain the bucket ACL.
    resp = obsClient.getBucketAcl(bucketName)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Bucket Acl Succeeded')
        print('requestId:', resp.requestId)
        print('owner_id:', resp.body.owner.owner_id)
        print('owner_name:', resp.body.owner.owner_name)
        index = 1
        for grant in resp.body.grants:
            print('grant [' + str(index) + ']')
            print('grant_id:', grant.grantee.grantee_id)
            print('grant_name:', grant.grantee.grantee_name)
            print('group:', grant.grantee.group)
            print('permission:', grant.permission)
            index += 1
    else:
        print('Get Bucket Acl Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Bucket Acl Failed')
    print(traceback.format_exc())
```

Helpful Links

- Obtaining the Bucket ACL
- (GitHub) Sample Code for Obtaining the Bucket ACL
- OBS Error Codes
- Access Control FAQ

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7.16 Configuring Logging for a Bucket (SDK for Python)

Function

This API enables logging for a bucket (source) and configures another bucket (target) to store the log files. When a bucket is created, logging is not enabled by default. You can call this API to enable logging for the bucket. With logging enabled, a log message is generated for each operation on the bucket. Multiple log messages are packed into a file. The bucket for storing log files must be specified when logging is enabled. It can be the bucket logging is enabled for, or any other bucket you have access to. If you specify another bucket for storing logs, the bucket must be in the same region as the logged bucket. You can also configure access to log files and the name prefix of log files.

Restrictions

- OBS creates log files and uploads them to the bucket. Before enabling logging for a bucket, you need to create an IAM agency to delegate OBS to upload log files to the specified bucket. For details about how to create an agency, see **Cloud Service Delegation**.
- To configure logging for a bucket, you must be the bucket owner or have the required permission (**obs:bucket:PutBucketLogging** in IAM or **PutBucketLogging** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.setBucketLogging(bucketName, logstatus, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
logstatus	**Logging**	No	**Explanation:** Logging configuration information For details, see **Table 7-87**. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Table 7-87 Logging

Parameter	Type	Mandatory (Yes/No)	Description
targetBucket	str	No	**Explanation:** Name of the bucket for storing log files **Restrictions:** ● This bucket must be in the same region as the bucket with logging enabled. ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
targetPrefix	str	No	**Explanation:** Name prefix for log files stored in the log storage bucket **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
targetGrants	list of **Grant**	No	**Explanation:** Permission information list of grantees, which defines grantees and their permissions for log files. For details, see **Table 7-88**. **Default value**: None
agency	str	Yes when configuring bucket logging	**Explanation:** Name of the IAM agency created by the owner of the target bucket for OBS. You can select an existing IAM agency or create one. For details about how to create an agency, see **Creating an IAM Agency**. **Restrictions:** By default, the IAM agency only requires the **PutObject** permission to upload logs to the target bucket. If default encryption is enabled for the target bucket, the agency also requires the **KMS Administrator** permission in the region where the target bucket is located. **Default value**: None

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Table 7-88 Grant

Parameter	Type	Mandatory (Yes/No)	Description
grantee	Grantee	Yes	**Explanation:** Grantee information. For details, see **Table 7-89**.
permission	str	Yes	**Explanation:** Granted permission **Value range**: See **Table 7-90**. **Default value**: None
delivered	bool	No	**Explanation:** Whether the bucket ACL is applied to all objects in the bucket **Value range**: **True**: The bucket ACL is applied to all objects in the bucket. **False**: The bucket ACL is not applied to all objects in the bucket. **Default value**: **False**

Table 7-89 Grantee

Parameter	Type	Mandatory (Yes/No)	Description
grantee_id	str	Yes if **group** is left blank.	**Explanation:** Account (domain) ID of the grantee. **Value range**: To obtain an account ID, see **Obtaining the Account ID**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
grantee_name	str	No	**Explanation:** Username of the grantee. **Restrictions:** • Starts with a letter. Contains 6 to 32 characters. • Contains only letters, digits, hyphens (-), and underscores (_). **Default value**: None
group	str	Yes if **grantee_id** is left blank.	**Explanation:** Authorized user group **Value range**: See **Table 7-91**. **Default value**: None

NOTE

The authorized entity can be an individual user or a user group. **grantee_id** and **grantee_name** must be used together and they cannot be used with **group**.

Table 7-90 Permission

Constant	Description
READ	Read permission A grantee with this permission for a bucket can obtain the list of objects, multipart uploads, bucket metadata, and object versions in the bucket. A grantee with this permission for an object can obtain the object content and metadata.
WRITE	Write permission A grantee with this permission for a bucket can upload, overwrite, and delete any object or part in the bucket. Such permission for an object is not applicable.

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Constant	Description
READ_ACP	Permission to read ACL configurations A grantee with this permission can obtain the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently.
WRITE_ACP	Permission to modify ACL configurations A grantee with this permission can update the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently. A grantee with this permission can modify the ACL, thus obtaining full access permissions.
FULL_CONTROL	Full control access, including read and write permissions for a bucket and its ACL, or for an object and its ACL. A grantee with this permission for a bucket has **READ**, **WRITE**, **READ_ACP**, and **WRITE_ACP** permissions for the bucket. A grantee with this permission for an object has **READ**, **READ_ACP**, and **WRITE_ACP** permissions for the object.

Table 7-91 Group

Constant	Description
ALL_USERS	All users
AUTHENTICATED_USERS	Authorized users. This constant is deprecated.
LOG_DELIVERY	Log delivery group. This constant is deprecated.

Responses

Type	Description
GetResult	**Explanation:** SDK common results

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Table 7-92 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example configures logging for bucket **examplebucket** and store log files in bucket **targetbucket**.

```
from obs import ObsClient
from obs import Grantee
from obs import Grant
from obs import Logging
from obs import Permission
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify
```

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```
security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Authorize the account ID (domain_id) of a user to read the bucket logs.
    grantee1 = Grantee(grantee_id='domain_id')
    grant1 = Grant(grantee=grantee1, permission=Permission.READ)
    grantList = [grant1]
    # Specify a bucket name for storing generated log files.
    targetBucket = "targetBucket"
    # Specify an object prefix, indicating the path for storing log files.
    targetPrefix = 'test/'
    # Specify an agency name.
    agency = 'your agency'
    # Specify the logging configuration information.
    logstatus = Logging(targetBucket=targetBucket, targetPrefix=targetPrefix, targetGrants=grantList,
agency=agency)
    bucketName = "examplebucket"
    # Configure logging for the bucket.
    resp = obsClient.setBucketLogging(bucketName=bucketName , logstatus=logstatus )

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Set Bucket Logging Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Set Bucket Logging Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Set Bucket Logging Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Configuring Logging for a Bucket**
- **(GitHub) Sample Code for Bucket Logging Configuration**
- **OBS Error Codes**

7.17 Obtaining the Logging Configuration of a Bucket (SDK for Python)

Function

This API returns the logging configuration of a bucket.

Restrictions

- To obtain the logging configuration of a bucket, you must be the bucket owner or have the required permission (**obs:bucket:GetBucketLogging** in IAM or **GetBucketLogging** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.getBucketLogging(bucketName, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-93 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

GetResult.body Type	Description
Logging	**Explanation:** Logging configuration information

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Table 7-94 Logging

Parameter	Type	Mandatory (Yes/No)	Description
targetBucket	str	No if used as a request parameter	**Explanation:** Name of the bucket for storing log files **Restrictions:** ● This bucket must be in the same region as the bucket with logging enabled. ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
targetPrefix	str	No if used as a request parameter	**Explanation:** Name prefix for log files stored in the log storage bucket **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
targetGrants	list of **Grant**	No if used as a request parameter	**Explanation:** Permission information list of grantees, which defines grantees and their permissions for log files. For details, see **Table 7-95**. **Default value**: None
agency	str	Yes if the parameter is in a request to enable bucket logging	**Explanation:** Name of the IAM agency created by the owner of the target bucket for OBS. You can select an existing IAM agency or create one. For details about how to create an agency, see **Creating an IAM Agency**. **Restrictions:** By default, the IAM agency only requires the **PutObject** permission to upload logs to the target bucket. If default encryption is enabled for the target bucket, the agency also requires the **KMS Administrator** permission in the region where the target bucket is located. **Default value**: None

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Table 7-95 Grant

Parameter	Type	Description
grantee	Grantee	**Explanation:** Grantee information. For details, see **Table 7-96**. **Default value**: None
permission	str	**Explanation:** Granted permission **Value range**: See **Table 7-98**. **Default value**: None
delivered	bool	**Explanation:** Whether the bucket ACL is applied to all objects in the bucket **Value range**: **True**: The bucket ACL is applied to all objects in the bucket. **False**: The bucket ACL is not applied to all objects in the bucket. **Default value**: **False**

Table 7-96 Grantee

Parameter	Type	Description
grantee_id	str	**Explanation:** Account (domain) ID of the grantee. **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

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Parameter	Type	Description
grantee_name	str	**Explanation:** Account name of the grantee. **Restrictions:** • Starts with a letter. Contains 6 to 32 characters. • Contains only letters, digits, hyphens (-), and underscores (_). **Default value**: None
group	str	**Explanation:** Authorized user group. For details, see **Table 7-97**. **Default value**: None

NOTE

The authorized entity can be an individual user or a user group. **grantee_id** and **grantee_name** must be used together and they cannot be used with **group**.

Table 7-97 Group

Constant	Description
ALL_USERS	All users
AUTHENTICATED_USERS	Authorized users. This constant is deprecated.
LOG_DELIVERY	Log delivery group. This constant is deprecated.

Table 7-98 Permission

Constant	Description
READ	Read permission A grantee with this permission for a bucket can obtain the list of objects, multipart uploads, bucket metadata, and object versions in the bucket. A grantee with this permission for an object can obtain the object content and metadata.

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Constant	Description
WRITE	Write permission A grantee with this permission for a bucket can upload, overwrite, and delete any object or part in the bucket. Such permission for an object is not applicable.
READ_ACP	Permission to read ACL configurations A grantee with this permission can obtain the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently.
WRITE_ACP	Permission to modify ACL configurations A grantee with this permission can update the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently. A grantee with this permission can modify the ACL, thus obtaining full access permissions.
FULL_CONTROL	Full control access, including read and write permissions for a bucket and its ACL, or for an object and its ACL. A grantee with this permission for a bucket has **READ**, **WRITE**, **READ_ACP**, and **WRITE_ACP** permissions for the bucket. A grantee with this permission for an object has **READ**, **READ_ACP**, and **WRITE_ACP** permissions for the object.

Code Examples

This example returns the logging configuration of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
```

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```
    bucketName="examplebucket"
    # Obtain the logging configuration of the bucket.
    resp = obsClient.getBucketLogging(bucketName)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Bucket Logging Succeeded')
        print('requestId:', resp.requestId)
        print('targetBucket:', resp.body.targetBucket)
        print('targetPrefix:', resp.body.targetPrefix)

        index = 1
        for grant in resp.body.targetGrants:
            print('grant [' + str(index) + ']')
            print('grant_id:', grant.grantee.grantee_id)
            print('grant_name:', grant.grantee.grantee_name)
            print('group:', grant.grantee.group)
            print('permission:', grant.permission)
            index += 1
    else:
        print('Get Bucket Logging Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Bucket Logging Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Obtaining the Bucket Logging Configuration**
- **(GitHub) Sample Code for Obtaining the Bucket Logging Configuration**
- **OBS Error Codes**

7.18 Configuring a Bucket Policy (SDK for Python)

Function

OBS provides access control over buckets. You can use an access policy to define whether a user can perform certain operations on a specific bucket. OBS access control can be implemented using IAM permissions, bucket policies, and ACLs. For more information, see **Introduction to OBS Access Control**.

A bucket policy is applied to a configured bucket and the objects in it. You can use a bucket policy to grant permissions for the bucket and the objects in it to IAM users or other accounts. If you want IAM users to have different permissions for different buckets, you can configure required bucket policies.

This API configures a policy for a bucket.

Restrictions

- Due to data caching, after a bucket policy is configured, it takes 5 minutes at most for the policy to take effect.
- To configure a bucket policy, you must be the bucket owner or have the required permission (**obs:bucket:PutBucketPolicy** in IAM or **PutBucketPolicy** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

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Method

ObsClient.setBucketPolicy(bucketName, policyJSON, extensionHeaders)

Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
policyJSON	str	Yes	**Explanation:** Policy information in JSON format. **Restrictions:** • The bucket name contained in the **Resource** parameter of the policy must be the one specified for the current bucket policy. • For details about the policy format, see **Bucket Policy Parameters**. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

Responses

Type	Description
GetResult	**Explanation:** SDK common results

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Table 7-99 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example configures a policy for bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    # Specify the bucket policy. The following example policy grants all operation permissions on
```

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```
examplebucket (including the bucket and its objects) to user xxx (user ID) under tenant xxx (domain ID).
    policyJSON = '{"Statement":[{"Sid":"ExampleStatementID1","Effect":"Allow","Principal":{"ID":["domain/
**********:user/**********"]},"Action":["*"],"Resource":["examplebucket/*","examplebucket"]}]}'
    # Configure the bucket policy.
    resp = obsClient.setBucketPolicy(bucketName, policyJSON)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Set Bucket Policy Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Set Bucket Policy Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Set Bucket Policy Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Configuring a Bucket Policy**
- **OBS Error Codes**
- **Access Control FAQ**

7.19 Obtaining the Policy of a Bucket (SDK for Python)

Function

OBS provides access control over buckets. You can use an access policy to define whether a user can perform certain operations on a specific bucket. OBS access control can be implemented using IAM permissions, bucket policies, and ACLs. For more information, see **Introduction to OBS Access Control**.

A bucket policy is applied to a configured bucket and the objects in it. You can use a bucket policy to grant permissions for the bucket and the objects in it to IAM users or other accounts. If you want IAM users to have different permissions for different buckets, you can configure required bucket policies.

This API returns the policy of a bucket.

Restrictions

- OBS returns "404 NoSuchBucketPolicy" when you call this API in the following scenarios:
  - The specified bucket policy does not exist.
  - The standard policy of the specified bucket is set to **Private** and no advanced policies are configured.
- To obtain the policy of a bucket, you must be the bucket owner or have the required permission (**obs:bucket:GetBucketPolicy** in IAM or **GetBucketPolicy** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.getBucketPolicy(bucketName, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-100 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

GetResult.body Type	Description
Policy	**Explanation:** Bucket policy

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Table 7-101 Policy

Parameter	Type	Description
policyJSON	str	**Explanation:** Policy information in JSON format **Restrictions:** • The bucket name contained in the **Resource** parameter of the policy must be the one specified for the current bucket policy. • For details about the policy format, see **Bucket Policy Parameters**. **Default value**: None

Code Examples

This example returns the policy of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Obtain the bucket policy.
    resp = obsClient.getBucketPolicy(bucketName)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Bucket Policy Succeeded')
        print('requestId:', resp.requestId)
        print('policyJSON:', resp.body.policyJSON)
    else:
        print('Get Bucket Policy Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Bucket Policy Failed')
    print(traceback.format_exc())
```

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Helpful Links

- Obtaining the Bucket Policy
- OBS Error Codes
- Access Control FAQ

7.20 Deleting a Bucket Policy (SDK for Python)

Function

OBS provides access control over buckets. You can use an access policy to define whether a user can perform certain operations on a specific bucket. OBS access control can be implemented using IAM permissions, bucket policies, and ACLs. For more information, see **Introduction to OBS Access Control**.

A bucket policy is applied to a configured bucket and the objects in it. You can use a bucket policy to grant permissions for the bucket and the objects in it to IAM users or other accounts. If you want IAM users to have different permissions for different buckets, you can configure required bucket policies.

This API deletes the policy of a bucket. OBS returns **204 No Content** if the deletion is successful or the requested bucket policy does not exist.

Restrictions

- To delete the policy of a bucket, you must be the bucket owner or have the required permission (**obs:bucket:DeleteBucketPolicy** in IAM or **DeleteBucketPolicy** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.deleteBucketPolicy(bucketName, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-102 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example deletes the policy of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
```

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```
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Delete the bucket policy.
    resp = obsClient.deleteBucketPolicy(bucketName)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Delete Bucket Policy Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Delete Bucket Policy Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Delete Bucket Policy Failed')
    print(traceback.format_exc())
```

Helpful Links

- Deleting a Bucket Policy
- OBS Error Codes
- Access Control FAQ

7.21 Configuring Lifecycle Rules for a Bucket (SDK for Python)

Function

You can configure lifecycle rules to periodically delete objects or transition objects between storage classes. For more information, see Lifecycle Management.

This API configures lifecycle rules for a bucket.

NOTE

- Expired objects will be permanently deleted and cannot be recovered.
- Multi-AZ redundancy is not available for Archive storage. For this reason, buckets or objects with multi-AZ redundancy cannot be transitioned to the Archive storage class based on a lifecycle rule.
- The minimum storage duration is 30 days for Infrequent Access storage, and 90 days for Archive storage. After an object is transitioned to the Archive storage class, if it stays in this storage class for less than 90 days, you still need to pay for a full 90 days.

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Restrictions

- There is no limit on the number of lifecycle rules in a bucket, but the total size of XML descriptions about all lifecycle rules in a bucket cannot exceed 20 KB.
- A maximum of 20 lifecycle rules can be configured for a parallel file system.
- To configure a lifecycle rule for a bucket, you must be the bucket owner or have the required permission (**obs:bucket:PutLifecycleConfiguration** in IAM or **PutLifecycleConfiguration** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.setBucketLifecycle(bucketName, lifecycle, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-)

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Parameter	Type	Mandatory (Yes/No)	Description
			adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
lifecycle	**Lifecycle**	Yes	**Explanation:** List of lifecycle rules. For details, see **Table 7-103**. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Table 7-103 Lifecycle

Parameter	Type	Mandatory (Yes/No)	Description
rule	list of **Rule**	Yes	**Explanation:** List of lifecycle rules. For details, see **Table 7-104**. **Default value**: None

Table 7-104 Rule

Parameter	Type	Mandatory (Yes/No)	Description
id	str	No	**Explanation:** Lifecycle rule ID **Value range**: The value must contain 1 to 255 characters. **Default value**: None
prefix	str	Yes	**Explanation:** Object name prefix. It identifies the objects the rule applies to. You can leave this parameter blank to apply the rule to all objects in the bucket. Assume that you have the following objects: **logs/day1**, **logs/day2**, **logs/day3**, and **ExampleObject.jpg**. If you set **Prefix** to **ExampleObject.jpg**, the rule applies to object **ExampleObject.jpg** only. If you set **Prefix** to **logs/**, the rule applies to the three objects with name starting with **logs/**. If you leave **Prefix** blank, the rule applies to all objects in the bucket. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
status	str	Yes	**Explanation:** Whether the rule is enabled **Value range**: • **Enabled** • **Disabled** **Default value**: None
transition	**Transition** or list of **Transition**	No	**Explanation:** Policies for storage class transition, including transition time and the storage class after transition. For details, see **Table 7-105**. **Restrictions:** This parameter applies only to the current object version. **Default value**: None
expiration	**Expiration**	No	**Explanation:** Object expiration time. For details, see **Table 7-106**. **Restrictions:** This parameter applies only to the current object version. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
noncurrentVersion-Transition	**NoncurrentVersionTransition** or list of **NoncurrentVersionTransition**	No	**Explanation:** Policies for storage class transition, including transition time and the storage class after transition. For details, see **Table 7-109**. **Restrictions:** • This parameter applies only to noncurrent object versions. • Versioning is enabled (or suspended after being enabled) for the bucket. • This parameter is not available for parallel file systems. **Default value**: None
noncurrentVersio-nExpiration	**NoncurrentVersionExpiration**	No	**Explanation:** Expiration time of noncurrent object versions. For details, see **Table 7-110**. **Restrictions:** • This parameter applies only to noncurrent object versions. • Versioning is enabled (or suspended after being enabled) for the bucket. **CAUTION** This parameter is not available for parallel file systems. **Default value**: None

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Table 7-105 Transition

Parameter	Type	Mandatory (Yes/No)	Description
storageClass	str	Yes if used as a request parameter	**Explanation:** Storage class of the object after transition **Restrictions:** • The Standard storage class is not supported. • Restrictions on storage class transitions: – Only transitions from the Standard storage class to the Infrequent Access storage class are supported. To transition objects from Infrequent Access to Standard, you must manually do it. – Only transitions from the Standard or Infrequent Access storage class to the Archive storage class are supported. To transition objects from Archive to Standard or Infrequent Access, you must restore the objects first and then manually transition their storage class. – Multi-AZ redundancy is not available for Archive storage. For this reason, buckets or objects with multi-AZ redundancy cannot be transitioned to the Archive storage class based on a lifecycle rule. **Value range**: See **Table 7-107**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
date	str or DateTime	Yes if the parameter is used as a request parameter and **days** is absent	**Explanation:** OBS executes the lifecycle rule for objects that were modified before the specified date. **Restrictions:** The value must conform with the ISO8601 standards and indicate UTC 00:00. For example, **2018-01-01T00:00:00.000Z** indicates only objects that were last modified before the specified time are transitioned to the specified storage class. For example, **DateTime(year=2023, month=9, day=12)** **Default value**: None
days	int	Yes if the parameter is used as a request parameter and **date** is absent	**Explanation:** Number of days (since the last update was made to the object) after which the lifecycle rule takes effect **Restrictions:** This parameter applies only to the current object version. **Value range**: An integer greater than or equal to 0, in days **Default value**: None

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Table 7-106 Expiration

Parameter	Type	Mandatory (Yes/No)	Description
date	str or DateTime	Yes if the parameter is used as a request parameter and **days** is absent	**Explanation:** OBS executes the lifecycle rule for objects that were modified before the specified date. **Restrictions:** The value must conform with the ISO8601 standards and indicate UTC 00:00. For example, **2018-01-01T00:00:00.000Z** indicates only objects that were last modified before the specified time are deleted. For example, **DateTime(year=2023, month=9, day=12)** **Default value**: None
days	int	Yes if the parameter is used as a request parameter and **date** is absent	**Explanation:** Number of days (since the last update was made to the object) after which the lifecycle rule takes effect **Restrictions:** This parameter applies only to the current object version. **Value range**: An integer greater than or equal to 0, in days **Default value**: None

Table 7-107 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.

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Parameter	Type	Description
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

Table 7-108 DateTime

Parameter	Type	Description
year	int	**Explanation:** Year in UTC **Default value**: None
month	int	**Explanation:** Month in UTC **Default value**: None
day	int	**Explanation:** Day in UTC **Default value**: None
hour	int	**Explanation:** Hour in UTC **Restrictions:** The value is in 24-hour format. **Default value**: 0

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Parameter	Type	Description
min	int	**Explanation:** Minute in UTC **Default value**: 0
sec	int	**Explanation:** Second in UTC **Default value**: 0

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Table 7-109 NoncurrentVersionTransition

Parameter	Type	Mandatory (Yes/No)	Description
storageClass	str	Yes if used as a request parameter	**Explanation:** Storage class of noncurrent object versions after transition **Restrictions:** • The Standard storage class is not supported. • Restrictions on storage class transitions: – Only transitions from the Standard storage class to the Infrequent Access storage class are supported. To transition objects from Infrequent Access to Standard, you must manually do it. – Only transitions from the Standard or Infrequent Access storage class to the Archive storage class are supported. To transition objects from Archive to Standard or Infrequent Access, you must restore the objects first and then manually transition their storage class. – Multi-AZ redundancy is not available for Archive storage. For this reason, buckets or objects with multi-AZ redundancy cannot be transitioned to the Archive storage class based on a lifecycle rule. **Value range**: See **Table 7-107**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
noncurrentDays	int	Yes if used as a request parameter	**Explanation:** Number of days an object is noncurrent before the specified rule takes effect **Restrictions:** This parameter applies only to noncurrent object versions. **Value range**: An integer greater than or equal to 0, in days **Default value**: None

Table 7-110 NoncurrentVersionExpiration

Parameter	Type	Mandatory (Yes/No)	Description
noncurrentDays	int	Yes if used as a request parameter	**Explanation:** Number of days an object is noncurrent before the specified rule takes effect **Restrictions:** This parameter applies only to noncurrent object versions. **Value range**: An integer greater than or equal to 0, in days **Default value**: None

Responses

Type	Description
GetResult	**Explanation:** SDK common results

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Table 7-111 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example configures a lifecycle rule for bucket **examplebucket**.

```
from obs import ObsClient
from obs import Expiration, NoncurrentVersionExpiration
from obs import DateTime
from obs import Rule
from obs import Lifecycle
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
```

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```
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Configure a lifecycle rule for deleting objects with prefix1 as the prefix after 60 days since the last
update.
    rule1 = Rule(id='rule1', prefix='prefix1', status='Enabled', expiration=Expiration(days=60))
    # Configure a lifecycle rule for deleting objects with prefix2 as the prefix on December 31, 2023.
    rule2 = Rule(id='rule2', prefix='prefix2', status='Enabled', expiration=Expiration(date=DateTime(2023, 12,
31)))
    lifecycle = Lifecycle(rule=[rule1, rule2])
    bucketName="examplebucket"
    # Configures the lifecycle rules for the bucket.
    resp = obsClient.setBucketLifecycle(bucketName, lifecycle)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Set Bucket Lifecycle Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Set Bucket Lifecycle Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Set Bucket Lifecycle Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Configuring Bucket Lifecycle Rules**
- **(GitHub) Sample Code for Configuring a Bucket Lifecycle Rule**
- **OBS Error Codes**

7.22 Obtaining the Lifecycle Configuration of a Bucket (SDK for Python)

Function

You can configure lifecycle rules to periodically delete objects or transition objects between storage classes. For more information, see **Lifecycle Management**.

This API returns the lifecycle rules of a bucket.

Restrictions

- To obtain the lifecycle configuration of a bucket, you must be the bucket owner or have the required permission (**obs:bucket:GetLifecycleConfiguration** in IAM or **GetLifecycleConfiguration** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.getBucketLifecycle(bucketName, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-112 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

GetResult.body Type	Description
LifecycleResponse	**Explanation:** Response to the request for obtaining the lifecycle configuration information of a bucket **Default value**: None

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Table 7-113 LifecycleResponse

Parameter	Type	Description
lifecycleConfig	**Lifecycle**	**Explanation:** Bucket lifecycle configuration. For details, see **Table 7-114**. **Default value**: None

Table 7-114 Lifecycle

Parameter	Type	Mandatory (Yes/No)	Description
rule	list of **Rule**	Yes if used as a request parameter	**Explanation:** List of lifecycle rules. For details, see **Table 7-115**. **Default value**: None

Table 7-115 Rule

Parameter	Type	Mandatory (Yes/No)	Description
id	str	No if used as a request parameter	**Explanation:** Lifecycle rule ID **Value range**: The value must contain 1 to 255 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
prefix	str	Yes if used as a request parameter	**Explanation:** Object name prefix. It identifies the objects the rule applies to. You can leave this parameter blank to apply the rule to all objects in the bucket. Assume that you have the following objects: **logs/day1**, **logs/day2**, **logs/day3**, and **ExampleObject.jpg**. If you set **Prefix** to **ExampleObject.jpg**, the rule applies to object **ExampleObject.jpg** only. If you set **Prefix** to **logs/**, the rule applies to the three objects with name starting with **logs/**. If you leave **Prefix** blank, the rule applies to all objects in the bucket. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
status	str	Yes if used as a request parameter	**Explanation:** Whether the rule is enabled **Value range**: • **Enabled** • **Disabled** **Default value**: None
transition	**Transition** or list of **Transition**	No if used as a request parameter	**Explanation:** Policies for storage class transition, including transition time and the storage class after transition. For details, see **Table 7-116**. **Restrictions:** This parameter applies only to the current object version. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
expiration	**Expiration**	No if used as a request parameter	**Explanation:** Object expiration time. For details, see **Table 7-118**. **Restrictions:** This parameter applies only to the current object version. **Default value**: None
noncurrentVersion-Transition	**NoncurrentVersionTransition** or list of **NoncurrentVersionTransition**	No if used as a request parameter	**Explanation:** Policies for storage class transition, including transition time and the storage class after transition. For details, see **Table 7-120**. **Restrictions:** • This parameter applies only to noncurrent object versions. • Versioning is enabled (or suspended after being enabled) for the bucket. • This parameter is not available for parallel file systems. **Default value**: None
noncurrentVersio-nExpiration	**NoncurrentVersionExpiration**	No if used as a request parameter	**Explanation:** Expiration time of noncurrent object versions. For details, see **Table 7-121**. **Restrictions:** • This parameter applies only to noncurrent object versions. • Versioning is enabled (or suspended after being enabled) for the bucket. • This parameter is not available for parallel file systems. **Default value**: None

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Table 7-116 Transition

Parameter	Type	Mandatory (Yes/No)	Description
storageClass	str	Yes if used as a request parameter	**Explanation:** Storage class of the object after transition **Restrictions:** • The Standard storage class is not supported. • Restrictions on storage class transitions: – Only transitions from the Standard storage class to the Infrequent Access storage class are supported. To transition objects from Infrequent Access to Standard, you must manually do it. – Only transitions from the Standard or Infrequent Access storage class to the Archive storage class are supported. To transition objects from Archive to Standard or Infrequent Access, you must restore the objects first and then manually transition their storage class. – Multi-AZ redundancy is not available for Archive storage. For this reason, buckets or objects with multi-AZ redundancy cannot be transitioned to the Archive storage class based on a lifecycle rule. **Value range**: See **Table 7-117**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
date	str or DateTime	Yes if the parameter is used as a request parameter and **days** is absent	**Explanation:** Date when an object will be transitioned. **Restrictions:** The value must conform with the ISO8601 standards and indicate UTC 00:00. For example, **2018-01-01T00:00:00.000Z** indicates only objects that were last modified before the specified time are transitioned to the specified storage class. For example, **DateTime(year=2023, month=9, day=12)** **Default value**: None
days	int	Yes if the parameter is used as a request parameter and **date** is absent	**Explanation:** Number of days (since the last update was made to the object) after which the lifecycle rule takes effect **Restrictions:** This parameter applies only to the current object version. **Value range**: An integer greater than or equal to 0, in days **Default value**: None

Table 7-117 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.

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Parameter	Type	Description
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

Table 7-118 Expiration

Parameter	Type	Mandatory (Yes/No)	Description
date	str or **DateTime**	Yes if the parameter is used as a request parameter and **days** is absent	**Explanation:** OBS executes the lifecycle rule for objects that were modified before the specified date. **Restrictions:** The value must conform with the ISO8601 standards and indicate UTC 00:00. For example, **2018-01-01T00:00:00.000Z** indicates only objects that were last modified before the specified time are deleted. For example, **DateTime(year=2023, month=9, day=12)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
days	int	Yes if the parameter is used as a request parameter and **date** is absent	**Explanation:** Number of days (since the last update was made to the object) after which the lifecycle rule takes effect **Restrictions:** This parameter applies only to the current object version. **Value range**: An integer greater than or equal to 0, in days **Default value**: None

Table 7-119 DateTime

Parameter	Type	Description
year	int	**Explanation:** Year in UTC **Default value**: None
month	int	**Explanation:** Month in UTC **Default value**: None
day	int	**Explanation:** Day in UTC **Default value**: None
hour	int	**Explanation:** Hour in UTC **Restrictions:** The value is in 24-hour format. **Default value**: 0

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Parameter	Type	Description
min	int	**Explanation:** Minute in UTC **Default value**: 0
sec	int	**Explanation:** Second in UTC **Default value**: 0

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Table 7-120 NoncurrentVersionTransition

Parameter	Type	Mandatory (Yes/No)	Description
storageClass	str	Yes if used as a request parameter	**Explanation:** Storage class of the object after transition **Restrictions:** • The Standard storage class is not supported. • Restrictions on storage class transitions: – Only transitions from the Standard storage class to the Infrequent Access storage class are supported. To transition objects from Infrequent Access to Standard, you must manually do it. – Only transitions from the Standard or Infrequent Access storage class to the Archive storage class are supported. To transition objects from Archive to Standard or Infrequent Access, you must restore the objects first and then manually transition their storage class. – Multi-AZ redundancy is not available for Archive storage. For this reason, buckets or objects with multi-AZ redundancy cannot be transitioned to the Archive storage class based on a lifecycle rule. **Value range**: See **Table 7-117**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
noncurrentDays	int	Yes if used as a request parameter	**Explanation:** Number of days an object is noncurrent before the specified rule takes effect **Restrictions:** This parameter applies only to noncurrent object versions. **Value range**: An integer greater than or equal to 0, in days **Default value**: None

Table 7-121 NoncurrentVersionExpiration

Parameter	Type	Mandatory (Yes/No)	Description
noncurrentDays	int	Yes if used as a request parameter	**Explanation:** Number of days an object is noncurrent before the specified rule takes effect **Restrictions:** This parameter applies only to noncurrent object versions. **Value range**: An integer greater than or equal to 0, in days **Default value**: None

Code Examples

This example returns the lifecycle configuration of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from
```

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```
environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Obtain the lifecycle configuration of the bucket.
    resp = obsClient.getBucketLifecycle(bucketName)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Bucket Lifecycle Succeeded')
        print('requestId:', resp.requestId)
        index = 1
        for rule in resp.body.lifecycleConfig.rule:
            print('rule [' + str(index) + ']')
            print('id:', rule.id)
            print('prefix:', rule.prefix)
            print('status:', rule.status)
            if rule.expiration:
                print('days:', rule.expiration.days)
                print('date:', rule.expiration.date)
            if rule.noncurrentVersionExpiration:
                print('noncurrentDays:', rule.noncurrentVersionExpiration.noncurrentDays)
        index += 1
    else:
        print('Get Bucket Lifecycle Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Bucket Lifecycle Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Obtaining Bucket Lifecycle Configuration**
- **(GitHub) Sample Code for Obtaining the Bucket Lifecycle Configuration**
- **OBS Error Codes**

7.23 Deleting the Lifecycle Configuration of a Bucket (SDK for Python)

Function

You can configure lifecycle rules to periodically delete objects or transition objects between storage classes. For more information, see **Lifecycle Management**.

This API deletes the lifecycle configuration of a bucket.

Restrictions

- To delete the lifecycle configuration of a bucket, you must be the bucket owner or have the required permission (**obs:bucket:PutLifecycleConfiguration** in IAM or **PutLifecycleConfiguration**

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in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.deleteBucketLifecycle(bucketName, extensionHeaders)

Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-122 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None

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Parameter	Type	Description
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example deletes all lifecycle configurations of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Delete lifecycle configurations of the bucket.
    resp = obsClient.deleteBucketLifecycle(bucketName)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Delete Bucket Lifecycle Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Delete Bucket Lifecycle Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Delete Bucket Lifecycle Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Deleting Lifecycle Rules**
- **(GitHub) Sample Code for Deleting the Bucket Lifecycle Configuration**

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- **OBS Error Codes**

7.24 Configuring Static Website Hosting for a Bucket (SDK for Python)

Function

You can host static website resources such as HTML web pages, flash files, or audio and video files in an OBS bucket, so that you can provide these hosted resources using the bucket's website endpoint to end users. Typical use cases include:

- Redirecting all requests to another website
- Redirecting specific requests

This API configures static website hosting for a bucket.

Restrictions

- Periods (.) should be avoided in the target bucket name, or there may be certificate verification failures on the client when you use HTTPS for access.
- The request body of the website configuration cannot exceed 10 KB.
- To configure static website hosting for a bucket, you must be the bucket owner or have the required permission (**obs:bucket:PutBucketWebsite** in IAM or **PutBucketWebsite** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.setBucketWebsite(bucketName, website, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
website	WebsiteConfiguration	Yes	**Explanation:** Input parameters for configuring static website hosting. For details, see Table 7-123. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See User-defined Headers (SDK for Python). **Default value**: None

Table 7-123 WebsiteConfiguration

Parameter	Type	Mandatory (Yes/No)	Description
redirectAllRequestTo	RedirectAllRequestTo	No if used as a request parameter	**Explanation:** Redirection rules for all requests. For details, see Table 7-124. **Default value**: None
indexDocument	IndexDocument	No if used as a request parameter	**Explanation:** Default page configuration. For details, see Table 7-125. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
errorDocument	ErrorDocument	No if used as a request parameter	**Explanation:** Error page configuration. For details, see Table 7-126. **Default value**: None
routingRules	list of RoutingRule	No if used as a request parameter	**Explanation:** List of routing rules. For details, see Table 7-127. **Default value**: None

NOTE

- **errorDocument**, **indexDocument**, and **routingRules** must be used together and they cannot be used with **redirectAllRequestsTo**.
- When **errorDocument**, **indexDocument**, and **routingRules** are used together, **routingRules** can be left blank.
- You must specify either the combo of fields **ErrorDocument**, **IndexDocument**, and **RoutingRules**, or the **RedirectAllRequestsTo** field.

Table 7-124 RedirectAllRequestTo

Parameter	Type	Mandatory (Yes/No)	Description
hostName	str	Yes if used as a request parameter	**Explanation:** Host name used for redirection, for example, **www.example.com** **Restrictions:** The host name must comply with the host name rules. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
protocol	str	No if used as a request parameter	**Explanation:** Protocol used for redirection **Value range**: • http • https **Default value**: None

Table 7-125 IndexDocument

Parameter	Type	Mandatory (Yes/No)	Description
suffix	str	Yes if used as a request parameter	**Explanation:** Suffix that is appended to the request for a directory. For example, if the suffix is **index.html** and you request **samplebucket/images/**, the returned data will be for the object named **images/index.html** in the bucket **samplebucket**. **Value range**: This parameter can neither be left blank nor contain slashes (/). **Default value**: None

Table 7-126 ErrorDocument

Parameter	Type	Mandatory (Yes/No)	Description
key	str	No if used as a request parameter	**Explanation:** Object name to use when a **4*XX*** error occurs. This parameter specifies the webpage to display when an error occurs. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Table 7-127 RoutingRule

Parameter	Type	Mandatory (Yes/No)	Description
condition	**Condition**	No if used as a request parameter	**Explanation:** Conditions that must be met for the specified redirect to apply **Value range**: See **Table 7-128**. **Default value**: None
redirect	**Redirect**	Yes if used as a request parameter	**Explanation:** Details about the redirection. For details, see **Table 7-129**. **Default value**: None

Table 7-128 Condition

Parameter	Type	Mandatory (Yes/No)	Description
keyPrefixEquals	str	No if used as a request parameter	**Explanation:** Object name prefix for the redirection to take effect. If the name prefix of the requested object is the same as the value specified for this parameter, the redirection rule takes effect. For example, to redirect the requests for the object **ExamplePage.html**, set **KeyPrefixEquals** to **ExamplePage.html**. **Restrictions:** This parameter cannot be used together with **httpErrorCodeReturnedEquals**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
httpErrorCodeReturnedEquals	int	No if used as a request parameter	**Explanation:** HTTP error code for the redirection to take effect. If there is an error, and the error code returned is the same as the value specified for this parameter, the redirection rule takes effect. For example, if you want to redirect requests to **NotFound.html** when HTTP error code **404** is returned, set **httpErrorCodeReturnedEquals** to **404** in **Condition**, and set **ReplaceKeyWith** to **NotFound.html** in **Redirect**. **Restrictions:** This parameter cannot be used together with **keyPrefixEquals**. **Value range**: See **Error Codes**. **Default value**: None

Table 7-129 Redirect

Parameter	Type	Mandatory (Yes/No)	Description
protocol	str	No if used as a request parameter	**Explanation:** Protocol used for redirection **Value range**: • http • https **Default value**: None
hostName	str	No if used as a request parameter	**Explanation:** Host name used for redirection **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
replaceKeyPrefix-With	str	No if used as a request parameter	**Explanation:** Object name prefix used in the redirection request **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
replaceKeyWith	str	No if used as a request parameter	**Explanation:** Object name used in the redirection request **Restrictions:** This parameter cannot be used together with **replaceKeyPrefix-With**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
httpRedirectCode	int	No if used as a request parameter	**Explanation:** HTTP status code in the response to the redirect request. For details, see **Status Code**. **Default value**: None

Responses

Type	Description
GetResult	**Explanation:** SDK common results

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Table 7-130 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example configures static website hosting for bucket **examplebucket**.

```
from obs import ObsClient
from obs import WebsiteConfiguration
from obs import IndexDocument
from obs import ErrorDocument
from obs import RoutingRule
from obs import Condition
from obs import Redirect
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify
```

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```
security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify an error page when a 4XX error occurs.
    errorDocument = ErrorDocument(key='error.html')
    # Specify a default page.
    indexDocument = IndexDocument(suffix='index.html')
    # Specify a rule for redirecting requests to NotFound.html if the status code is 404.
    routingRule1 = RoutingRule(condition=Condition(httpErrorCodeReturnedEquals=404),
                               redirect=Redirect(protocol='http', replaceKeyWith='NotFound.html'))
    # Configure the redirection rules in list format. Multiple rules can be configured.
    routingRules = [routingRule1]
    bucketName = "examplebucket"
    # Configure static website hosting for the bucket.
    resp = obsClient.setBucketWebsite(bucketName,
                                      WebsiteConfiguration(errorDocument=errorDocument,
indexDocument=indexDocument,
                                                           routingRules=routingRules))

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Set Bucket Website Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Set Bucket Website Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Set Bucket Website Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Configuring Static Website Hosting for a Bucket**
- **(GitHub) Sample Code for Configuring Static Website Hosting for a Bucket**
- **OBS Error Codes**
- **FAQ for Static Website Hosting**

7.25 Obtaining Static Website Hosting for a Bucket (SDK for Python)

Function

You can host static website resources such as HTML web pages, flash files, as well as audio and video files in an OBS bucket, so that you can provide these hosted resources using the bucket's website endpoint to end users. Typical use cases include:

- Redirecting all requests to another website
- Redirecting specific requests

This API returns the static website hosting configuration of the bucket.

Restrictions

- To obtain the static website hosting configuration of a bucket, you must be the bucket owner or have the required permission

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(**obs:bucket:GetBucketWebsite** in IAM or **GetBucketWebsite** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.getBucketWebsite(bucketName, extensionHeaders)

Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-131 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None

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Parameter	Type	Description
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

GetResult.body Type	Description
WebsiteConfiguration	**Explanation:** Website hosting settings of a bucket

Table 7-132 WebsiteConfiguration

Parameter	Type	Mandatory (Yes/No)	Description
redirectAllRequest-To	**RedirectAllRequestTo**	No if used as a request parameter	**Explanation:** Redirection rules for all requests. For details, see **Table 7-133**.
indexDocument	**IndexDocument**	No if used as a request parameter	**Explanation:** Default page configuration. For details, see **Table 7-134**.
errorDocument	**ErrorDocument**	No if used as a request parameter	**Explanation:** Error page configuration. For details, see **Table 7-135**.
routingRules	list of **RoutingRule**	No if used as a request parameter	**Explanation:** List of routing rules. For details, see **Table 7-136**.

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NOTE

- **errorDocument**, **indexDocument**, and **routingRules** must be used together and they cannot be used with **redirectAllRequestsTo**.
- When **errorDocument**, **indexDocument**, and **routingRules** are used together, **routingRules** can be left blank.
- You must specify either the combo of fields **ErrorDocument**, **IndexDocument**, and **RoutingRules**, or the **RedirectAllRequestsTo** field.

Table 7-133 RedirectAllRequestTo

Parameter	Type	Mandatory (Yes/No)	Description
hostName	str	Yes if used as a request parameter	**Explanation:** Host name used for redirection, for example, **www.example.com** **Restrictions:** The host name must comply with the host name rules. **Default value**: None
protocol	str	No if used as a request parameter	**Explanation:** Protocol used for redirection **Value range**: • http • https **Default value**: None

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Table 7-134 IndexDocument

Parameter	Type	Mandatory (Yes/No)	Description
suffix	str	Yes if used as a request parameter	**Explanation:** Suffix that is appended to the request for a directory. For example, if the suffix is **index.html** and you request **samplebucket/images/**, the returned data will be for the object named **images/index.html** in the bucket **samplebucket**. **Value range**: This parameter can neither be left blank nor contain slashes (/). **Default value**: None

Table 7-135 ErrorDocument

Parameter	Type	Mandatory (Yes/No)	Description
key	str	No if used as a request parameter	**Explanation:** Object name to use when a **4***XX* error occurs. This parameter specifies the webpage to display when an error occurs. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Table 7-136 RoutingRule

Parameter	Type	Mandatory (Yes/No)	Description
condition	**Condition**	No if used as a request parameter	**Explanation:** Conditions that must be met for the specified redirect to apply **Value range**: See **Table 7-137**. **Default value**: None
redirect	**Redirect**	Yes if used as a request parameter	**Explanation:** Details about the redirection. For details, see **Table 7-138**. **Default value**: None

Table 7-137 Condition

Parameter	Type	Mandatory (Yes/No)	Description
keyPrefixEquals	str	No if used as a request parameter	**Explanation:** Object name prefix for the redirection to take effect. If the name prefix of the requested object is the same as the value specified for this parameter, the redirection rule takes effect. For example, to redirect the requests for the object **ExamplePage.html**, set **KeyPrefixEquals** to **ExamplePage.html**. **Restrictions:** This parameter cannot be used together with **httpErrorCodeReturnedEquals**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
httpErrorCodeReturnedEquals	int	No if used as a request parameter	**Explanation:** HTTP error code for the redirection to take effect. If there is an error, and the error code returned is the same as the value specified for this parameter, the redirection rule takes effect. For example, if you want to redirect requests to **NotFound.html** when HTTP error code **404** is returned, set **httpErrorCodeReturnedEquals** to **404** in **Condition**, and set **ReplaceKeyWith** to **NotFound.html** in **Redirect**. **Restrictions:** This parameter cannot be used together with **keyPrefixEquals**. **Value range**: See **Error Codes**. **Default value**: None

Table 7-138 Redirect

Parameter	Type	Mandatory (Yes/No)	Description
protocol	str	No if used as a request parameter	**Explanation:** Protocol used for redirection **Value range**: • http • https **Default value**: None
hostName	str	No if used as a request parameter	**Explanation:** Host name used for redirection **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
replaceKeyPrefix-With	str	No if used as a request parameter	**Explanation:** Object name prefix used in the redirection request **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
replaceKeyWith	str	No if used as a request parameter	**Explanation:** Object name used in the redirection request **Restrictions:** This parameter cannot be used together with **replaceKeyPrefix-With**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
httpRedirectCode	int	No if used as a request parameter	**Explanation:** HTTP status code in the response to the redirect request. For details, see **Status Code**. **Default value**: None

Code Examples

This example returns the static website hosting configuration of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it
```

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```
with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify
security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Obtain the website configuration of the bucket.
    resp = obsClient.getBucketWebsite(bucketName)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Bucket Website Succeeded')
        print('requestId:', resp.requestId)
        if resp.body.redirectAllRequestTo:
            print('redirectAllRequestTo.hostName:', resp.body.redirectAllRequestTo.hostName,
                  ',redirectAllRequestTo.protocol:', resp.body.redirectAllRequestTo.protocol)
        if resp.body.indexDocument:
            print('indexDocument.suffix:', resp.body.indexDocument.suffix)
        if resp.body.errorDocument:
            print('errorDocument.key:', resp.body.errorDocument.key)
        if resp.body.routingRules:
            index = 1
            for rout in resp.body.routingRules:
                print('routingRule[', index, ']:')
                index += 1
                print('condition.keyPrefixEquals:', rout.condition.keyPrefixEquals,
                      ',condition.httpErrorCodeReturnedEquals:', rout.condition.httpErrorCodeReturnedEquals)
                print('redirect.protocol:', rout.redirect.protocol, ',redirect.hostName:', rout.redirect.hostName,
                      ',redirect.replaceKeyPrefixWith:', rout.redirect.replaceKeyPrefixWith,
                      ',redirect.replaceKeyWith:', rout.redirect.replaceKeyWith, ',redirect.httpRedirectCode:',
                      rout.redirect.httpRedirectCode)
    else:
        print('Get Bucket Website Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Bucket Website Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Obtaining the Static Website Hosting Configuration of a Bucket**
- **(GitHub) Sample Code for Obtaining the Static Website Hosting Configuration**
- **OBS Error Codes**
- **FAQ for Static Website Hosting**

7.26 Deleting Static Website Hosting for a Bucket (SDK for Python)

Function

You can host static website resources such as HTML web pages, flash files, as well as audio and video files in an OBS bucket, so that you can provide these hosted resources using the bucket's website endpoint to end users. Typical use cases include:

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- Redirecting all requests to another website
- Redirecting specific requests

This API deletes the static website hosting configuration of the bucket.

Restrictions

- To delete the static website hosting configuration of a bucket, you must be the bucket owner or have the required permission (**obs:bucket:DeleteBucketWebsite** in IAM or **DeleteBucketWebsite** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.deleteBucketWebsite(bucketName, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-139 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example deletes the static website hosting configuration of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://
```

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```
support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    # Delete the static website hosting configuration of the bucket.
    resp = obsClient.deleteBucketWebsite(bucketName)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Delete Bucket Website Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Delete Bucket Website Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Delete Bucket Website Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Deleting the Static Website Hosting Configuration of a Bucket**
- **(GitHub) Sample Code for Deleting the Static Website Hosting Configuration**
- **OBS Error Codes**
- **FAQ for Static Website Hosting**

7.27 Configuring Versioning for a Bucket (SDK for Python)

Function

You can enable versioning to automatically maintain previous versions of an object. When versioning is enabled, you can access earlier versions of an object to recover your data in the event of accidental actions or application failures. For more information, see **Versioning**.

This API configures the versioning status for a bucket.

Restrictions

- To configure versioning for a bucket, you must be the bucket owner or have the required permission (**obs:bucket:PutBucketVersioning** in IAM or **PutBucketVersioning** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

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Method

ObsClient.setBucketVersioning(bucketName, status, extensionHeaders)

Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
status	str	Yes	**Explanation:** Versioning status of the bucket **Value range**: Versioning status of the bucket. Possible values are: • **Enabled** • **Suspended** **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-140 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None

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Parameter	Type	Description
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example configures versioning for bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    # Configure versioning for the bucket.
    resp = obsClient.setBucketVersioning(bucketName, status='Enabled')

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Set Bucket Versioning Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Set Bucket Versioning Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
```

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```
        print('errorMessage:', resp.errorMessage)
except:
    print('Set Bucket Versioning Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Configuring Versioning for a Bucket**
- **(GitHub) Sample Code for Configuring Versioning Status for a Bucket**
- **OBS Error Codes**
- **Versioning FAQ**

7.28 Obtaining the Versioning Status of a Bucket (SDK for Python)

Function

You can enable versioning to automatically maintain previous versions of an object. When versioning is enabled, you can access earlier versions of an object to recover your data in the event of accidental actions or application failures. For more information, see **Versioning**.

This API obtains the versioning status of a bucket.

Restrictions

- To obtain the versioning status of a bucket, you must be the bucket owner or have the required permission (**obs:bucket:GetBucketVersioning** in IAM or **GetBucketVersioning** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.getBucketVersioning(bucketName, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-141 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

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GetResult.body Type	Description
str	**Explanation:** Versioning status of the bucket **Value range**: • **Enabled** • **Suspended** **Default value**: None

Code Examples

This example returns the versioning status of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Obtain the bucket's versioning status.
    resp = obsClient.getBucketVersioning(bucketName)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Bucket Versioning Succeeded')
        print('requestId:', resp.requestId)
        print('status:', resp.body)
    else:
        print('Get Bucket Versioning Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Bucket Versioning Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Obtaining Bucket Versioning Status**
- **(GitHub) Sample Code for Obtaining the Versioning Status of a Bucket**
- **OBS Error Codes**

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- **Versioning FAQ**

7.29 Configuring CORS for a Bucket (SDK for Python)

Function

Cross-origin resource sharing (CORS) is a mechanism defined by the World Wide Web Consortium (W3C) that allows a web application program in one domain to access resources located in another one. For general web page requests, website scripts and contents in one domain cannot interact with those in another because of Same Origin Policies (SOPs). OBS supports CORS rules that allow the resources in OBS to be requested by other domains.

This API configures CORS for a bucket.

Restrictions

- To configure CORS for a bucket, you must be the bucket owner or have the required permission (**obs:bucket:PutBucketCORS** in IAM or **PutBucketCORS** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.setBucketCors(bucketName, corsRuleList, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
corsRuleList	list of **CorsRule**	Yes	**Explanation:** CORS rule list of the bucket. For details, see **Table 7-142**. **Restrictions:** A list can have a maximum of 100 CORS rules. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

Table 7-142 CorsRule

Parameter	Type	Mandatory (Yes/No)	Description
id	str	No if used as a request parameter	**Explanation:** CORS rule ID **Value range**: The value must contain 1 to 255 characters. **Default value**: None
allowedMethod	list of str	Yes if used as a request parameter	**Explanation:** The allowed HTTP methods (types of operations on buckets and objects) for a cross-origin request. **Value range**: The following HTTP methods are supported: • GET • PUT • HEAD • POST • DELETE **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
allowedOrigin	list of str	Yes if used as a request parameter	**Explanation:** The origin from which the requests can access the bucket. **Restrictions:** Domain name of the origin. Each origin can contain only one wildcard character (*), for example, **https://*.vbs.example.com**. **Default value**: None
allowedHeader	list of str	No if used as a request parameter	**Explanation:** The allowed headers for cross-origin requests. Only CORS requests matching the allowed headers are valid. **Restrictions:** Each header can contain at most one wildcard character (*). Spaces, ampersands (&), colons (:), less-than signs (<), and full-width characters are not allowed. **Default value**: None
maxAgeSecond	int or str	No if used as a request parameter	**Explanation:** Time your client can cache the response for a cross-origin request **Restrictions:** Each CORS rule can contain at most one **maxAgeSecond**. **Value range**: An integer greater than or equal to 0, in seconds **Default value**: 100

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Parameter	Type	Mandatory (Yes/No)	Description
exposeHeader	list of str	No if used as a request parameter	**Explanation:** The CORS-allowed additional headers in the response. These headers provide additional information to clients. By default, your browser can only access headers **Content-Length** and **Content-Type**. If your browser needs to access other headers, add them to a list of the allowed additional headers. **Restrictions:** Spaces, wildcard characters (*), ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None

Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-143 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None

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Parameter	Type	Description
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example configures CORS rules for bucket **examplebucket**.

```
from obs import ObsClient
from obs import CorsRule
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify CORS rules.
    cors1 = CorsRule(id='rule1', allowedMethod=['PUT', 'POST', 'GET', 'DELETE', 'HEAD'],
                     allowedOrigin=['obs.hostname', 'obs.hostname1'], allowedHeader=['obs-header-1'],
                     maxAgeSecond=60)
    cors2 = CorsRule(id='rule2', allowedMethod=['PUT', 'POST', 'GET'],
                     allowedOrigin=['obs.hostname', 'obs.hostname1'], allowedHeader=['header-1', 'header-2'],
                     maxAgeSecond=50, exposeHeader=['head1'])
    corsList = [cors1, cors2]
    bucketName = "examplebucket"
    # Configure CORS for the bucket.
    resp = obsClient.setBucketCors(bucketName, corsList)
```

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```
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Set Bucket Cors Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Set Bucket Cors Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Set Bucket Cors Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Configuring Bucket CORS**
- **(GitHub) Sample Code for Configuring CORS for a Bucket**
- **OBS Error Codes**

7.30 Obtaining the CORS Configuration of a Bucket (SDK for Python)

Function

Cross-origin resource sharing (CORS) is a mechanism defined by the World Wide Web Consortium (W3C) that allows a web application program in one domain to access resources located in another one. For general web page requests, website scripts and contents in one domain cannot interact with those in another because of Same Origin Policies (SOPs). OBS supports CORS rules that allow the resources in OBS to be requested by other domains.

This API returns the CORS configuration of a bucket.

Restrictions

- To obtain the CORS configuration of a bucket, you must be the bucket owner or have the required permission (**obs:bucket:GetBucketCORS** in IAM or **GetBucketCORS** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.getBucketCors(bucketName, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-144 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

GetResult.body Type	Description
list of **CorsRule**	**Explanation:** CORS rule list of the bucket. For details, see **Table 7-145**.

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Table 7-145 CorsRule

Parameter	Type	Mandatory (Yes/No)	Description
id	str	No if used as a request parameter	**Explanation:** CORS rule ID **Value range**: The value must contain 1 to 255 characters. **Default value**: None
allowedMethod	list of str	Yes if used as a request parameter	**Explanation:** The allowed HTTP methods (types of operations on buckets and objects) for a cross-origin request. **Value range**: The following HTTP methods are supported: • GET • PUT • HEAD • POST • DELETE **Default value**: None
allowedOrigin	list of str	Yes if used as a request parameter	**Explanation:** The origin from which the requests can access the bucket. **Restrictions:** Domain name of the origin. Each origin can contain only one wildcard character (*), for example, **https://*.vbs.example.com**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
allowedHeader	list of str	No if used as a request parameter	**Explanation:** The allowed headers for cross-origin requests. Only CORS requests matching the allowed headers are valid. **Restrictions:** Each header can contain at most one wildcard character (*). Spaces, ampersands (&), colons (:), less-than signs (<), and full-width characters are not allowed. **Default value**: None
maxAgeSecond	int or str	No if used as a request parameter	**Explanation:** Time your client can cache the response for a cross-origin request **Restrictions:** Each CORS rule can contain at most one **maxAgeSecond**. **Value range**: An integer greater than or equal to 0, in seconds **Default value**: 100
exposeHeader	list of str	No if used as a request parameter	**Explanation:** The CORS-allowed additional headers in the response. These headers provide additional information to clients. By default, your browser can only access headers **Content-Length** and **Content-Type**. If your browser needs to access other headers, add them to a list of the allowed additional headers. **Restrictions:** Spaces, wildcard characters (*), ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None

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Code Examples

This example returns the CORS configuration of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    # Obtain the bucket's CORS configuration.
    resp = obsClient.getBucketCors(bucketName)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Bucket Cors Succeeded')
        print('requestId:', resp.requestId)
        index = 1
        for rule in resp.body:
            print('corsRule [' + str(index) + ']')
            print('id:', rule.id)
            print('allowedMethod', rule.allowedMethod)
            print('allowedOrigin', rule.allowedOrigin)
            print('allowedHeader', rule.allowedHeader)
            print('maxAgeSecond', rule.maxAgeSecond)
            print('exposeHeader', rule.exposeHeader)
            index += 1
    else:
        print('Get Bucket Cors Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Bucket Cors Failed')
    print(traceback.format_exc())
```

Helpful Links

- Obtaining the CORS Configuration of a Bucket
- (GitHub) Sample Code for Obtaining the CORS Configuration
- OBS Error Codes

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7.31 Deleting the CORS Configuration of a Bucket (SDK for Python)

Function

Cross-origin resource sharing (CORS) is a mechanism defined by the World Wide Web Consortium (W3C) that allows a web application program in one domain to access resources located in another one. For general web page requests, website scripts and contents in one domain cannot interact with those in another because of Same Origin Policies (SOPs). OBS supports CORS rules that allow the resources in OBS to be requested by other domains.

This API deletes the CORS configuration of a bucket.

Restrictions

- To delete the CORS configuration of a bucket, you must be the bucket owner or have the required permission (**obs:bucket:PutBucketCORS** in IAM or **PutBucketCORS** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.deleteBucketCors(bucketName, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-146 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example deletes CORS rules of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
```

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```
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    # Delete CORS rules of the bucket.
    resp = obsClient.deleteBucketCors(bucketName)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Delete Bucket Cors Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Delete Bucket Cors Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Delete Bucket Cors Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Deleting the CORS Configuration of a Bucket**
- **(GitHub) Sample Code for Deleting the CORS Configuration**
- **OBS Error Codes**

7.32 Configuring Tags for a Bucket (SDK for Python)

Function

If you add tags to a bucket, SDRs generated for the requests sent to this bucket will include these tags, so you can use the tags to classify SDRs for detailed cost analysis. For example, if you have an application that uploads its running data to a bucket, you can tag the bucket with the application name. In this manner, the costs on the application can be analyzed using tags in SDRs.

This API adds tags to a bucket.

Restrictions

- A bucket can have a maximum of 10 tags.
- A tag key and its value can contain a maximum of 128 and 255 characters, respectively.
- Tag keys and key values cannot contain commas (,), asterisks (*), vertical bars (|), slashes (/), less-than signs (<), greater-than signs (>), equal signs (=), backslashes (\), or ASCII codes (0x00 to 0x1F).
- To configure tags for a bucket, you must be the bucket owner or have the required permission (**obs:bucket:PutBucketTagging** in IAM or

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PutBucketTagging in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.setBucketTagging(bucketName, tagInfo, extensionHeaders)

Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
tagInfo	TagInfo	Yes	**Explanation:** Bucket tag list. For details, see **Table 7-147**. **Restrictions:** • A bucket can have a maximum of 10 tags. Each tag can have only one pair of key values. • For the same bucket, tag keys must be unique, but tag values can be duplicated or left blank. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

Table 7-147 TagInfo

Parameter	Type	Mandatory (Yes/No)	Description
tagSet	list of **Tag**	Yes if used as a request parameter	**Explanation:** Bucket tag list. For details, see **Table 7-148**. **Restrictions:** • A bucket can have a maximum of 10 tags. Each tag can have only one pair of key values. • For the same bucket, tag keys must be unique, but tag values can be duplicated or left blank. **Default value**: None

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Table 7-148 Tag

Parameter	Type	Mandatory (Yes/No)	Description
key	str	Yes if used as a request parameter	**Explanation:** Tag key **Restrictions:** • The tag key in the same bucket must be unique. • The value of the key can be self-defined or predefined by TMS. • The key must contain 1 to 128 characters. • Tag keys cannot start or end with a space and cannot contain commas (,), asterisks (*), vertical bars (|), slashes (/), less-than signs (<), greater-than signs (>), equal signs (=), backslashes (\), or ASCII control characters (0x00 to 0x1F). Tag keys and values must be URL encoded before being sent to a server. • The value is case-sensitive. **Default value**: None
value	str	Yes if used as a request parameter	**Explanation:** Tag value **Restrictions:** Tag values can be duplicated or left blank. • The value must contain 0 to 255 characters. • Tag values cannot start or end with a space and cannot contain commas (,), asterisks (*), vertical bars (|), slashes (/), less-than signs (<), greater-than signs (>), equal signs (=), backslashes (\), or ASCII control characters (0x00 to 0x1F). Tag keys and values must be URL encoded before being sent to a server. • The value is case-sensitive. **Default value**: None

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Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-149 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example configures tags for bucket **examplebucket**.

```
from obs import ObsClient
from obs import TagInfo
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
```

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```
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    tagInfo = TagInfo()
    # Specify the label content.
    tagInfo.addTag('tag1', 'value1').addTag('tag2', 'value2')
    bucketName="examplebucket"
    # Configure tags for the bucket.
    resp = obsClient.setBucketTagging(bucketName, tagInfo)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Set Bucket Tagging Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Set Bucket Tagging Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Set Bucket Taggingg Failed')
    print(traceback.format_exc())
```

Helpful Links

- **(GitHub) Sample Code for Configuring Bucket Tags**
- **OBS Error Codes**

7.33 Obtaining Bucket Tags (SDK for Python)

Function

If you add tags to a bucket, SDRs generated for the requests sent to this bucket will include these tags, so you can use the tags to classify SDRs for detailed cost analysis. For example, if you have an application that uploads its running data to a bucket, you can tag the bucket with the application name. In this manner, the costs on the application can be analyzed using tags in SDRs.

This API returns the tags of a bucket.

Restrictions

- To obtain the bucket tags, you must be the bucket owner or have the required permission (**obs:bucket:GetBucketTagging** in IAM or **GetBucketTagging** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.getBucketTagging(bucketName, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-150 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

GetResult.body Type	Description
TagInfo	**Explanation:** Bucket tag configuration. For details, see **Table 7-151**.

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Table 7-151 TagInfo

Parameter	Type	Mandatory (Yes/No)	Description
tagSet	list of **Tag**	Yes if used as a request parameter	**Explanation:** Bucket tag list. For details, see **Table 7-152**. **Restrictions:** • A bucket can have a maximum of 10 tags. Each tag can have only one pair of key values. • For the same bucket, tag keys must be unique, but tag values can be duplicated or left blank. **Default value**: None

Table 7-152 Tag

Parameter	Type	Mandatory (Yes/No)	Description
key	str	Yes if used as a request parameter	**Explanation:** Tag key **Restrictions:** • The tag key in the same bucket must be unique. • The value of the key can be self-defined or predefined by TMS. • The key must contain 1 to 128 characters. • Tag keys cannot start or end with a space and cannot contain commas (,), asterisks (*), vertical bars (|), slashes (/), less-than signs (<), greater-than signs (>), equal signs (=), backslashes (\), or ASCII control characters (0x00 to 0x1F). Tag keys and values must be URL encoded before being sent to a server. • The value is case-sensitive. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
value	str	Yes if used as a request parameter	**Explanation:** Tag value **Restrictions:** Tag values can be duplicated or left blank. • The value must contain 0 to 255 characters. • Tag values cannot start or end with a space and cannot contain commas (,), asterisks (*), vertical bars (|), slashes (/), less-than signs (<), greater-than signs (>), equal signs (=), backslashes (\), or ASCII control characters (0x00 to 0x1F). Tag keys and values must be URL encoded before being sent to a server. • The value is case-sensitive. **Default value**: None

Code Examples

This example returns tags of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Obtain bucket tags.
    resp = obsClient.getBucketTagging(bucketName)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Bucket Tagging Succeeded')
        print('requestId:', resp.requestId)
        index = 1
```

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```
        for tag in resp.body.tagSet:
            print('tag [' + str(index) + ']')
            print('key:', tag.key)
            print('value:', tag.value)
            index += 1
    else:
        print('Get Bucket Tagging Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Bucket Tagging Failed')
    print(traceback.format_exc())
```

Helpful Links

- **(GitHub) Sample Code for Obtaining Bucket Tags**
- **OBS Error Codes**

7.34 Deleting Bucket Tags (SDK for Python)

Function

If you add tags to a bucket, SDRs generated for the requests sent to this bucket will include these tags, so you can use the tags to classify SDRs for detailed cost analysis. For example, if you have an application that uploads its running data to a bucket, you can tag the bucket with the application name. In this manner, the costs on the application can be analyzed using tags in SDRs.

This API deletes the tags of a bucket.

Restrictions

- To delete bucket tags, you must be the bucket owner or have the required permission (**obs:bucket:DeleteBucketTagging** in IAM or **DeleteBucketTagging** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.deleteBucketTagging(bucketName, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	String	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 7-153 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example deletes tags of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
```

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```
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Delete bucket tags.
    resp = obsClient.deleteBucketTagging(bucketName)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Delete Bucket Tagging Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Delete Bucket Tagging Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Delete Bucket Tagging Failed')
    print(traceback.format_exc())
```

Helpful Links

- **(GitHub) Sample Code for Deleting Bucket Tags**
- **OBS Error Codes**

7.35 Obtaining the Custom Domain Name of a Bucket (SDK for Python)

Function

This API obtains the custom domain name of a bucket.

Restrictions

- To obtain the custom domain name of a bucket, you must be the bucket owner or have the required permission (**obs:bucket:GetBucketCustomDomainConfiguration** in IAM or **GetBucketCustomDomainConfiguration** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.getBucketCustomDomain(bucketName, extensionHeaders)

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Request Parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name. **Restrictions**: • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Value range**: None **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Restrictions:** None **Value range**: See **User-defined Headers**. **Default value**: None

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Responses

Table 7-154 Responses

Type	Description
GetResult	**Explanation:** SDK common result objects

Table 7-155 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

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Table 7-156 Response result

GetResult.body Type	Description
GetBucketCustomDomainResponse	**Explanation:** Response result of obtaining the custom domain name of a bucket. For details, see **GetBucketCustomDomainResponse**.

Table 7-157 GetBucketCustomDomainResponse

Parameter	Type	Description
domains	list of **Domain**	**Explanation:** The bucket's custom domain name list. **Value range**: For details, see **Domain**.

Table 7-158 Domain

Parameter	Type	Description
name	str	**Explanation:** Name of the certificate bound to the custom domain name. **Value range**: The value is a string of 3 to 63 characters.
domain_name	str	**Explanation:** Custom domain name. **Value range**: The value is a string of 0 to 256 characters.

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Parameter	Type	Description
create_time	str	**Explanation:** Time when a custom domain name was created. **Value range**: • The value must be a UTC time that complies with the ISO 8601 standard. Example: **2018-01-01T00:00:00.000Z** • The value is a string of 24 characters.
certificate_id	str	**Explanation:** ID of the certificate bound to the custom domain name. **Value range**: The value is a string of 16 characters.
certificateType	str	**Explanation:** Type of the certificate bound to the custom domain name. **Value range**: • **server**: server certificate • **server_sm**: server SM certificate • **client**: client CA certificate

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Parameter	Type	Description
expiredTime	str	**Explanation:** If the certificate type is **server** or **server_sm**, the expiration time of the certificate bound to the custom domain name is returned. **Value range**: The value must be a UTC time that complies with the ISO 8601 standard. Example: **2018-01-01T00:00:00.000Z**

Code Examples

This example obtains the custom domain name of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables (recommended) or import it in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them using environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    # Obtain the custom domain name of the bucket.
    resp = obsClient.getBucketCustomDomain(bucketName)

    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Get Bucket CustomDomain Succeeded')
        print('requestId:', resp.requestId)
        for domin in resp.body.domains:
            print('domainName:', domin.domainName)
            print('createTime:', domin.createTime)
    else:
        print('Get Bucket CustomDomain Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
```

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```
    print('Get Bucket CustomDomain Failed')
    print(traceback.format_exc())
```

Helpful Links

- **OBS Error Codes**

8 Parallel File System APIs

8.1 Creating a Parallel File System (SDK for Python)

Function

Parallel file systems (PFSs) are containers for storing objects in OBS. Files uploaded to OBS are stored as objects in PFSs. This API creates a PFS.

When creating a PFS, you can configure parameters such as the storage class, region, and access control as needed.

Restrictions

- To create a PFS, you must have the **obs:bucket:CreateBucket** permission. IAM is recommended for granting permissions. For details, see **IAM Custom Policies**.
- When creating a PFS, if you use the endpoint **obs.myhuaweicloud.eu** for client initialization, you do not have to specify a region (indicated by **location**) where the PFS will be created, because OBS automatically creates the PFS in the EU-Dublin (eu-west-101) region. However, if the endpoint you use is not **obs.myhuaweicloud.eu**, you must specify a region that matches the used endpoint, or status code **400** is returned.

  For example, if the endpoint used for initialization is **obs.eu-west-101.myhuaweicloud.eu**, you must set **Location** to **eu-west-101** when creating a PFS.
- A maximum of 100 PFSs (regardless of regions) can be created for an account. There is no limit on the number and size of objects in a PFS.
- The name of a PFS must be unique in OBS. If you repeatedly create PFSs with the same name in the same region, an HTTP status code **200** will be returned. In other cases, creating a PFS with the same name as an existing PFS will have an HTTP status code **409** returned, indicating that such a PFS already exists.
- The name of a deleted PFS can be reused for another bucket or PFS about 30 minutes after the deletion.

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Method

ObsClient.createBucket(bucketName, header, location, extensionHeaders)

Request Parameters

Table 8-1 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** PFS name. **Restrictions:** • A PFS name must be unique across all accounts and regions. • A PFS name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.) – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. **Default value**: None
header	**CreateBucketHeader**	No	**Explanation:** Header used for configuring basic information (such as the storage class and redundancy policy) about the PFS. **Value range**: See **Table 8-2**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
location	str	Yes if the region where the OBS service resides is not the default region	**Explanation:** Region where the PFS is to be created. **Restrictions:** If the specified endpoint is **obs.myhuaweicloud.eu**, this parameter is not required. If any other endpoints are specified, this parameter is required. **Default value**: If **obs.myhuaweicloud.eu** is used as the endpoint and no region is specified, **eu-west-101** (the EU-Dublin region) is used by default.
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

Table 8-2 CreateBucketHeader

Parameter	Type	Mandatory (Yes/No)	Description
aclControl	str	No	**Explanation:** ACL that can be specified when creating a PFS. **Value range**: For details, see **HeadPermission**. **Default value**: PRIVATE

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Parameter	Type	Mandatory (Yes/No)	Description
storageClass	str	No	**Explanation:** PFS storage class that can be specified during PFS creation. **Value range**: See **Table 8-4**. **Default value**: **STANDARD**
extensionGrants	list of **ExtensionGrant**	No	**Explanation:** Extension permissions that can be specified during PFS creation. **Value range**: See **Table 8-5**. **Default value**: None
availableZone	str	No	**Explanation:** Data redundancy type that can be specified during PFS creation. **Restrictions:** Multi-AZ redundancy is not available for Archive storage. If the region where the PFS is to be created does not support multi-AZ storage, the PFS uses single-AZ storage by default. **Value range**: To configure multi-AZ storage for the PFS, set this parameter to **3az**. To configure single-AZ storage (default value assigned by OBS) for the PFS, you do not need to specify this parameter. **Default value**: If this parameter is left blank, single AZ is specified by default.

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Parameter	Type	Mandatory (Yes/No)	Description
epid	str	No	**Explanation:** Enterprise project ID that can be specified during PFS creation. If you have enabled EPS, you can obtain the project ID from the EPS console. **Restrictions:** The value of **epid** is a UUID. **epid** is not required if you have not enabled EPS yet. Example: **9892d768-2d13-450f-aac7-ed0e44c2585f** **Value range**: See **How Do I Obtain an Enterprise Project ID?** **Default value**: None
isPFS	bool	No	**Explanation:** Whether a PFS is created **Value range**: • **True**: A PFS is created. • **False**: A bucket is created. **Default value**: **False**

Table 8-3 HeadPermission

Constant	Default Value	Description
HeadPermission.PRIVATE	private	Private read/write A bucket or object can only be accessed by its owner.

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Constant	Default Value	Description
HeadPermission.PUBLIC_READ	public-read	Public read and private write If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket. If it is granted on an object, anyone can read the content and metadata of the object.
HeadPermission.PUBLIC_READ_WRITE	public-read-write	Public read/write If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart upload tasks. If it is granted on an object, anyone can read the content and metadata of the object.
HeadPermission.PUBLIC_READ_DELIVERED	public-read-delivered	Public read on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions, and read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_DELIVERED** cannot be applied to objects.
HeadPermission.PUBLIC_READ_WRITE_DELIVERED	public-read-write-delivered	Public read/write on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart uploads. They can also read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_WRITE_DELIVERED** cannot be applied to objects.

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Constant	Default Value	Description
HeadPermission.BUCKET_OWNER_FULL_CONTROL	bucket-owner-full-control	If this permission is granted on an object, only the bucket and object owners have the full control over the object. By default, if you upload an object to a bucket owned by another user, the bucket owner does not have the permissions on your object. After you grant this permission to the bucket owner, the bucket owner can have full control over your object.

Table 8-4 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

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Table 8-5 ExtensionGrant

Parameter	Type	Mandatory (Yes/No)	Description
granteeId	str	No	**Explanation:** Account (domain) ID of the grantee. **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None
permission	str	No	**Explanation:** User-defined permissions for the PFS. **Value range**: You can select one or more permissions from **Table 8-6**. **Default value**: None

Table 8-6 Permission

Constant	Description
READ	Read permission A grantee with this permission for a bucket can obtain the list of objects, multipart uploads, bucket metadata, and object versions in the bucket. A grantee with this permission for an object can obtain the object content and metadata.
WRITE	Write permission A grantee with this permission for a bucket can upload, overwrite, and delete any object or part in the bucket. Such permission for an object is not applicable.
READ_ACP	Permission to read ACL configurations A grantee with this permission can obtain the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently.

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Constant	Description
WRITE_ACP	Permission to modify ACL configurations A grantee with this permission can update the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently. A grantee with this permission can modify the ACL, thus obtaining full access permissions.
FULL_CONTROL	Full control access, including read and write permissions for a bucket and its ACL, or for an object and its ACL. A grantee with this permission for a bucket has **READ**, **WRITE**, **READ_ACP**, and **WRITE_ACP** permissions for the bucket. A grantee with this permission for an object has **READ**, **READ_ACP**, and **WRITE_ACP** permissions for the object.

Responses

Table 8-7 Responses

Type	Description
GetResult	**Explanation:** SDK common results

Table 8-8 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None

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Parameter	Type	Description
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None

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Parameter	Type	Description
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example creates a parallel file system named **examplebucket** and specifies its location, ACL, storage class, and redundancy type.

```
from obs import CreateBucketHeader
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables (recommended) or import it in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them using environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Add the additional headers of the request, specifying a private bucket in the Infrequent Access storage class that supports multi-AZ storage.
    header = CreateBucketHeader(aclControl="PRIVATE", storageClass="STANDARD", availableZone="3az",isPFS=True)
    # Specify the region where the bucket is to be created. The region must be the same as that in the endpoint passed. eu-west-101 is used as an example.
    location = "eu-west-101"
    bucketName = "examplebucket"
    # Create a bucket.
    resp = obsClient.createBucket(bucketName, header, location)
    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Create Bucket Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Create Bucket Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Create Bucket Failed')
    print(traceback.format_exc())
```

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8.2 Listing Objects in a Parallel File System (SDK for Python)

Function

This API lists some or all of the objects in a parallel file system (PFS). You can configure the prefix, number, and start position to list objects that meet specified criteria. Returned objects are listed in alphabetical order by object name.

Restrictions

- A maximum of 1,000 objects can be listed for each API call.
- To list objects in a PFS, you must be the PFS owner or have the required permission (**obs:bucket:ListBucket** in IAM or **ListBucket** in a policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Creating a Custom Bucket Policy**.

Method

ObsClient.listObjects(bucketName, prefix, marker, max_keys, delimiter, extensionHeaders)

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Request Parameters

Table 8-9 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** PFS name. **Restrictions:** ● A PFS name must be unique across all accounts and regions. ● A PFS name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create PFSs with the same name in the same region, no error will be reported and the PFS attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
prefix	str	No	**Explanation:** Name prefix that the objects to be listed must contain. Assume that you have the following objects: **logs/day1**, **logs/day2**, **logs/day3**, and **ExampleObject.jpg**. If you specify **logs/** as the prefix, **logs/day1**, **logs/day2**, and **logs/day3** will be returned. If this parameter is left blank and there are no other filter criteria, all objects in the PFS will be returned. **Value range**: The value can contain 1 to 1,024 characters. **Default value**: None
marker	str	No	**Explanation:** All objects following the specified object marker are returned in alphabetical order by object name. Assume that you have the following objects: **test/a**, **test/b**, **test/c**, and **test/d**. If you specify **test/b** as the marker, **test/c** and **test/d** are returned. **Restrictions:** This parameter is only used for listing objects with a single version. **Value range**: The value can contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
max_keys	int	No	**Explanation:** The maximum number of objects returned in the response in alphabetical order **Value range**: The value ranges from **1** to **1000**. If the specified value is greater than **1000**, only 1,000 objects are returned. **Default value**: 1000

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Parameter	Type	Mandatory (Yes/No)	Description
delimiter	str	No	**Explanation:** This parameter is used to group object names. If a prefix is specified, objects with the same string from the prefix to the first delimiter are grouped into one **CommonPrefix**. If no prefix is specified, objects with the same string from the first character to the first delimiter are grouped into one **CommonPrefix**. Assume that a PFS has objects **abcd**, **abcde**, and **bbcde** in it. If **delimiter** is set to **d** and **prefix** is set to **a**, objects **abcd** and **abcde** are grouped into a **CommonPrefix** with **abcd** as the prefix. If only **delimiter** is set to **d**, objects **abcd** and **abcde** are grouped into a **CommonPrefix** with **abcd** as the prefix, and **bbcde** is grouped separately into another **CommonPrefix** with **bbcd** as the prefix. For a PFS, if this parameter is not specified, all the contents in the current directory are recursively listed by default, and subdirectories are also listed. In big data scenarios, PFSs usually have multiple directory levels and each directory level has a large number of objects. In such case, you are advised to configure **[delimiter=/]** to list only the content in the current directory, without the content in subdirectories, so the listing can be more efficient. **Value range**: The value can contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None
encoding_type	str	No	**Explanation:** Encoding type for some elements in the response. If **delimiter**, **key_marker**, **prefix**, **nextKeyMarker**, and **key** contain control characters that are not supported by the XML 1.0 standard, you can set **encoding_type** to encode **delimiter**, **key_marker**, **prefix** (including the **Prefix** in **commonPrefixes**), **nextKeyMarker**, and **key** in the response. **Value range**: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied.

Responses

Table 8-10 Responses

Type	Description
GetResult	**Explanation:** SDK common results

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Table 8-11 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 8-12 GetResult.body

GetResult.body Type	Description
ListObjectsResponse	**Explanation:** Returned results for the request. For details, see **Table 8-13**.

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Table 8-13 ListObjectsResponse

Parameter	Type	Description
name	str	**Explanation:** PFS name. **Restrictions:** ● A PFS name must be unique across all accounts and regions. ● A PFS name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create PFSs with the same name in the same region, no error will be reported and the PFS attributes comply with those set in the first creation request. **Default value**: None
location	str	**Explanation:** Region where the PFS is located. **Restrictions:** If the specified endpoint is **obs.myhuaweicloud.eu**, this parameter is not required. If any other endpoints are specified, this parameter is required. **Default value**: If **obs.myhuaweicloud.eu** is used as the endpoint and no region is specified, **eu-west-101** (the EU-Dublin region) is used by default.

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Parameter	Type	Description
prefix	str	**Explanation:** Name prefix that the objects to be listed must contain. Assume that you have the following objects: **logs/day1**, **logs/day2**, **logs/day3**, and **ExampleObject.jpg**. If you specify **logs/** as the prefix, **logs/day1**, **logs/day2**, and **logs/day3** will be returned. If this parameter is left blank and there are no other filter criteria, all objects in the PFS will be returned. **Value range**: The value can contain 1 to 1,024 characters. **Default value**: None
marker	str	**Explanation:** All objects following the specified object marker are returned in alphabetical order by object name. Assume that you have the following objects: **test/a**, **test/b**, **test/c**, and **test/d**. If you specify **test/b** as the marker, **test/c** and **test/d** are returned. **Restrictions:** This parameter is only used for listing objects with a single version. **Value range**: The value can contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Description
delimiter	str	**Explanation:** This parameter is used to group object names. If a prefix is specified, objects with the same string from the prefix to the first delimiter are grouped into one **CommonPrefix**. If no prefix is specified, objects with the same string from the first character to the first delimiter are grouped into one **CommonPrefix**. Assume that a PFS has objects **abcd**, **abcde**, and **bbcde** in it. If **delimiter** is set to **d** and **prefix** is set to **a**, objects **abcd** and **abcde** are grouped into a **commonPrefix** with **abcd** as the prefix. If only **delimiter** is set to **d**, objects **abcd** and **abcde** are grouped into a **commonPrefix** with **abcd** as the prefix, and **bbcde** is grouped separately into another **commonPrefix** with **bbcd** as the prefix. **Value range**: The value can contain 1 to 1,024 characters. **Default value**: None
max_keys	int	**Explanation:** The maximum number of objects returned in the response in alphabetical order **Value range**: The value ranges from **1** to **1000**. If the specified value is greater than **1000**, only 1,000 objects are returned. **Default value**: 1000

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Parameter	Type	Description
is_truncated	bool	**Explanation:** Whether all results are returned in the response. **Value range**: • **True** indicates that not all results were returned. • **False** indicates that all results were returned. **Default value**: None
next_marker	str	**Explanation:** Where in the bucket the next listing begins. **Value range**: An object name string **Default value**: None
contents	list of **Content**	**Explanation:** List of objects in the PFS. **Value range**: See **Table 8-14**.
commonPrefixs	list of **CommonPrefix**	**Explanation:** List of object name prefixes grouped according to the **delimiter** parameter (if specified) **Value range**: See **Table 8-16**.

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Parameter	Type	Description
encoding_type	str	**Explanation:** Encoding type for some elements in the response. If **delimiter**, **key_marker**, **prefix**, **nextKeyMarker**, and **key** contain control characters that are not supported by the XML 1.0 standard, you can set **encoding_type** to encode **delimiter**, **key_marker**, **prefix** (including the **Prefix** in **commonPrefixes**), **nextKeyMarker**, and **key** in the response. **Value range**: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied.

Table 8-14 Content

Parameter	Type	Description
key	str	**Explanation:** Object name. An object is uniquely identified by an object name in a PFS. An object name is the complete path of the object without the PFS name. For example, if the access path is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value can contain 1 to 1,024 characters. **Default value**: None
lastModified	str	**Explanation:** Time when the object was last modified. **Restrictions:** The time must be in the ISO8601 format. Example: **2018-01-01T00:00:00.000Z** **Default value**: None

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Parameter	Type	Description
etag	str	**Explanation:** Base64-encoded, 128-bit MD5 value of an object. ETag is the unique identifier of the object contents, used to determine whether the contents of an object are changed. For example, if the ETag value is **A** when an object is uploaded and becomes **B** when the object is downloaded, this indicates the contents of the object were changed. The ETag reflects changes of an object, not of the metadata. Objects created by the upload and copy operations have unique ETags after being encrypted using MD5. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None
size	int	**Explanation:** Object size **Value range**: The value ranges from 0 TB to 48.8 TB, in bytes. **Default value**: None
owner	**Owner**	**Explanation:** Object owner **Value range**: See **Table 8-15**.
storageClass	str	**Explanation:** Object storage class. **Value range**: • If the storage class is Standard, leave this parameter blank. • For details about the available storage classes, see **Table 8-17**. **Default value**: None

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Parameter	Type	Description
isAppendable	bool	**Explanation:** Whether the object is appendable **Value range**: **True**: The object is appendable. **False**: The object is not appendable. **Default value**: None

Table 8-15 Owner

Parameter	Type	Mandatory (Yes/No)	Description
owner_id	str	Yes if used as a request parameter	**Explanation:** Account (domain) ID of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None
owner_name	str	No if used as a request parameter	**Explanation:** Account name of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

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Table 8-16 CommonPrefix

Parameter	Type	Description
prefix	str	**Explanation:** List of object name prefixes grouped according to the **delimiter** parameter (if specified) **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

Table 8-17 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

Code Examples

This example lists objects with **test/** as the prefix in parallel file system **examplebucket** and specifies a maximum of 100 objects to return at a time.

```
from obs import ObsClient
import os
```

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```
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    # Specify an object prefix.
    prefix = 'test/'
    # Specify the maximum number of objects to be listed at a time. 100 is used as an example.
    max_keys = 100
    # Delimiter used to group object names
    delimiter = "/"
    # List objects in the parallel file system.
    resp = obsClient.listObjects(bucketName, prefix, max_keys=max_keys,delimiter=delimiter, encoding_type='url')

    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('List Objects Succeeded')
        print('requestId:', resp.requestId)
        print('name:', resp.body.name)
        print('prefix:', resp.body.prefix)
        print('max_keys:', resp.body.max_keys)
        print('is_truncated:', resp.body.is_truncated)
        index = 1
        for content in resp.body.contents:
            print('object [' + str(index) + ']')
            print('key:', content.key)
            print('lastModified:', content.lastModified)
            print('etag:', content.etag)
            print('size:', content.size)
            print('storageClass:', content.storageClass)
            print('owner_id:', content.owner.owner_id)
            print('owner_name:', content.owner.owner_name)
            index += 1
    else:
        print('List Objects Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('List Objects Failed')
    print(traceback.format_exc())
```

8.3 Renaming a File

Function

This API renames a file in a parallel file system (PFS).

Restrictions

- To rename a file, you must be the PFS owner or have the required permission (**obs:bucket:PutObject** in IAM or **PutObject** in a policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
-

Method

```
ObsClient.renameFile(bucketName, objectKey, newObjectKey, extensionHeaders)
```

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Request Parameters

Table 8-18 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** PFS name. **Restrictions:** ● A PFS name must be unique across all accounts and regions. ● A PFS name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create PFSs with the same name in the same region, no error will be reported and the PFS attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a PFS. An object name is the complete path of the object without the PFS name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
newObjectKey	str	Yes	**Explanation:** New object name An object is uniquely identified by an object name in a PFS. An object name is the complete path of the object without the PFS name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Table 8-19 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 8-20 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example renames a file in a parallel file system.

```
from obs import ObsClient
import os
```

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```
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify the name of the parallel file system.
    bucketName = "examplebucket"
    # Specify the name of the file to be renamed.
    objectKey = 'old_name'
    # Specify a new file name.
    newObjectKey = 'new_name'
    # Rename the file.
    resp = obsClient.renameFile(bucketName, objectKey, newObjectKey)

    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Rename File Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Rename File Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Rename File Failed')
    print(traceback.format_exc())
```

NOTE

If the returned HTTP status code is **404**, you can use the response header to determine whether it is the specified PFS or object that could not be found.

Helpful Links

- Renaming an Object
- (GitHub) Sample Code for Renaming a File
- OBS Error Codes

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9 Object-Related APIs (SDK for Python)

9.1 Object Upload Overview (SDK for Python)

You can use this API to upload an object to a specified bucket. In OBS, objects are basic data units that you can operate. OBS Python SDK provides many APIs for uploading objects using various methods:

- **Text-based upload**: Character strings are used as the data source of an object.
- **Streaming upload**: Readable objects that contain the **read** attribute are used as the data source of an object.
- **File-based upload**: Local files are used as the data source of objects.
- **Multipart upload**: Large files can be uploaded in multiple parts.
- **Append upload**: You can append data to an object.
- **Resumable upload**: It is an encapsulated and enhanced version of the multipart upload used for dealing with possible upload failures of large files when the network connection is unstable or a program crashes.
- **Browser-based upload**: You can upload objects to a specified bucket in HTML form.

SDK supports the upload of objects whose size ranges from 0 KB to 5 GB. For streaming upload, append upload, and file-based upload, data to be uploaded in a batch cannot be larger than 5 GB. If the file is larger than 5 GB, multipart upload (whose part size is smaller than 5 GB) is suitable. Browser-based upload allows files to be uploaded through a browser.

If you grant anonymous users the read permission for an object during the upload, anonymous users can access the object through a URL after the upload succeeds. The object URL is in the format of **https://*bucket name.domain name/directory levels/object name***. If the object resides in the root directory of a bucket, its URL does not contain a directory level.

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9.2 Uploading Objects - Text-Based (SDK for Python)

Function

This API uploads the text using strings as the data source to a specified bucket.

Restrictions

- To upload an object, you must be the bucket owner or have the required permission (**obs:object:PutObject** in IAM or **PutObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- The object size in a single upload ranges from 0 to 5 GB.
- To upload files larger than 5 GB, **multipart uploads** should be used.

Method

```
ObsClient.putContent(bucketName, objectKey, content, metadata, headers, progressCallback, autoClose, extensionHeaders)
```

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Request Parameters

Table 9-1 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
content	str or readable object	No	**Explanation:** Content of the object to be uploaded **Value range**: A string or a readable object **NOTE** If **content** is a readable object that contains the **read** attribute, data is read from the readable object. Otherwise, the object content is a string. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
metadata	dict	No	**Explanation:** Custom metadata of the object to be uploaded. You can add a header starting with **x-obs-meta-** in the request to define metadata. The custom metadata will be returned in the response when you retrieve the object or query the object metadata. **Restrictions:** • The custom metadata cannot exceed 8 KB. To measure the custom metadata, sum the number of bytes in the UTF-8 encoding of each key and value. • The custom metadata keys are case insensitive, but are stored in lowercase in OBS. The key values are case sensitive. • Both custom metadata keys and their values must conform to US-ASCII standards. If non-ASCII or unrecognizable characters are required, they must be encoded and decoded in URL or Base64 on the client, because the server does not perform such operations. **Default value**: None
headers	**PutObjectHeader**	No	**Explanation:** Headers in the request used for configuring the storage class, redundancy policy, and other basic information about the object **Value range**: See **Table 9-2**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
progressCallback	callable	No	**Explanation:** Callback function for obtaining the upload progress **Default value**: None **NOTE** This function contains the following parameters in sequence: number of uploaded bytes, total number of bytes, and used time (in seconds). For details about the sample code, see **Obtaining the Upload Progress (SDK for Python)**. Upload progress callback only supports streaming, file-based, multipart, appendable, and resumable uploads.
autoClose	bool	No	**Explanation:** Whether or not to automatically close data streams after the upload is complete **Value range**: **True**: The data stream is automatically closed. **False**: The data stream is not automatically closed. **Default value**: True
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Table 9-2 PutObjectHeader

Parameter	Type	Mandatory (Yes/No)	Description
md5	str	No	**Explanation:** Base64-encoded MD5 value of the data to be uploaded. It is used for the OBS server to verify data integrity. **Value range**: Base64-encoded 128-bit MD5 value of the request body calculated according to RFC 1864 Example: **n58IG6hfM7vqI4K0vnWpog==** **Default value**: None
acl	str	No	**Explanation:** ACL that can be pre-defined during object creation For details about the ACL, see **ACLs**. **Value range**: For details about the available options, see **HeadPermission**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
location	str	No	**Explanation:** If the bucket is configured with website hosting, the request for obtaining the object can be redirected to another object in the bucket or an external URL. The request is redirected to object **anotherPage.html** in the same bucket: **location:/anotherPage.html** The request is redirected to an external URL **http://www.example.com/**: **location:http://www.example.com/** OBS obtains the specified value from the header and stores it in the object metadata **location**. **Restrictions:** • The value must start with a slash (/), **http://**, or **https://** and cannot exceed 2 KB. • OBS only supports redirection for objects in the root directory of a bucket. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
contentType	str	No	**Explanation:** Multipurpose Internet Mail Extensions (MIME) type of the object to be uploaded. MIME type is a standard way of describing a data type and is used by the browser to decide how to display data. **Value range**: See **What Is Content-Type (MIME)? (Python SDK)** **Default value**: If you do not specify **contentType** when uploading an object, the SDK determines the object type based on the suffix of the specified object name and automatically assigns a value to **contentType**.
contentLength	int	No	**Explanation:** Size of the object to be uploaded **Restrictions:** • The object size in a single upload ranges from 0 to 5 GB. • To upload files larger than 5 GB, **multipart uploads** should be used. **Default value**: If this parameter is not specified, OBS SDK for Python automatically calculates the size of the object.
sseHeader	**SseCHeader** or **SseKmsHeader**	No	**Explanation:** Header for server-side encryption. For details, see **Table 9-5** or **Table 9-6**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
storageClass	str	No	**Explanation:** Storage class of the object to be uploaded **Value range**: See **Table 9-4**. **Default value**: None
successActionRedirect	str	No	**Explanation:** Address (URL) to which a successfully answered request is redirected • If the value is valid and the request is successful, OBS returns status code **303**. **Location** in the returned results contains **SuccessActionRedirect** as well as the bucket name, object name, and object ETag. • If the value is invalid, OBS ignores this parameter. In such case, **Location** in the returned results indicates the object address, and OBS returns a status code based on whether the operation succeeds or fails. **Default value**: None
extensionGrants	list of **ExtensionGrant**	No	**Explanation:** List of the extended permissions for the object to be uploaded **Value range**: See **Table 9-7**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
expires	int	No	**Explanation:** Expiration time of the object (calculated from the latest modification time of the object). Expired objects are automatically deleted. **Restrictions:** This parameter can be configured only when uploading the object. It cannot be modified by calling a metadata modification API. **Value range**: An integer greater than or equal to 0, in days **Default value**: None

Table 9-3 HeadPermission

Constant	Default Value	Description
HeadPermission.PRIVATE	private	Private read/write A bucket or object can only be accessed by its owner.
HeadPermission.PUBLIC_READ	public-read	Public read and private write If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket. If it is granted on an object, anyone can read the content and metadata of the object.

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Constant	Default Value	Description
HeadPermission.PUBLIC_READ_WRITE	public-read-write	Public read/write If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart upload tasks. If it is granted on an object, anyone can read the content and metadata of the object.
HeadPermission.PUBLIC_READ_DELIVERED	public-read-delivered	Public read on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions, and read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_DELIVERED** cannot be applied to objects.
HeadPermission.PUBLIC_READ_WRITE_DELIVERED	public-read-write-delivered	Public read/write on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart uploads. They can also read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_WRITE_DELIVERED** cannot be applied to objects.

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Constant	Default Value	Description
HeadPermission.BUCKET_OWNER_FULL_CONTROL	bucket-owner-full-control	If this permission is granted on an object, only the bucket and object owners have the full control over the object. By default, if you upload an object to a bucket owned by another user, the bucket owner does not have the permissions on your object. After you grant this permission to the bucket owner, the bucket owner can have full control over your object.

Table 9-4 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

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Table 9-5 SseCHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-C used for encrypting objects **Value range**: **AES256** **Default value**: None
key	str	Yes	**Explanation:** Key used in SSE-C encryption. It corresponds to the encryption method. For example, if **encryption** is set to **AES256**, the key is calculated using the AES-256 algorithm. **Value range**: The value must contain 32 characters. **Default value**: None

Table 9-6 SseKmsHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-KMS used for encrypting objects **Value range**: **kms** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
key	str	No	**Explanation:** Master key used in SSE-KMS **Value range**: The following two formats are supported: • *regionID*:*domainID*:**key/***key_id* • *key_id* In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, OBS will create one and use it by default.

Table 9-7 ExtensionGrant

Parameter	Type	Mandatory (Yes/No)	Description
granteeId	str	No	**Explanation:** Account (domain) ID of the grantee **Value range**: See **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
permission	str	No	**Explanation:** Granted **permissions** **Default value**: None

Table 9-8 Permission

Constant	Description
READ	Read permission A grantee with this permission for a bucket can obtain the list of objects, multipart uploads, bucket metadata, and object versions in the bucket. A grantee with this permission for an object can obtain the object content and metadata.
WRITE	Write permission A grantee with this permission for a bucket can upload, overwrite, and delete any object or part in the bucket. Such permission for an object is not applicable.
READ_ACP	Permission to read ACL configurations A grantee with this permission can obtain the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently.
WRITE_ACP	Permission to modify ACL configurations A grantee with this permission can update the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently. A grantee with this permission can modify the ACL, thus obtaining full access permissions.
FULL_CONTROL	Full control access, including read and write permissions for a bucket and its ACL, or for an object and its ACL. A grantee with this permission for a bucket has **READ**, **WRITE**, **READ_ACP**, and **WRITE_ACP** permissions for the bucket. A grantee with this permission for an object has **READ**, **READ_ACP**, and **WRITE_ACP** permissions for the object.

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Responses

Table 9-9 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 9-10 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 9-11 GetResult.body

GetResult.body Type	Description
PutContentResponse	**Explanation:** Response to the request for uploading an object. For details, see **Table 9-12**.

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Table 9-12 PutContentResponse

Parameter	Type	Description
storageClass	str	**Explanation:** Storage class of the object to be uploaded **Value range**: • If the storage class is Standard, leave this parameter blank. • For details about the available storage classes, see **Table 9-4**. **Default value**: None
versionId	str	**Explanation:** Object version ID. If versioning is enabled for the bucket, the object version ID will be returned. **Value range**: The value must contain 32 characters. **Default value**: None
etag	str	**Explanation:** ETag of an object, which is a base64-encoded 128-bit MD5 digest. ETag is the unique identifier of the object content. It can be used to determine whether the object content is changed. For example, if the ETag is **A** when an object is uploaded and is **B** when the object is downloaded, the object content is changed. The ETag reflects changes only to the contents of the object, not its metadata. An uploaded object or copied object has a unique ETag. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None

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Parameter	Type	Description
sseKms	str	**Explanation:** SSE-KMS algorithm **Value range**: **kms** **Default value**: None
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. key_id In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, the system will create one and use it by default.
sseC	str	**Explanation:** SSE-C algorithm **Value range**: Advanced Encryption Standard 256 (AES256) **Default value**: None

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Parameter	Type	Description
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None
objectUrl	str	**Explanation:** Full path to the object **Default value**: None

Code Examples

This example uploads a text.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
# Before running the sample code, ensure that the environment variables AccessKeyID and SecretAccessKey have been configured.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Specify the text to be uploaded.
    content = 'Hello OBS'
    # Upload the text.
    resp = obsClient.putContent(bucketName, objectKey, content)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Put Content Succeeded')
        print('requestId:', resp.requestId)
        print('etag:', resp.body.etag)
```

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```
    else:
        print('Put Content Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Put Content Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Uploading Objects - PUT**.
- **(GitHub) Sample Code for Uploading an Object**
- **OBS Error Codes**
- **FAQ for Object Upload Failure**

9.3 Uploading an Object - Streaming (SDK for Python)

Function

You can upload texts, images, videos, or any other types of files smaller than 5 GB.

Streaming upload uses readable objects that contain the **read** attribute as the data source and uploads data to a specified bucket in network streams or file streams.

Restrictions

- To upload an object, you must be the bucket owner or have the required permission (**obs:object:PutObject** in IAM or **PutObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- The object size in a single upload ranges from 0 to 5 GB.
- To upload files larger than 5 GB, **multipart uploads** should be used.

Method

```
ObsClient.putContent(bucketName, objectKey, content, metadata, headers, progressCallback, autoClose, extensionHeaders)
```

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Request Parameters

Table 9-13 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
content	str or readable object	No	**Explanation:** Content of the object to be uploaded **Value range**: **NOTICE** • Streaming upload requires **CONTENT** to be a readable object that contains the **READ** attribute. • When uploading file streams, you must open files in **RB** or **RB+** mode. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
metadata	dict	No	**Explanation:** Custom metadata of the object to be uploaded. You can add a header starting with **x-obs-meta-** in the request to define metadata. The custom metadata will be returned in the response when you retrieve the object or query the object metadata. **Restrictions:** • The custom metadata cannot exceed 8 KB. To measure the custom metadata, sum the number of bytes in the UTF-8 encoding of each key and value. • The custom metadata keys are case insensitive, but are stored in lowercase in OBS. The key values are case sensitive. • Both custom metadata keys and their values must conform to US-ASCII standards. If non-ASCII or unrecognizable characters are required, they must be encoded and decoded in URL or Base64 on the client, because the server does not perform such operations. **Default value**: None
headers	**PutObjectHeader**	No	**Explanation:** Headers in the request used for configuring the storage class, redundancy policy, and other basic information about the object **Value range**: See **Table 9-14**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
progressCallback	callable	No	**Explanation:** Callback function for obtaining the upload progress **Default value**: None **NOTE** This function contains the following parameters in sequence: number of uploaded bytes, total number of bytes, and used time (in seconds). For details about the sample code, see **Obtaining the Upload Progress (SDK for Python)**. Upload progress callback only supports streaming, file-based, multipart, appendable, and resumable uploads.
autoClose	bool	No	**Explanation:** Whether or not to automatically close data streams after the upload is complete **Value range**: **True**: The data stream is automatically closed. **False**: The data stream is not automatically closed. **Default value**: **True**
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Table 9-14 PutObjectHeader

Parameter	Type	Mandatory (Yes/No)	Description
md5	str	No	**Explanation:** Base64-encoded MD5 value of the data to be uploaded. It is used for the OBS server to verify data integrity. **Value range**: Base64-encoded 128-bit MD5 value of the request body calculated according to RFC 1864 Example: **n58IG6hfM7vqI4K0vnWpog==** **Default value**: None
acl	str	No	**Explanation:** ACL that can be pre-defined during object creation For details about the ACL, see **ACLs**. **Value range**: For details about the available options, see **HeadPermission**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
location	str	No	**Explanation:** If the bucket is configured with website hosting, the request for obtaining the object can be redirected to another object in the bucket or an external URL. The request is redirected to object **anotherPage.html** in the same bucket: **location:/anotherPage.html** The request is redirected to an external URL **http://www.example.com/**: **location:http://www.example.com/** OBS obtains the specified value from the header and stores it in the object metadata **location**. **Restrictions:** • The value must start with a slash (/), **http://**, or **https://** and cannot exceed 2 KB. • OBS only supports redirection for objects in the root directory of a bucket. **Default value**: None
contentType	str	No	**Explanation:** MIME type of the file to be uploaded. MIME type is a standard way of describing a data type and is used by the browser to decide how to display data. **Value range**: See **What Is Content-Type (MIME)? (Python SDK)** **Default value**: If you do not specify **contentType** when uploading an object, the SDK determines the object type based on the suffix of the specified object name and automatically assigns a value to **contentType**.

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Parameter	Type	Mandatory (Yes/No)	Description
contentLength	int	No	**Explanation:** Size of the object to be uploaded **Restrictions:** • The object size in a single upload ranges from 0 to 5 GB. • To upload files larger than 5 GB, **multipart uploads** should be used. **Default value**: If this parameter is not specified, OBS SDK for Python automatically calculates the size of the object.
sseHeader	**SseCHeader** or **SseKmsHeader**	No	**Explanation:** Header for server-side encryption. For details, see **Table 9-17** or **Table 9-18**. **Default value**: None
storageClass	str	No	**Explanation:** Storage class of the object **Value range**: See **Table 9-16**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
successActionRedirect	str	No	**Explanation:** Address (URL) to which a successfully answered request is redirected • If the value is valid and the request is successful, OBS returns status code **303**. **Location** in the returned results contains **SuccessActionRedirect** as well as the bucket name, object name, and object ETag. • If the value is invalid, OBS ignores this parameter. In such case, **Location** in the returned results indicates the object address, and OBS returns a status code based on whether the operation succeeds or fails. **Default value**: None
extensionGrants	list of **ExtensionGrant**	No	**Explanation:** List of the extended permissions for the object to be uploaded **Value range**: See **Table 9-19**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
expires	int	No	**Explanation:** Expiration time of the object (calculated from the latest modification time of the object). Expired objects are automatically deleted. **Restrictions:** This parameter can be configured only when uploading the object. It cannot be modified by calling a metadata modification API. **Value range**: An integer greater than or equal to 0, in days **Default value**: None

Table 9-15 HeadPermission

Constant	Default Value	Description
HeadPermission.PRIVATE	private	Private read/write A bucket or object can only be accessed by its owner.
HeadPermission.PUBLIC_READ	public-read	Public read and private write If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket. If it is granted on an object, anyone can read the content and metadata of the object.

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Constant	Default Value	Description
HeadPermission.PUBLIC_READ_WRITE	public-read-write	Public read/write If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart upload tasks. If it is granted on an object, anyone can read the content and metadata of the object.
HeadPermission.PUBLIC_READ_DELIVERED	public-read-delivered	Public read on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions, and read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_DELIVERED** cannot be applied to objects.
HeadPermission.PUBLIC_READ_WRITE_DELIVERED	public-read-write-delivered	Public read/write on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart uploads. They can also read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_WRITE_DELIVERED** cannot be applied to objects.

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Constant	Default Value	Description
HeadPermission.BUCKET_OWNER_FULL_CONTROL	bucket-owner-full-control	If this permission is granted on an object, only the bucket and object owners have the full control over the object. By default, if you upload an object to a bucket owned by another user, the bucket owner does not have the permissions on your object. After you grant this permission to the bucket owner, the bucket owner can have full control over your object.

Table 9-16 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

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Table 9-17 SseCHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-C used for encrypting objects **Value range**: **AES256** **Default value**: None
key	str	Yes	**Explanation:** Key used in SSE-C encryption. It corresponds to the encryption method. For example, if **encryption** is set to **AES256**, the key is calculated using the AES-256 algorithm. **Value range**: The value must contain 32 characters. **Default value**: None

Table 9-18 SseKmsHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-KMS used for encrypting objects **Value range**: **kms** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
key	str	No	**Explanation:** Master key used in SSE-KMS **Value range**: The following two formats are supported: • *regionID*:*domainID*:**key/***key_id* • *key_id* In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, OBS will create one and use it by default.

Table 9-19 ExtensionGrant

Parameter	Type	Mandatory (Yes/No)	Description
granteeId	str	No	**Explanation:** Account (domain) ID of the grantee **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
permission	str	No	**Explanation:** Granted **permissions** **Default value**: None

Table 9-20 Permission

Constant	Description
READ	Read permission A grantee with this permission for a bucket can obtain the list of objects, multipart uploads, bucket metadata, and object versions in the bucket. A grantee with this permission for an object can obtain the object content and metadata.
WRITE	Write permission A grantee with this permission for a bucket can upload, overwrite, and delete any object or part in the bucket. Such permission for an object is not applicable.
READ_ACP	Permission to read ACL configurations A grantee with this permission can obtain the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently.
WRITE_ACP	Permission to modify ACL configurations A grantee with this permission can update the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently. A grantee with this permission can modify the ACL, thus obtaining full access permissions.
FULL_CONTROL	Full control access, including read and write permissions for a bucket and its ACL, or for an object and its ACL. A grantee with this permission for a bucket has **READ**, **WRITE**, **READ_ACP**, and **WRITE_ACP** permissions for the bucket. A grantee with this permission for an object has **READ**, **READ_ACP**, and **WRITE_ACP** permissions for the object.

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Responses

Table 9-21 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 9-22 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 9-23 GetResult.body

GetResult.body Type	Description
PutContentResponse	**Explanation:** Response to the request for uploading an object. For details, see **Table 9-12**.

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Table 9-24 PutContentResponse

Parameter	Type	Description
storageClass	str	**Explanation:** Storage class of the object **Value range**: • If the storage class is Standard, leave this parameter blank. • For details about the available storage classes, see **Table 9-16**. **Default value**: None
versionId	str	**Explanation:** Object version ID. If versioning is enabled for the bucket, the object version ID will be returned. **Value range**: The value must contain 32 characters. **Default value**: None
etag	str	**Explanation:** ETag of an object, which is a base64-encoded 128-bit MD5 digest. ETag is the unique identifier of the object content. It can be used to determine whether the object content is changed. For example, if the ETag is **A** when an object is uploaded and is **B** when the object is downloaded, the object content is changed. The ETag reflects changes only to the contents of the object, not its metadata. An uploaded object or copied object has a unique ETag. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None

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Parameter	Type	Description
sseKms	str	**Explanation:** SSE-KMS algorithm **Value range**: **kms** **Default value**: None
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. key_id In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, the system will create one and use it by default.
sseC	str	**Explanation:** SSE-C algorithm **Value range**: AES256 **Default value**: None

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Parameter	Type	Description
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None
objectUrl	str	**Explanation:** Full path to the object **Default value**: None

Code Examples

This example uploads a network stream.

```
from obs import ObsClient
import os
import traceback
import sys
if sys.version_info.major == 2 or not sys.version > '3':
    import httplib
else:
    import http.client as httplib

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
# Specify a network stream.
    conn = httplib.HTTPConnection('www.a.com', 80)
// Obtain the network stream.
    conn.request('GET', '/')
    # Read the network stream.
    content = conn.getresponse()
    bucketName = "examplebucket"
    objectKey = "objectname"
```

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```
    # Upload the network stream.
    resp = obsClient.putContent(bucketName, objectKey, content)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Put Content Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Put Content Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Put Content Failed')
    print(traceback.format_exc())
```

This example uploads a file stream.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Read a file stream.
    content = open('localfile', 'rb')
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Upload the file stream.
    resp = obsClient.putContent(bucketName, objectKey, content)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Put Content Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Put Content Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Put Content Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Uploading Objects - PUT**.
- **(GitHub) Sample Code for Uploading an Object**
- **OBS Error Codes**
- **FAQ for Object Upload Failure**

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9.4 Uploading an Object - File-Based (SDK for Python)

Function

This API uploads local files to OBS over the Internet. These files can be texts, images, videos, or any other type of files.

NOTE

- OBS does not involve folders like in a file system. All elements stored in OBS buckets are objects. To create a folder in OBS is essentially to create an object whose size is 0 and whose name ends with a slash (/). You can perform download, delete, or other operations on such objects as you do on ordinary objects.
- If versioning is enabled, when uploading an object, OBS automatically allocates a unique version ID for the object. Objects with the same name are stored in OBS as objects with different version IDs. If versioning is not enabled, when uploading an object to a folder where there is already an object with the same name, the new object will overwrite the existing one.
- You can pass user-defined headers in **extensionHeaders** in a dictionary. For details, see **User-defined Headers (SDK for Python)**.

Restrictions

- To upload an object, you must be the bucket owner or have the required permission (**obs:object:PutObject** in IAM or **PutObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- The object size in a single upload ranges from 0 to 5 GB.
- To upload files larger than 5 GB, **multipart uploads** should be used.

Method

ObsClient.putFile(bucketName, objectKey, file_path, metadata, headers, progressCallback, extensionHeaders)

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Request Parameters

Table 9-25 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
file_path	str	Yes	**Explanation:** Full path of the file or folder to be uploaded, for example, **aa/bb.txt** or **aa/**. **Default value**: None **NOTE** If **file_path** is a folder, **contentLength**, **md5**, and **contentType** in headers cannot take effect.

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Parameter	Type	Mandatory (Yes/No)	Description
metadata	dict	No	**Explanation:** Custom metadata of the object to be uploaded. You can add a header starting with **x-obs-meta-** in the request to define metadata. The custom metadata will be returned in the response when you retrieve the object or query the object metadata. **Restrictions:** • The custom metadata cannot exceed 8 KB. To measure the custom metadata, sum the number of bytes in the UTF-8 encoding of each key and value. • The custom metadata keys are case insensitive, but are stored in lowercase in OBS. The key values are case sensitive. • Both custom metadata keys and their values must conform to US-ASCII standards. If non-ASCII or unrecognizable characters are required, they must be encoded and decoded in URL or Base64 on the client, because the server does not perform such operations. **Default value**: None
headers	**PutObjectHeader**	No	**Explanation:** Headers in the request used for configuring the storage class, redundancy policy, and other basic information about the object **Value range**: See **Table 9-26**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
progressCallback	callable	No	**Explanation:** Callback function for obtaining the upload progress **Restrictions:** The progress of a folder upload cannot be obtained. **Default value**: None **NOTE** This function contains the following parameters in sequence: number of uploaded bytes, total number of bytes, and used time (in seconds). For details about the sample code, see **Obtaining the Upload Progress (SDK for Python)**. Upload progress callback only supports streaming, file-based, multipart, appendable, and resumable uploads.
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Table 9-26 PutObjectHeader

Parameter	Type	Mandatory (Yes/No)	Description
md5	str	No	**Explanation:** Base64-encoded MD5 value of the data to be uploaded. It is used for the OBS server to verify data integrity. **Value range**: Base64-encoded 128-bit MD5 value of the request body calculated according to RFC 1864 Example: **n58IG6hfM7vqI4K0vnWpog==** **Default value**: None
acl	str	No	**Explanation:** ACL that can be pre-defined during object creation For details about the ACL, see **ACLs**. **Value range**: For details about the available options, see **HeadPermission**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
location	str	No	**Explanation:** If the bucket is configured with website hosting, the request for obtaining the object can be redirected to another object in the bucket or an external URL. The request is redirected to object **anotherPage.html** in the same bucket: **location:/anotherPage.html** The request is redirected to an external URL **http://www.example.com/**: **location:http://www.example.com/** OBS obtains the specified value from the header and stores it in the object metadata **location**. **Restrictions:** • The value must start with a slash (/), **http://**, or **https://** and cannot exceed 2 KB. • OBS only supports redirection for objects in the root directory of a bucket. **Default value**: None
contentType	str	No	**Explanation:** MIME type of the file to be uploaded. MIME type is a standard way of describing a data type and is used by the browser to decide how to display data. **Value range**: See **What Is Content-Type (MIME)? (Python SDK)** **Default value**: If you do not specify **contentType** when uploading an object, the SDK determines the object type based on the suffix of the specified object name and automatically assigns a value to **contentType**.

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Parameter	Type	Mandatory (Yes/No)	Description
contentLength	int	No	**Explanation:** Size of the object to be uploaded **Restrictions:** • The object size in a single upload ranges from 0 to 5 GB. • To upload files larger than 5 GB, **multipart uploads** should be used. **Default value**: If this parameter is not specified, OBS SDK for Python automatically calculates the size of the object.
sseHeader	**SseCHeader** or **SseKmsHeader**	No	**Explanation:** Server-side encryption header **Default value**: None
storageClass	str	No	**Explanation:** Storage class of the object **Value range**: See **Table 9-28**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
successActionRedirect	str	No	**Explanation:** Address (URL) to which a successfully answered request is redirected • If the value is valid and the request is successful, OBS returns status code **303**. **Location** in the returned results contains **SuccessActionRedirect** as well as the bucket name, object name, and object ETag. • If the value is invalid, OBS ignores this parameter. In such case, **Location** in the returned results indicates the object address, and OBS returns a status code based on whether the operation succeeds or fails. **Default value**: None
extensionGrants	list of **ExtensionGrant**	No	**Explanation:** List of the extended permissions for the object to be uploaded **Value range**: See **Table 9-31**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
expires	int	No	**Explanation:** Expiration time of the object (calculated from the latest modification time of the object). Expired objects are automatically deleted. **Restrictions:** This parameter can be configured only when uploading the object. It cannot be modified by calling a metadata modification API. **Value range**: An integer greater than or equal to 0, in days **Default value**: None

Table 9-27 HeadPermission

Constant	Default Value	Description
HeadPermission.PRIVATE	private	Private read/write A bucket or object can only be accessed by its owner.
HeadPermission.PUBLIC_READ	public-read	Public read and private write If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket. If it is granted on an object, anyone can read the content and metadata of the object.

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Constant	Default Value	Description
HeadPermission.PUBLIC_READ_WRITE	public-read-write	Public read/write If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart upload tasks. If it is granted on an object, anyone can read the content and metadata of the object.
HeadPermission.PUBLIC_READ_DELIVERED	public-read-delivered	Public read on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions, and read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_DELIVERED** cannot be applied to objects.
HeadPermission.PUBLIC_READ_WRITE_DELIVERED	public-read-write-delivered	Public read/write on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart uploads. They can also read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_WRITE_DELIVERED** cannot be applied to objects.

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Constant	Default Value	Description
HeadPermission.BUCKET_OWNER_FULL_CONTROL	bucket-owner-full-control	If this permission is granted on an object, only the bucket and object owners have the full control over the object. By default, if you upload an object to a bucket owned by another user, the bucket owner does not have the permissions on your object. After you grant this permission to the bucket owner, the bucket owner can have full control over your object.

Table 9-28 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

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Table 9-29 SseCHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-C used for encrypting objects **Value range**: **AES256** **Default value**: None
key	str	Yes	**Explanation:** Key used in SSE-C encryption. It corresponds to the encryption method. For example, if **encryption** is set to **AES256**, the key is calculated using the AES-256 algorithm. **Value range**: The value must contain 32 characters. **Default value**: None

Table 9-30 SseKmsHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-KMS used for encrypting objects **Value range**: **kms** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
key	str	No	**Explanation:** Master key used in SSE-KMS **Value range**: The following two formats are supported: • *regionID*:*domainID*:**key/***key_id* • *key_id* In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, OBS will create one and use it by default.

Table 9-31 ExtensionGrant

Parameter	Type	Mandatory (Yes/No)	Description
granteeId	str	No	**Explanation:** Account (domain) ID of the grantee **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
permission	str	No	**Explanation:** Granted **permissions** **Default value**: None

Table 9-32 Permission

Constant	Description
READ	Read permission A grantee with this permission for a bucket can obtain the list of objects, multipart uploads, bucket metadata, and object versions in the bucket. A grantee with this permission for an object can obtain the object content and metadata.
WRITE	Write permission A grantee with this permission for a bucket can upload, overwrite, and delete any object or part in the bucket. Such permission for an object is not applicable.
READ_ACP	Permission to read ACL configurations A grantee with this permission can obtain the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently.
WRITE_ACP	Permission to modify ACL configurations A grantee with this permission can update the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently. A grantee with this permission can modify the ACL, thus obtaining full access permissions.
FULL_CONTROL	Full control access, including read and write permissions for a bucket and its ACL, or for an object and its ACL. A grantee with this permission for a bucket has **READ**, **WRITE**, **READ_ACP**, and **WRITE_ACP** permissions for the bucket. A grantee with this permission for an object has **READ**, **READ_ACP**, and **WRITE_ACP** permissions for the object.

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Responses

Table 9-33 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 9-34 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

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Table 9-35 GetResult.body

GetResult.body Type	Description
PutContentResponse	**Explanation:** Response to the request for uploading an object. For details, see **Table 9-36**. **Default value**: None

NOTE

If **file_path** is a folder, the returned result is a **GetResult** list.

Table 9-36 PutContentResponse

Parameter	Type	Description
storageClass	str	**Explanation:** Storage class of the object **Value range**: • If the storage class is Standard, leave this parameter blank. • For details about the available storage classes, see **Table 9-28**. **Default value**: None
versionId	str	**Explanation:** Object version ID. If versioning is enabled for the bucket, the object version ID will be returned. **Value range**: The value must contain 32 characters. **Default value**: None

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Parameter	Type	Description
etag	str	**Explanation:** ETag of an object, which is a base64-encoded 128-bit MD5 digest. ETag is the unique identifier of the object content. It can be used to determine whether the object content is changed. For example, if the ETag is **A** when an object is uploaded and is **B** when the object is downloaded, the object content is changed. The ETag reflects changes only to the contents of the object, not its metadata. An uploaded object or copied object has a unique ETag. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None
sseKms	str	**Explanation:** SSE-KMS algorithm **Value range**: **kms** **Default value**: None

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Parameter	Type	Description
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. key_id In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, the system will create one and use it by default.
sseC	str	**Explanation:** SSE-C algorithm **Value range**: AES256 **Default value**: None
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None

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Parameter	Type	Description
objectUrl	str	**Explanation:** Full path to the object **Default value**: None

Code Example 1: Uploading a Single File

This example uploads a single file.

```
from obs import ObsClient
from obs import PutObjectHeader
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
# Before running the sample code, ensure that the environment variables AccessKeyID and SecretAccessKey have been configured.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify the additional headers of the request for uploading an object.
    headers = PutObjectHeader()
    # (Optional) Specify the MIME type of the object.
    headers.contentType = 'text/plain'
    bucketName = "examplebucket"
    # Specify an object name (the name displayed after the file is uploaded to the bucket).
    objectKey = "objectname"
    # Specify the full path of the file to be uploaded, for example, aa/bb.txt.
    file_path = 'localfile'
    # Specify the custom metadata of the object.
    metadata = {'meta1': 'value1', 'meta2': 'value2'}
    # Perform the file-based upload.
    resp = obsClient.putFile(bucketName, objectKey, file_path, metadata, headers)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Put File Succeeded')
        print('requestId:', resp.requestId)
        print('etag:', resp.body.etag)
        print('versionId:', resp.body.versionId)
        print('storageClass:', resp.body.storageClass)
    else:
        print('Put File Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
```

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```
    print('Put File Failed')
    print(traceback.format_exc())
```

Code Example 2: Uploading a Folder

This example uploads all files in a folder. The **putFile** method does not support concurrent uploads. If you need to upload all files in a folder concurrently for better performance, see Code Example 3.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
# Before running the sample code, ensure that the environment variables AccessKeyID and SecretAccessKey have been configured.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)

def out_put_res(resp, objectKey=None):
    if isinstance(resp, list):
        for res in resp:
            out_put_res(res)
    elif isinstance(resp, tuple) and isinstance(resp[1], list):
        out_put_res(resp[1])
    elif isinstance(resp, tuple):
        if resp[1].status < 300:
            print(f'Put File Succeeded, objectkey: {resp[0]}')
        else:
            print(f'Put File Failed, objectkey: {resp[0]}')
            print('requestId:', resp[1].requestId)
            print('errorCode:', resp[1].errorCode)
            print('errorMessage:', resp[1].errorMessage)
    else:
        if resp.status < 300:
            print(f'Put File Succeeded, objectkey: {objectKey}')
        else:
            print(f'Put File Failed, objectkey: {objectKey}')
            print('requestId:', resp.requestId)
            print('errorCode:', resp.errorCode)
            print('errorMessage:', resp.errorMessage)
try:
    bucketName = "examplebucket"
    # Specify a name for the uploaded folder. All files in the local folder are uploaded to this folder. Its name cannot end with a slash (/).
    objectKey = "folder"
    # Specify the full path of the folder to be uploaded, for example, aa/.
    folder_path = 'localfolder/'
    # Upload the folder.
    resp = obsClient.putFile(bucketName, objectKey, folder_path)
    # resp is a list of upload results of each file in the folder.
    out_put_res(resp, objectKey)
except:
    print('Put File Failed')
    print(traceback.format_exc())
```

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Code Example 3: Uploading the Files in a Folder Concurrently

This example uploads all files in a folder concurrently.

```
from obs import ObsClient
from concurrent.futures import ThreadPoolExecutor, as_completed
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
# Before running the sample code, ensure that the environment variables AccessKeyID and SecretAccessKey have been configured.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
folder_path = 'localfolder/'
bucketName = 'examplebucket'
# Specify a name for the uploaded folder. All files in the local folder are uploaded to this folder. Its name must end with a slash (/). If you want to upload files to the root directory, enter an empty string for the prefix, that is, prefix = ''.
prefix = 'testobs/'
ThreadNum = 20
g = os.walk(folder_path)
# Create a thread pool for upload.
pool = ThreadPoolExecutor(ThreadNum)
all_task = []
for path, dir_list, file_list in g:
    for file_name in file_list:
        srcKey = os.path.join(path, file_name)
        obsObjectKey = prefix + srcKey.split(folder_path)[1].replace('\\', '/')
        exists = False
        try:
            # (Optional) Check whether the file already exists on OBS based on the object name.
            # resp = obsClient.headObject(bucketName, obsObjectKey)
            # if resp.status < 300:
            #     exists = True
            # elif resp.status == 404:
            #     exists = False
            # else:
            #     print('Error happened, reupload it.')
            if not exists:
                print("File %s not exists in obs, upload it", srcKey)
                all_task.append(pool.submit(obsClient.putFile, bucketName, obsObjectKey, srcKey))
                # You are advised to use obsClient.uploadFile to upload large files. For details about the parameters, see the section about the API for resumable upload.
                # partSize = 9 * 1024 * 1024
                # taskNum = 10
                # enableCheckpoint = True
                # all_task.append(pool.submit(obsClient.uploadFile, bucketName, obsObjectKey, srcKey, partSize, taskNum, enableCheckpoint))
        except:
            print(traceback.format_exc())
for future in as_completed(all_task):
    put_resp = future.result()
    if put_resp.status < 300:
        print(f'Put File Succeeded, objectUrl: {put_resp.body.objectUrl}')
    else:
```

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```
    print('Put File Failed')
    print('requestId:', put_resp.requestId)
    print('errorCode:', put_resp.errorCode)
    print('errorMessage:', put_resp.errorMessage)
```

Helpful Links

- **Uploading Objects - POST**
- **(GitHub) Sample Code for Uploading an Object**
- **OBS Error Codes**
- **FAQ for Object Upload Failure**

9.5 Uploading an Object - Append (SDK for Python)

Function

This API uploads a file or folder to an existing OBS bucket. These files can be texts, images, videos, or any other type of files.

The **AppendObject** operation adds data to the end of an object in a specified bucket. If there is no object with the same key values in the bucket, a new object is created.

Restrictions

- To upload an object, you must be the bucket owner or have the required permission (**obs:object:PutObject** in IAM or **PutObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- Uploaded objects are stored in buckets. To upload an object to a bucket, you must have the write permission for the bucket. The name of each object in a bucket must be unique.
- The latest modification time of the object is updated each time an upload is appended.
- If you use SSE-C encryption, the encryption header you configure, such as **x-obs-server-side-encryption**, must be carried in each append upload.
- If you use SSE-KMS encryption, the encryption header you configure, such as **x-obs-server-side-encryption**, only needs to be carried when the object is uploaded for the first time and no object with the same name exists in the bucket.
- The size of each append upload cannot exceed 5 GB.
- The maximum number of append writes for each appendable object is 10,000.
- If the storage class is COLD (Archive), this API cannot be called.
- If cross-region replication is configured for a bucket, this API cannot be called.

Method

```
ObsClient.appendObject(bucketName, objectKey, content, metadata, headers, progressCallback, autoClose, extensionHeaders)
```

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Request Parameters

Table 9-37 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
content	**AppendObjectContent**	Yes	**Explanation:** Content to be appended **Value range**: See **Table 9-38**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
metadata	dict	No	**Explanation:** Custom metadata to be appended. You can add a header starting with **x-obs-meta-** in the request to define metadata. The custom metadata will be returned in the response when you retrieve the object or query the object metadata. **Restrictions:** ● This parameter is valid only for the first append upload. ● The custom metadata cannot exceed 8 KB. To measure the custom metadata, sum the number of bytes in the UTF-8 encoding of each key and value. ● The custom metadata keys are case insensitive, but are stored in lowercase in OBS. The key values are case sensitive. ● Both custom metadata keys and their values must conform to US-ASCII standards. If non-ASCII or unrecognizable characters are required, they must be encoded and decoded in URL or Base64 on the client, because the server does not perform such operations. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
headers	AppendObjectHeader	No	**Explanation:** Headers in the request used for configuring the storage class, redundancy policy, and other basic information about the object **Restrictions:** This parameter is valid only for the first append upload. **Value range**: See Table 9-39. **Default value**: None
progressCallback	callable	No	**Explanation:** Callback function for obtaining the upload progress **Default value**: None **NOTE** This function contains the following parameters in sequence: number of uploaded bytes, total number of bytes, and used time (in seconds). For details about the sample code, see Obtaining the Upload Progress (SDK for Python).
autoClose	bool	No	**Explanation:** Whether or not to automatically close data streams after the upload is complete **Value range**: **True**: The data stream is automatically closed. **False**: The data stream is not automatically closed. **Default value**: True

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Parameter	Type	Mandatory (Yes/No)	Description
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

Table 9-38 AppendObjectContent

Parameter	Type	Mandatory (Yes/No)	Description
content	str or readable object	No	**Explanation:** Content to be appended **Value range**: • A character string of object content • Readable object • Path of the file to be uploaded (**isFile** must be set to **True**.) **NOTE** If **content** is a readable object that contains the **read** attribute, data can be read from **content**. Otherwise, the object content is a character string. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
position	int or str	Yes	**Explanation:** Position where the object data is appended **Restrictions:** For an object to be appended, the value of **position** must be set to **0** when the object is uploaded for the first time. For the second append upload, the value of **position** should be set to the value of **nextPosition** returned in the response when the first upload is successful. **Value range**: An integer greater than or equal to 0, in bytes **Default value**: 0
offset	int or str	No	**Explanation:** Offset, in bytes. This parameter is required if the content for an append upload is a local file. **Value range**: An integer greater than or equal to 0, in bytes **Default value**: **0**
isFile	bool	No	**Explanation:** Whether **content** indicates the file path. **Value range**: **True**: **content** indicates the file path. **False**: **content** does not indicate the file path. **Default value**: False

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Table 9-39 AppendObjectHeader

Parameter	Type	Mandatory (Yes/No)	Description
md5	str	No	**Explanation:** Base64-encoded MD5 value of the content to be appended. It is used for the OBS server to verify data integrity. **Value range**: Base64-encoded 128-bit MD5 value of the request body calculated according to RFC 1864 Example: **n58IG6hfM7vqI4K0vnWpog==** **Default value**: None
acl	str	No	**Explanation:** Pre-defined ACL, which can be specified in the append upload request. For details about the ACL, see **ACLs**. **Restrictions:** This parameter can only be configured in the first request for append upload. The configurations specified in the first request will be used in subsequent requests by default. **Value range**: For details about the available options, see **HeadPermission**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
location	str	No	**Explanation:** If the bucket is configured with website hosting, the request for obtaining the object can be redirected to another object in the bucket or an external URL. The request is redirected to object **anotherPage.html** in the same bucket: **location:/anotherPage.html** The request is redirected to an external URL **http://www.example.com/**: **location:http://www.example.com/** OBS obtains the specified value from the header and stores it in the object metadata **location**. **Restrictions:** ● This parameter can only be configured in the first request for append upload. The configurations specified in the first request will be used in subsequent requests by default. ● The value must start with a slash (/), **http://**, or **https://** and cannot exceed 2 KB. ● OBS only supports redirection for objects in the root directory of a bucket. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
contentType	str	No	**Explanation:** MIME type of the object specified in the first append upload MIME type is a standard way of describing a data type and is used by the browser to decide how to display data. **Value range**: See **What Is Content-Type (MIME)? (Python SDK)** **Restrictions:** This parameter can only be configured in the first request for append upload. The configurations specified in the first request will be used in subsequent requests by default. **Default value**: If you do not specify **contentType** when uploading an object, the SDK determines the object type based on the suffix of the specified object name and automatically assigns a value to **contentType**.
contentLength	int	No	**Explanation:** Length of the content to be appended **Restrictions:** • The object size in a single upload ranges from 0 to 5 GB. • To upload files larger than 5 GB, **multipart uploads** should be used. **Default value**: If this parameter is not specified, OBS SDK for Python automatically calculates the size of the object.

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Parameter	Type	Mandatory (Yes/No)	Description
sseHeader	**SseCHeader** or **SseKmsHeader**	No	**Explanation:** Server-side encryption header **Restrictions:** This parameter can only be configured in the first request for append upload. The configurations specified in the first request will be used in subsequent requests by default. **Default value**: None
storageClass	str	No	**Explanation:** Storage class of the object that can be specified in the append upload request **Restrictions:** This parameter can only be configured in the first request for append upload. The configurations specified in the first request will be used in subsequent requests by default. **Value range**: • If the storage class is Standard, leave this parameter blank. • For details about the available storage classes, see **Table 9-41**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
successActionRedirect	str	No	**Explanation:** Address (URL) to which a successfully answered request is redirected • If the value is valid and the request is successful, OBS returns status code **303**. **Location** in the returned results contains **SuccessActionRedirect** as well as the bucket name, object name, and object ETag. • If the value is invalid, OBS ignores this parameter. In such case, **Location** in the returned results indicates the object address, and OBS returns a status code based on whether the operation succeeds or fails. **Default value**: None
extensionGrants	list of **ExtensionGrant**	No	**Explanation:** List of extension permissions that can be specified in the append upload request **Restrictions:** This parameter can only be configured in the first request for append upload. The configurations specified in the first request will be used in subsequent requests by default. **Value range**: See **Table 9-44**. **Default value**: The value specified in the first append upload request

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Parameter	Type	Mandatory (Yes/No)	Description
expires	int	No	**Explanation:** Lifecycle (starting from the last modification time of the object) that can be specified in the append upload request. Once the object expires, it is automatically deleted. **Restrictions:** • This parameter can only be configured in the first request for append upload. The configurations specified in the first request will be used in subsequent requests by default. • This parameter can be configured only when uploading the object. It cannot be modified by calling a metadata modification API. **Value range**: An integer greater than or equal to 0, in days **Default value**: None

Table 9-40 HeadPermission

Constant	Default Value	Description
HeadPermission.PRIVATE	private	Private read/write A bucket or object can only be accessed by its owner.
HeadPermission.PUBLIC_READ	public-read	Public read and private write If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket. If it is granted on an object, anyone can read the content and metadata of the object.

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Constant	Default Value	Description
HeadPermission.PUBLIC_READ_WRITE	public-read-write	Public read/write If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart upload tasks. If it is granted on an object, anyone can read the content and metadata of the object.
HeadPermission.PUBLIC_READ_DELIVERED	public-read-delivered	Public read on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions, and read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_DELIVERED** cannot be applied to objects.
HeadPermission.PUBLIC_READ_WRITE_DELIVERED	public-read-write-delivered	Public read/write on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart uploads. They can also read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_WRITE_DELIVERED** cannot be applied to objects.

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Constant	Default Value	Description
HeadPermission.BUCKET_OWNER_FULL_CONTROL	bucket-owner-full-control	If this permission is granted on an object, only the bucket and object owners have the full control over the object. By default, if you upload an object to a bucket owned by another user, the bucket owner does not have the permissions on your object. After you grant this permission to the bucket owner, the bucket owner can have full control over your object.

Table 9-41 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

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Table 9-42 SseCHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-C used for encrypting objects **Value range**: **AES256** **Default value**: None
key	str	Yes	**Explanation:** Key used in SSE-C encryption. It corresponds to the encryption method. For example, if **encryption** is set to **AES256**, the key is calculated using the AES-256 algorithm. **Value range**: The value must contain 32 characters. **Default value**: None

Table 9-43 SseKmsHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-KMS used for encrypting objects **Value range**: **kms** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
key	str	No	**Explanation:** Master key used in SSE-KMS **Value range**: The following two formats are supported: • *regionID*:*domainID*:**key/***key_id* • *key_id* In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, OBS will create one and use it by default.

Table 9-44 ExtensionGrant

Parameter	Type	Mandatory (Yes/No)	Description
granteeId	str	No	**Explanation:** Account (domain) ID of the grantee **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
permission	str	No	**Explanation:** Granted **permissions** **Default value**: None

Table 9-45 Permission

Constant	Description
READ	Read permission A grantee with this permission for a bucket can obtain the list of objects, multipart uploads, bucket metadata, and object versions in the bucket. A grantee with this permission for an object can obtain the object content and metadata.
WRITE	Write permission A grantee with this permission for a bucket can upload, overwrite, and delete any object or part in the bucket. Such permission for an object is not applicable.
READ_ACP	Permission to read ACL configurations A grantee with this permission can obtain the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently.
WRITE_ACP	Permission to modify ACL configurations A grantee with this permission can update the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently. A grantee with this permission can modify the ACL, thus obtaining full access permissions.
FULL_CONTROL	Full control access, including read and write permissions for a bucket and its ACL, or for an object and its ACL. A grantee with this permission for a bucket has **READ**, **WRITE**, **READ_ACP**, and **WRITE_ACP** permissions for the bucket. A grantee with this permission for an object has **READ**, **READ_ACP**, and **WRITE_ACP** permissions for the object.

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Responses

Table 9-46 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 9-47 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 9-48 GetResult.body

GetResult.body Type	Description
AppendObjectResponse	**Explanation:** Response to the append upload request. For details, see **Table 9-49**.

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Table 9-49 AppendObjectResponse

Parameter	Type	Description
storageClass	str	**Explanation:** Object storage class. **Value range**: • If the storage class is Standard, leave this parameter blank. • For details about the available storage classes, see **Table 9-41**. **Default value**: None
etag	str	**Explanation:** ETag of an object, which is a base64-encoded 128-bit MD5 digest. ETag is the unique identifier of the object content. It can be used to determine whether the object content is changed. For example, if the ETag is **A** when an object is uploaded and is **B** when the object is downloaded, the object content is changed. The ETag reflects changes only to the contents of the object, not its metadata. An uploaded object or copied object has a unique ETag. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None
nextPosition	int	**Explanation:** Start position for next appending **Value range**: An integer greater than or equal to 0, in bytes **Default value**: None

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Parameter	Type	Description
sseKms	str	**Explanation:** SSE-KMS algorithm **Value range**: **kms** **Default value**: None
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. key_id In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, the system will create one and use it by default.
sseC	str	**Explanation:** SSE-C algorithm **Value range**: AES256 **Default value**: None

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Parameter	Type	Description
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None
objectUrl	str	**Explanation:** Full path to the object **Default value**: None

Code Examples

This example appends content to an object.

```
from obs import ObsClient
from obs import AppendObjectContent
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify the message body of the request for an append upload.
    content = AppendObjectContent()
    # Specify the content to be appended.
    content.content = 'Hello OBS'
    # Specify the starting position (byte 0 in this example) the content is appended to.
    content.position = 0
    # If you upload an object for the first time using the append upload, an error will be reported (status code 409) if an ordinary object with the same name already exists.
    bucketName = "examplebucket"
    # Specify the name of the object to append content to.
    objectKey = "objectname"
    # Append content to the object.
```

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```
    resp = obsClient.appendObject(bucketName, objectKey, content)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Append Object Succeeded')
        print('requestId:', resp.requestId)
        print('nextPosition:', resp.body.nextPosition)
    else:
        print('Append Object Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Append Object Failed')
    print(traceback.format_exc())
```

NOTE

- Objects uploaded using **ObsClient.putObject**, referred to as common objects, can overwrite objects uploaded using **ObsClient.appendObject**, referred to as appendable objects. Data cannot be appended to an appendable object anymore once the object has been overwritten by a common object.
- When you upload an object for the first time in appendable mode, an exception will be reported (HTTP status code **409**) if a common object with the same name exists.
- The ETag returned for the append upload is the ETag for the appended content, rather than that of the whole object.
- Data appended each time can be up to 5 GB, and a maximum of 10,000 uploads can be appended for an object.
- After an append upload is successful, you can obtain the location for the next append upload by using **body.nextPosition** in the returned results or call **ObsClient.getObjectMetadata**.

Helpful Links

- **Appending an Object**
- **(GitHub) Sample Code for Uploading an Object**
- **OBS Error Codes**
- **FAQ for Object Upload Failure**

9.6 Uploading an Object - Resumable (SDK for Python)

Function

The resumable upload is an encapsulated and enhanced version of the multipart upload used for dealing with possible upload failures of large files when the network connection is unstable or a program crashes. This API splits the file into multiple parts and uploads them individually. The upload result of each part is recorded in a checkpoint file in real time. A success message is returned only when all parts are uploaded. If any parts fail, an error message is returned telling you to call the API again to upload the failed parts. Since the checkpoint file contains the progress of each part, it saves you uploading all parts again in the event of an error.

Restrictions

- To upload an object, you must be the bucket owner or have the required permission (**obs:object:PutObject** in IAM or **PutObject** in a bucket policy).

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For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.

- The file uploaded by the resumable upload API must exceed 100 KB.
- To obtain the progress of the last upload, you must enable resumable upload when you use this API.

Method

```
ObsClient.uploadFile(bucketName, objectKey, uploadFile, partSize, taskNum, enableCheckpoint, checkpointFile, checkSum, metadata, progressCallback, headers, extensionHeaders)
```

Request Parameters

Table 9-50 List of request parameters

Parameter	Type	Description	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Description	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
uploadFile	str	Yes	**Explanation:** Complete path of the local file to be uploaded, for example, **aa/bb.txt**. **Default value**: None
partSize	int	No	**Explanation:** Part size **Value range**: The value ranges from 100 KB to 5 GB, in bytes. **Default value**: 9 MB
taskNum	int	No	**Explanation:** Maximum number of parts that can be uploaded concurrently **Value range**: 1~10000 **Default value**: **1**, indicating concurrent uploads are not used.

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Parameter	Type	Description	Description
enableCheckpoint	bool	No	**Explanation:** Whether to enable the resumable upload mode **Value range**: **True**: The resumable upload mode is enabled. **False**: The resumable upload mode is disabled. **Default value**: False
checkpointFile	str	No	**Explanation:** Address of a file generated for recording the progress of a resumable upload. The file contains the information about parts and the upload progress. **Restrictions:** This parameter is valid only for resumable uploads. **Default value**: If this parameter is left blank, the progress file will be in the same directory as the local file to be uploaded.
checkSum	bool	No	**Explanation:** Whether to verify the file to upload. If this parameter is enabled, before each task restarts, the system verifies whether the file to upload is the one used during task initialization. **Value range**: **True**: The file to upload is verified. **False**: The file to upload is not verified. **Default value**: **False**

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Parameter	Type	Description	Description
metadata	dict	No	**Explanation:** Custom metadata of the object to be uploaded. You can add a header starting with **x-obs-meta-** in the request to define metadata. The custom metadata will be returned in the response when you retrieve the object or query the object metadata. **Restrictions:** • The custom metadata cannot exceed 8 KB. To measure the custom metadata, sum the number of bytes in the UTF-8 encoding of each key and value. • The custom metadata keys are case insensitive, but are stored in lowercase in OBS. The key values are case sensitive. • Both custom metadata keys and their values must conform to US-ASCII standards. If non-ASCII or unrecognizable characters are required, they must be encoded and decoded in URL or Base64 on the client, because the server does not perform such operations. **Default value**: None
progressCallback	callable	No	**Explanation:** Callback function for obtaining the upload progress **Default value**: None **NOTE** This function contains the following parameters in sequence: number of uploaded bytes, total number of bytes, and used time (in seconds). For details about the sample code, see **Obtaining the Upload Progress (SDK for Python)**.

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Parameter	Type	Description	Description
headers	UploadFileHeader	No	**Explanation:** Headers in the request used for configuring the storage class, redundancy policy, and other basic information about the object **Value range**: See Table 9-51. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See User-defined Headers (SDK for Python). **Default value**: None

Table 9-51 UploadFileHeader

Parameter	Type	Description	Description
acl	str	No	**Explanation:** ACL that can be pre-defined during object creation For details about the ACL, see ACLs. **Value range**: For details about the available options, see HeadPermission. **Default value**: None

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Parameter	Type	Description	Description
location	str	No	**Explanation:** If the bucket is configured with website hosting, the request for obtaining the object can be redirected to another object in the bucket or an external URL. The request is redirected to object **anotherPage.html** in the same bucket: **location:/anotherPage.html** The request is redirected to an external URL **http://www.example.com/**: **location:http://www.example.com/** OBS obtains the specified value from the header and stores it in the object metadata **location**. **Restrictions:** • The value must start with a slash (/), **http://**, or **https://** and cannot exceed 2 KB. • OBS only supports redirection for objects in the root directory of a bucket. **Default value**: None
contentType	str	No	**Explanation:** MIME type of the file to be uploaded. MIME type is a standard way of describing a data type and is used by the browser to decide how to display data. **Value range**: See **What Is Content-Type (MIME)? (Python SDK)** **Default value**: If you do not specify **contentType** when uploading an object, the SDK determines the object type based on the suffix of the specified object name and automatically assigns a value to **contentType**.

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Parameter	Type	Description	Description
sseHeader	**SseCHeader** or **SseKmsHeader**	No	**Explanation:** Server-side encryption header **Default value**: None
storageClass	str	No	**Explanation:** Storage class of the object **Value range**: For details about the available storage classes, see **Table 9-53**. **Default value**: None
successActionRedirect	str	No	**Explanation:** Address (URL) to which a successfully answered request is redirected • If the value is valid and the request is successful, OBS returns status code **303**. **Location** in the returned results contains **SuccessActionRedirect** as well as the bucket name, object name, and object ETag. • If the value is invalid, OBS ignores this parameter. In such case, **Location** in the returned results indicates the object address, and OBS returns a status code based on whether the operation succeeds or fails. **Default value**: None
extensionGrants	list of **ExtensionGrant**	No	**Explanation:** List of the extended permissions for the object to be uploaded **Value range**: See **Table 9-56**. **Default value**: None

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Parameter	Type	Description	Description
expires	int	No	**Explanation:** Expiration time of the object (calculated from the latest modification time of the object). Expired objects are automatically deleted. **Restrictions:** This parameter can be configured only when uploading the object. It cannot be modified by calling a metadata modification API. **Value range**: An integer greater than or equal to 0, in days **Default value**: None

Table 9-52 HeadPermission

Constant	Default Value	Description
HeadPermission.PRIVATE	private	Private read/write A bucket or object can only be accessed by its owner.
HeadPermission.PUBLIC_READ	public-read	Public read and private write If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket. If it is granted on an object, anyone can read the content and metadata of the object.

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Constant	Default Value	Description
HeadPermission.PUBLIC_READ_WRITE	public-read-write	Public read/write If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart upload tasks. If it is granted on an object, anyone can read the content and metadata of the object.
HeadPermission.PUBLIC_READ_DELIVERED	public-read-delivered	Public read on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions, and read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_DELIVERED** cannot be applied to objects.
HeadPermission.PUBLIC_READ_WRITE_DELIVERED	public-read-write-delivered	Public read/write on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart uploads. They can also read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_WRITE_DELIVERED** cannot be applied to objects.

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Constant	Default Value	Description
HeadPermission.BUCKET_OWNER_FULL_CONTROL	bucket-owner-full-control	If this permission is granted on an object, only the bucket and object owners have the full control over the object. By default, if you upload an object to a bucket owned by another user, the bucket owner does not have the permissions on your object. After you grant this permission to the bucket owner, the bucket owner can have full control over your object.

Table 9-53 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

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Table 9-54 SseCHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-C used for encrypting objects **Value range**: **AES256** **Default value**: None
key	str	Yes	**Explanation:** Key used in SSE-C encryption. It corresponds to the encryption method. For example, if **encryption** is set to **AES256**, the key is calculated using the AES-256 algorithm. **Value range**: The value must contain 32 characters. **Default value**: None

Table 9-55 SseKmsHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-KMS used for encrypting objects **Value range**: **kms** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
key	str	No	**Explanation:** Master key used in SSE-KMS **Value range**: The following two formats are supported: • *regionID*:*domainID*:**key/***key_id* • *key_id* In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, OBS will create one and use it by default.

Table 9-56 ExtensionGrant

Parameter	Type	Description	Description
granteeId	str	No	**Explanation:** Account (domain) ID of the grantee **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

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Parameter	Type	Description	Description
permission	str	No	**Explanation:** Granted **permissions** **Default value**: None

Table 9-57 Permission

Constant	Description
READ	Read permission A grantee with this permission for a bucket can obtain the list of objects, multipart uploads, bucket metadata, and object versions in the bucket. A grantee with this permission for an object can obtain the object content and metadata.
WRITE	Write permission A grantee with this permission for a bucket can upload, overwrite, and delete any object or part in the bucket. Such permission for an object is not applicable.
READ_ACP	Permission to read ACL configurations A grantee with this permission can obtain the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently.
WRITE_ACP	Permission to modify ACL configurations A grantee with this permission can update the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently. A grantee with this permission can modify the ACL, thus obtaining full access permissions.
FULL_CONTROL	Full control access, including read and write permissions for a bucket and its ACL, or for an object and its ACL. A grantee with this permission for a bucket has **READ**, **WRITE**, **READ_ACP**, and **WRITE_ACP** permissions for the bucket. A grantee with this permission for an object has **READ**, **READ_ACP**, and **WRITE_ACP** permissions for the object.

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Responses

Table 9-58 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 9-59 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 9-60 GetResult.body

GetResult.body Type	Description
CompleteMultipartUploadResponse	**Explanation:** Response to the part assembling. For details, see **Table 9-61**.

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Table 9-61 CompleteMultipartUploadResponse

Parameter	Type	Description
etag	str	**Explanation:** The ETag that uniquely identifies the object after its parts were assembled, calculated based on the ETag of each part. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None
bucket	str	**Explanation:** Bucket in which parts are assembled **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Description
key	str	**Explanation:** Object name obtained after part assembling. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
location	str	**Explanation:** URL of the generated object after part assembling Example: **https://example-Bucket.obs.regions.myhuaweicloud.com/example-Object** **Default value**: None
versionId	str	**Explanation:** Version ID of the object obtained after part assembling **Value range**: The value must contain 32 characters. **Default value**: None
sseKms	str	**Explanation:** SSE-KMS algorithm **Value range**: **kms** **Default value**: None

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Parameter	Type	Description
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. *key_id* In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, OBS will create one and use it by default.
sseC	str	**Explanation:** SSE-C algorithm **Value range**: **AES256** **Default value**: None
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None

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Parameter	Type	Description
objectUrl	str	**Explanation:** Full path to the obtained object after part assembling **Default value**: None
encoding_type	str	**Explanation:** Encoding type for **Key** in the response. If **Key** in the response contains control characters that are not supported by the XML 1.0 standard, you can specify this parameter to encode **Key**. **Value range**: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied to **Key**.

Code Examples

This example uploads object **localfile** to bucket **examplebucket** using resumable upload.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)

try:
    bucketName = "examplebucket"
    # Specify an object name (the name displayed after the file is uploaded to the bucket).
    objectKey = "objectname"
    # Specify the path of the file to be uploaded.
    uploadFile = 'localfile'
    # Specify the number of parts that can be concurrently uploaded.
    taskNum = 5
    # Specify the part size, in bytes. 10 MB is used as an example.
    partSize = 10 * 1024 * 1024
```

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```
    # Enable the resumable upload by setting enableCheckpoint to True.
    enableCheckpoint = True
    # Upload the object using resumable upload.
    resp = obsClient.uploadFile(bucketName, objectKey, uploadFile, partSize, taskNum, enableCheckpoint,
encoding_type='url')

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Upload File Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Upload File Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Upload File Failed')
    print(traceback.format_exc())
```

Helpful Links

- **(GitHub) Sample Code for Uploading an Object**
- **OBS Error Codes**
- **FAQ for Object Upload Failure**

9.7 Obtaining the Upload Progress (SDK for Python)

You can query the upload progress when uploading an object in streaming, file-based, multipart, appendable, or resumable mode.

This example configures a callback function to obtain the object upload progress.

Sample code is as follows:

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using
hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://
support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from
environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it
with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify
security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)

# Obtain the upload progress.
def callback(transferredAmount, totalAmount, totalSeconds):
    # Obtain the average upload rate (KB/s).
    print(transferredAmount * 1.0 / totalSeconds / 1024)
    # Obtain the upload progress in percentage.
    print(transferredAmount * 100.0 / totalAmount)

try:
    bucketName = "examplebucket"
```

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```
    # Specify an object name (the name displayed after the file is uploaded to the bucket).
    objectKey = "objectname"
    # Specify the full path of the file to be uploaded, for example, aa/bb.txt.
    file_path = 'localfile'
    # Perform the file-based upload.
    resp = obsClient.putFile(bucketName, objectKey, file_path, progressCallback=callback)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Put File Succeeded')
        print('requestId:', resp.requestId)
        print('etag:', resp.body.etag)
        print('versionId:', resp.body.versionId)
        print('storageClass:', resp.body.storageClass)
    else:
        print('Put File Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Put File Failed')
    print(traceback.format_exc())
```

9.8 Uploading an Object - Browser-Based (SDK for Python)

Function

This API uploads an object up to 5 GB to a specified bucket in HTML form. You can call **ObsClient.createPostSignature** to generate parameters for requesting a browser-based upload.

1. Call **ObsClient.createPostSignature** to generate request parameters for authentication.
2. Prepare an HTML form.
3. Enter the request parameters in the page.
4. Select a local file and upload it in browser-based mode.

NOTE

There are two request parameters generated for authentication:

- **policy**, which corresponds to the **policy** parameter in the form.
- **signature**, which corresponds to the **signature** parameter in the form.

Restrictions

- To upload an object, you must be the bucket owner or have the required permission (**obs:object:PutObject** in IAM or **PutObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- Values of **policy** and **signature** in the HTML form are obtained from the returned results of **ObsClient.createPostSignature**.

Method

```
ObsClient.createPostSignature(bucketName, objectKey, expires, formParams)
```

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Request Parameters

Table 9-62 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	No	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	No	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
expires	int	No	**Explanation:** Expiration time of authentication for a browser-based upload **Value range**: A positive integer, in seconds **Default value**: 300

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Parameter	Type	Mandatory (Yes/No)	Description
formParams	dict	No	**Explanation:** Parameters of browser-based uploads, not including **key**, **policy**, and **signature**. **Value range**: (When you use the following parameters, you must add the **x-obs** prefix to them. Taking **acl** as an example, it should be configured as **formParams['x-obs-acl']='public-read'**. To obtain the values of these parameters, see the response header descriptions in APIs.) • acl • cache-control • content-type • content-disposition • content-encoding • expires **Default value**: None

Responses

Table 9-63 List of returned results

Parameter	Type	Description
originPolicy	str	**Explanation:** Value of **Policy** that is not encoded by Base64. This parameter can only be used for verification. For example: **{"expiration":"2023-09-12T12:52:59Z","conditions":[{"content-type":"text/plain"},{"bucket":"examplebucket"},{"key":"example/objectname"},]}"** **Default value**: None

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Parameter	Type	Description
policy	str	**Explanation:** Value of **Policy** that is encoded by Base64. For example: **eyJleHBpcmF0aW9uIjoiMjAyMy0wOS0xMlQxMjo1Mjo1OVoiLCJjb25kaXRpb25zIjpbeyJjb250ZW50LXR5cGUiOiJ0ZXh0L3BsYWluIn0seyJidWNrZXQiOiJ-leGFtcGxlYnVja2V0In0seyJrZXkiOiJleGFtcGxlL29iamVjdG5hbWUifSxdfQ==** **Default value**: None
signature	str	**Explanation:** **signature** in the form For example: **g0jQr4v9VWd1Q2FOFDG6LGfV9Cw=** **Default value**: None

Code Examples

This example generates authentication parameters **policy** and **signature** for a browser-based upload.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Configure the validity period (in seconds) for a browser-based upload request. 3600 is used as an example.
    expires = 3600
    # Specify parameters for a browser-based upload except key, policy, and signature. In this example, x-obs-acl is set to private and content-type is set to text/plain.
    formParams = {'x-obs-acl': 'private', 'content-type': 'text/plain'}
    # Create parameters for a browser-based upload.
    resp = obsClient.createPostSignature(bucketName, objectKey, expires, formParams)
```

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```
    print('originPolicy:', resp.originPolicy)
    print('policy:', resp.policy)
    print('signature:', resp.signature)
except:
    print(traceback.format_exc())
```

Code of an HTML form example is as follows:

```
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
    </head>
    <body>
        <form action="http://bucketname.your-endpoint/" method="post" enctype="multipart/form-data">
            <p>
                Object key
            </p>
            <!-- Object name  -->
            <input type="text" name="key" value="objectname" />
            <p>
                ACL
            </p>
            <!-- Object ACL -->
            <input type="text" name="x-obs-acl" value="private" />
            <p>
                Content-Type
            </p>
            <!-- Object MIME type -->
            <input type="text" name="content-type" value="text/plain" />
            <p>
                <!-- Base64-encoded policy -->
                <input type="hidden" name="policy" value="*** Provide your policy ***" />
                <!-- AK -->
                <input type="hidden" name="AccessKeyId" value="*** Provide your access key ***"/>
                <!-- Signature string information -->
                <input type="hidden" name="signature" value="*** Provide your signature ***"/>
                <input name="file" type="file" />
                <input name="submit" value="Upload" type="submit" />
            </p>
        </form>
    </body>
</html>
```

NOTE

- Values of **policy** and **signature** in the HTML form are obtained from the returned results of **ObsClient.createPostSignature**.

Helpful Links

- **Uploading Objects - POST**
- **(GitHub) Sample Code for Uploading an Object**
- **OBS Error Codes**
- **FAQ for Object Upload Failure**

9.9 Object Download Overview (SDK for Python)

OBS Python SDK provides abundant APIs for downloading objects using various methods:

- **Binary Download**

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- **Streaming Download**
- **File-Based Download**
- **Partial Download**
- **Resumable Download**

9.10 Downloading an Object - Binary (SDK for Python)

Function

This API downloads a file using a stream from OBS to your local computer. If **loadStreamInMemory** is set to **True**, **downloadpath** will be invalid. The binary stream of the file will be downloaded to the local computer.

Restrictions

- To download an object, you must be the bucket owner or have the required permission (**obs:object:GetObject** in IAM or **GetObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- Objects in the Archive storage class can be downloaded only when they are restored.

Method

```
ObsClient.getObject(bucketName, objectKey, downloadPath, getObjectRequest, headers,
loadStreamInMemory, progressCallback, extensionHeaders)
```

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Request Parameters

Table 9-64 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
downloadPath	str	No	**Explanation:** The download path with the file name contained, for example, **aa/bb.txt**. **Default value**: None
getObjectRequest	**GetObjectRequest**	No	**Explanation:** Additional parameters of an object download request **Value range**: See **Table 9-65**. **Default value**: None
headers	**GetObjectHeader**	No	**Explanation:** Headers in the request used for obtaining the storage class, redundancy policy, and other basic information about the object **Value range**: See **Table 9-66**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
loadStreamInMemory	bool	No	**Explanation:** Whether to load the data stream of the object to memory **Value range**: **True**: The obtained data stream is loaded to memory with **downloadPath** ignored. **False**: The obtained data stream is not loaded to memory. **Default value**: False
progressCallback	callable	No	**Explanation:** Callback function for obtaining the download progress **Default value**: None **NOTE** This function contains the following parameters in sequence: number of downloaded bytes, total number of bytes, and used time (in seconds). For details about the sample code, see **Downloading an Object - Obtaining the Download Progress (SDK for Python)**.
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Table 9-65 GetObjectRequest

Parameter	Type	Mandatory (Yes/No)	Description
cache_control	str	No	**Explanation:** **Cache-Control** is rewritten in the response. **Default value**: None
content_disposition	str	No	**Explanation:** **Content-Disposition** is rewritten in the response. **Default value**: None
content_encoding	str	No	**Explanation:** **Content-Encoding** is rewritten in the response. **Default value**: None
content_language	str	No	**Explanation:** **Content-Language** is rewritten in the response. **Default value**: None
content_type	str	No	**Explanation:** **Content-Type** is rewritten in the response. **Default value**: None
expires	str	No	**Explanation:** **Expires** is rewritten in the response. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
versionId	str	No	**Explanation:** Object version ID, for example, **G001117FCE89978B0000401205D5DC9** **Value range**: The value must contain 32 characters. **Default value**: None. If this parameter is left blank, the latest version of the object is obtained.

Table 9-66 GetObjectHeader

Parameter	Type	Mandatory (Yes/No)	Description
range	str	No	**Explanation:** Download range. For example, **0-999** indicates the download range is from byte 1 to byte 1,000. **Value range**: Value range: 0 to the object length minus 1. Format: *x-y*, indicating the range is from byte x+1 to byte y+1 **Restrictions:** The upper limit of **range** is the length of the object minus 1. If the specified value exceeds this limit, the length of the object minus 1 is used. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
if_match	str	No	**Explanation:** Preset ETag. If the ETag of the object to be downloaded is the same as the preset ETag, the object is returned. Otherwise, an error is returned. **Value range**: The value must contain 32 characters. **Default value**: None
if_none_match	str	No	**Explanation:** Preset ETag. If the ETag of the object to be downloaded is different from the preset ETag, the object is returned. Otherwise, an error is returned. **Value range**: The value must contain 32 characters. **Default value**: None
if_modified_since	str or **DateTime**	No	**Explanation:** The object is returned if it has been modified since the specified time; otherwise, an error is returned. **Restrictions:** The value must be in the GMT format. For example, **Wed, 25 Mar 2020 02:39:52 GMT**. You can refer to **Table 9-67** to specify time. For example, **DateTime(year=2023, month=9, day=12)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
if_unmodified_since	str or DateTime	No	**Explanation:** The object is returned if it has not been modified since the specified time; otherwise, an error is returned. **Restrictions:** The value must be in the GMT format. For example, **Wed, 25 Mar 2020 02:39:52 GMT**. You can refer to **Table 9-67** to specify time. For example, **DateTime(year=2023, month=9, day=12)** **Default value**: None
origin	str	No	**Explanation:** Origin of the cross-domain request specified by the preflight request. Generally, it is a domain name. **Restrictions:** Each origin can contain only one wildcard character (*). **Default value**: None
requestHeaders	str	No	**Explanation:** HTTP headers in a cross-origin request Only CORS requests matching the allowed headers are valid. **Restrictions:** Each header can contain only one wildcard character (*). Spaces, ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
sseHeader	SseCHeader	No	**Explanation:** Server-side decryption headers. For details, see **Table 9-68**. **Restrictions:** If the object uploaded to the server is encrypted on the server using the encryption key provided by the client, downloading the object requires including the encryption key in the message. **Default value**: None

Table 9-67 DateTime

Parameter	Type	Description
year	int	**Explanation:** Year in UTC **Default value**: None
month	int	**Explanation:** Month in UTC **Default value**: None
day	int	**Explanation:** Day in UTC **Default value**: None
hour	int	**Explanation:** Hour in UTC **Restrictions:** The value is in 24-hour format. **Default value**: 0

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Parameter	Type	Description
min	int	**Explanation:** Minute in UTC **Default value**: 0
sec	int	**Explanation:** Second in UTC **Default value**: 0

Table 9-68 SseCHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-C used for encrypting objects **Value range**: **AES256** **Default value**: None
key	str	Yes	**Explanation:** Key used in SSE-C encryption. It corresponds to the encryption method. For example, if **encryption** is set to **AES256**, the key is calculated using the AES-256 algorithm. **Value range**: The value must contain 32 characters. **Default value**: None

Responses

Table 9-69 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

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Table 9-70 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 9-71 GetResult.body

GetResult.body Type	Description
ObjectStream	**Explanation:** Response to the request for downloading an object

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Table 9-72 ObjectStream

Parameter	Type	Description
response	object	**Explanation:** If **loadStreamInMemory** is set to **False** and **downloadPath** is left blank in the request, this parameter is returned and indicates a readable stream. You can read object content from it. **Default value**: None
buffer	object	**Explanation:** If **loadStreamInMemory** is set to **True** in the request, this parameter is returned and indicates the data stream in the memory. **Default value**: None
size	int	**Explanation:** If **loadStreamInMemory** is set to **True** in the request, this parameter is returned and indicates the size of the data stream. **Value range**: An integer greater than or equal to 0, in bytes **Default value**: None
url	str	**Explanation:** If **loadStreamInMemory** is set to **False** and **downloadPath** is not left blank, this parameter is returned and indicates the download path. **Default value**: None
deleteMarker	bool	**Explanation:** Whether the deleted object is a delete marker **Value range**: • **True**: The deleted object is a delete marker. • **False**: The deleted object is not a delete marker. **Default value**: False

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Parameter	Type	Description
storageClass	str	**Explanation:** Object storage class. **Value range**: • If the storage class is Standard, leave this parameter blank. • For details about the available storage classes, see **Table 9-73**. **Default value**: None
accessContorlAllo-wOrigin	str	**Explanation:** If **Origin** in the request meets the CORS rules of the bucket, **AllowedOrigin** in the CORS rules is returned. **AllowedOrigin** indicates the origin from which the requests can access the bucket. **Restrictions:** Domain name of the origin. Each origin can contain only one wildcard character (*), for example, **https://*.vbs.example.com**. **Default value**: None
accessContorlAllow-Headers	str	**Explanation:** If **RequestHeader** in the request meets the CORS rules of the bucket, **AllowedHeader** in the CORS rules is returned. **AllowedHeader** indicates the allowed headers for cross-origin requests. Only CORS requests matching the allowed headers are valid. **Restrictions:** Each header can contain only one wildcard character (*). Spaces, ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None

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Parameter	Type	Description
accessContorlAllow-Methods	str	**Explanation:** **AllowedMethod** in the CORS rules of the bucket. It specifies the HTTP method of cross-origin requests, that is, the operation type of buckets and objects. **Value range**: The following HTTP methods are supported: • GET • PUT • HEAD • POST • DELETE **Default value**: None
accessContorlExpo-seHeaders	str	**Explanation:** **ExposeHeader** in the CORS rules of the bucket. It specifies the CORS-allowed additional headers in the response. These headers provide additional information to clients. By default, your browser can only access headers **Content-Length** and **Content-Type**. If your browser needs to access other headers, add them to a list of the allowed additional headers. **Restrictions:** Spaces, wildcard characters (*), ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None

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Parameter	Type	Description
accessContorlMax-Age	int	**Explanation:** **MaxAgeSeconds** in the CORS rules of the bucket. It specifies the time your client can cache the response for a cross-origin request. **Restrictions:** Each CORS rule can contain only one **MaxAgeSeconds**. **Value range**: An integer greater than or equal to 0, in seconds **Default value**: 100
contentLength	int	**Explanation:** Object size **Value range**: The value ranges from 0 TB to 48.8 TB, in bytes. **Default value**: None
cacheControl	str	**Explanation:** **Cache-Control** header in the response **Default value**: None
contentDisposition	str	**Explanation:** **Content-Disposition** header in the response **Default value**: None
contentEncoding	str	**Explanation:** **Content-Encoding** header in the response **Default value**: None
contentLanguage	str	**Explanation:** **Content-Language** header in the response **Default value**: None

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Parameter	Type	Description
contentType	str	**Explanation:** MIME type of the file to be uploaded. MIME type is a standard way of describing a data type and is used by the browser to decide how to display data. **Value range**: See **What Is Content-Type (MIME)? (Python SDK)** **Default value**: None
expires	str	**Explanation:** **Expires** header in the response **Default value**: None
lastModified	str	**Explanation:** Time when the last modification was made to the object **Restrictions:** The time must be in the GMT format, for example, **Wed, 25 Mar 2020 02:39:52 GMT**. **Default value**: None

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Parameter	Type	Description
etag	str	**Explanation:** Base64-encoded, 128-bit MD5 value of an object. ETag is the unique identifier of the object contents and is used to determine whether the contents of an object are changed. For example, if the ETag value is **A** when an object is uploaded and is **B** when the object is downloaded, this indicates the contents of the object are changed. The ETag reflects changes only to the contents of an object, not its metadata. Objects created by the upload and copy operations have unique ETags after being encrypted using MD5. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None
versionId	str	**Explanation:** Object version ID. **Value range**: The value must contain 32 characters. **Default value**: None

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Parameter	Type	Description
restore	str	**Explanation:** Restore status of an object. This header is returned when an Archive object is being restored or has been restored. For example, **ongoing-request="true"** indicates that the object is being restored. **ongoing-request="false", expiry-date="Wed, 7 Nov 2012 00:00:00 GMT"** indicates that the object has been restored. **expiry-date** indicates when the restored object expires. **Restrictions:** This parameter is only available for Archive objects. **Default value**: None
expiration	str	**Explanation:** Expiration details Example: **"expiry-date=\"Mon, 11 Sep 2023 00:00:00 GMT\""** **Default value**: None
sseKms	str	**Explanation:** Objects are encrypted using SSE-KMS on the server side. **Value range**: **kms** **Default value**: None

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Parameter	Type	Description
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. key_id In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, the system will create one and use it by default.
sseC	str	**Explanation:** SSE-C algorithm **Value range**: AES256 **Default value**: None
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None

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Parameter	Type	Description
websiteRedirectLocation	str	**Explanation:** If the bucket is configured with website hosting, the request for obtaining the object can be redirected to another object in the bucket or an external URL. This parameter specifies the address the request for the object is redirected to. The request is redirected to object **anotherPage.html** in the same bucket: **WebsiteRedirectLocation:/anotherPage.html** The request is redirected to an external URL **http://www.example.com/**: **WebsiteRedirectLocation:http://www.example.com/** OBS obtains the specified value from the header and stores it in the object metadata **WebsiteRedirectLocation**. **Restrictions:** • The value must start with a slash (/), **http://**, or **https://** and cannot exceed 2 KB. • OBS only supports redirection for objects in the root directory of a bucket. **Default value**: None

Table 9-73 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.

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Parameter	Type	Description
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

Code Examples

This example downloads an object in binary mode.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    objectKey="objectname"
    # If loadStreamInMemory is set to True, downloadpath will be invalid. The binary stream of the file will be downloaded to the memory.
    #Download an object in a binary stream.
    resp = obsClient.getObject(bucketName=bucketName,objectKey=objectKey, loadStreamInMemory=True)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Object Succeeded')
        print('requestId:', resp.requestId)
        # Obtain the object content.
        print('buffer:', resp.body.buffer)
        print('size:', resp.body.size)
    else:
        print('Get Object Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Object Failed')
    print(traceback.format_exc())
```

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NOTE

In a binary download, if **loadStreamInMemory** is set to **True**, the object content is contained in the **body.buffer** parameter in the returned result.

Helpful Links

- **Downloading Objects**
- **(GitHub) Sample Code for Downloading an Object**
- **OBS Error Codes**
- **FAQ for Object Download Failure**

9.11 Downloading an Object - Streaming (SDK for Python)

Function

This API downloads a file using a stream from OBS to your local computer. If the object to be downloaded is too large or the download is expected to take a long time, you can use streams to download the object.

Restrictions

- To download an object, you must be the bucket owner or have the required permission (**obs:object:GetObject** in IAM or **GetObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- Objects in the Archive storage class can be downloaded only when they are restored.

Method

```
ObsClient.getObject(bucketName, objectKey, downloadPath, getObjectRequest, headers,
loadStreamInMemory, progressCallback, extensionHeaders)
```

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Request Parameters

Table 9-74 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
downloadPath	str	No	**Explanation:** The download path with the file name contained, for example, **aa/bb.txt**. **Default value**: None
getObjectRequest	**GetObjectRequest**	No	**Explanation:** Additional parameters of an object download request **Value range**: See **Table 9-75**. **Default value**: None
headers	**GetObjectHeader**	No	**Explanation:** Headers in the request used for obtaining the storage class, redundancy policy, and other basic information about the object **Value range**: See **Table 9-76**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
loadStreamInMemory	bool	No	**Explanation:** Whether to load the data stream of the object to memory **Value range**: **True**: The obtained data stream is loaded to memory with **downloadPath** ignored. **False**: The obtained data stream is not loaded to memory. **Default value**: False
progressCallback	callable	No	**Explanation:** Callback function for obtaining the download progress **Default value**: None **NOTE** This function contains the following parameters in sequence: number of downloaded bytes, total number of bytes, and used time (in seconds). For details about the sample code, see **Downloading an Object - Obtaining the Download Progress (SDK for Python)**.
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Table 9-75 GetObjectRequest

Parameter	Type	Mandatory (Yes/No)	Description
cache_control	str	No	**Explanation:** **Cache-Control** is rewritten in the response. **Default value**: None
content_disposition	str	No	**Explanation:** **Content-Disposition** is rewritten in the response. **Default value**: None
content_encoding	str	No	**Explanation:** **Content-Encoding** is rewritten in the response. **Default value**: None
content_language	str	No	**Explanation:** **Content-Language** is rewritten in the response. **Default value**: None
content_type	str	No	**Explanation:** **Content-Type** is rewritten in the response. **Default value**: None
expires	str	No	**Explanation:** **Expires** is rewritten in the response. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
versionId	str	No	**Explanation:** Object version ID, for example, **G001117FCE89978B0000401205D5DC9** **Value range**: The value must contain 32 characters. **Default value**: None. If this parameter is left blank, the latest version of the object is obtained.

Table 9-76 GetObjectHeader

Parameter	Type	Mandatory (Yes/No)	Description
range	str	No	**Explanation:** Download range. For example, **0-999** indicates the download range is from byte 1 to byte 1,000. **Value range**: Value range: 0 to the object length minus 1. Format: *x-y*, indicating the range is from byte x+1 to byte y+1 **Restrictions:** The upper limit of **range** is the length of the object minus 1. If the specified value exceeds this limit, the length of the object minus 1 is used. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
if_match	str	No	**Explanation:** Preset ETag. If the ETag of the object to be downloaded is the same as the preset ETag, the object is returned. Otherwise, an error is returned. **Value range**: The value must contain 32 characters. **Default value**: None
if_none_match	str	No	**Explanation:** Preset ETag. If the ETag of the object to be downloaded is different from the preset ETag, the object is returned. Otherwise, an error is returned. **Value range**: The value must contain 32 characters. **Default value**: None
if_modified_since	str or **DateTime**	No	**Explanation:** The object is returned if it has been modified since the specified time; otherwise, an error is returned. **Restrictions:** The value must be in the GMT format. For example, **Wed, 25 Mar 2020 02:39:52 GMT**. You can refer to **Table 9-77** to specify time. For example, **DateTime(year=2023, month=9, day=12)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
if_unmodified_since	str or DateTime	No	**Explanation:** The object is returned if it has not been modified since the specified time; otherwise, an error is returned. **Restrictions:** The value must be in the GMT format. For example, **Wed, 25 Mar 2020 02:39:52 GMT**. You can refer to **Table 9-77** to specify time. For example, **DateTime(year=2023, month=9, day=12)** **Default value**: None
origin	str	No	**Explanation:** Origin of the cross-domain request specified by the preflight request. Generally, it is a domain name. **Restrictions:** Each origin can contain only one wildcard character (*). **Default value**: None
requestHeaders	str	No	**Explanation:** HTTP headers in a cross-origin request Only CORS requests matching the allowed headers are valid. **Restrictions:** Each header can contain only one wildcard character (*). Spaces, ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
sseHeader	SseCHeader	No	**Explanation:** Server-side decryption headers. For details, see **Table 9-78**. **Restrictions:** If the object uploaded to the server is encrypted on the server using the encryption key provided by the client, downloading the object requires including the encryption key in the message. **Default value**: None

Table 9-77 DateTime

Parameter	Type	Description
year	int	**Explanation:** Year in UTC **Default value**: None
month	int	**Explanation:** Month in UTC **Default value**: None
day	int	**Explanation:** Day in UTC **Default value**: None
hour	int	**Explanation:** Hour in UTC **Restrictions:** The value is in 24-hour format. **Default value**: 0

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Parameter	Type	Description
min	int	**Explanation:** Minute in UTC **Default value**: 0
sec	int	**Explanation:** Second in UTC **Default value**: 0

Table 9-78 SseCHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-C used for encrypting objects **Value range**: **AES256** **Default value**: None
key	str	Yes	**Explanation:** Key used in SSE-C encryption. It corresponds to the encryption method. For example, if **encryption** is set to **AES256**, the key is calculated using the AES-256 algorithm. **Value range**: The value must contain 32 characters. **Default value**: None

List of returned results

Table 9-79 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

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Table 9-80 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 9-81 GetResult.body

GetResult.body Type	Description
ObjectStream	**Explanation:** Response to the request for downloading an object

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Table 9-82 ObjectStream

Parameter	Type	Description
response	object	**Explanation:** If **loadStreamInMemory** is set to **False** and **downloadPath** is left blank in the request, this parameter is returned and indicates a readable stream. You can read object content from it. **Default value**: None
buffer	object	**Explanation:** If **loadStreamInMemory** is set to **True** in the request, this parameter is returned and indicates the data stream in the memory. **Default value**: None
size	int	**Explanation:** If **loadStreamInMemory** is set to **True** in the request, this parameter is returned and indicates the size of the data stream. **Value range**: An integer greater than or equal to 0, in bytes **Default value**: None
url	str	**Explanation:** If **loadStreamInMemory** is set to **False** and **downloadPath** is not left blank, this parameter is returned and indicates the download path. **Default value**: None
deleteMarker	bool	**Explanation:** Whether the deleted object is a delete marker **Value range**: • **True**: The deleted object is a delete marker. • **False**: The deleted object is not a delete marker. **Default value**: False

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Parameter	Type	Description
storageClass	str	**Explanation:** Object storage class. **Value range**: • If the storage class is Standard, leave this parameter blank. • For details about the available storage classes, see **Table 9-83**. **Default value**: None
accessContorlAllo-wOrigin	str	**Explanation:** If **Origin** in the request meets the CORS rules of the bucket, **AllowedOrigin** specified in the CORS rules is returned. **AllowedOrigin** indicates the origin from which the requests can access the bucket. **Restrictions:** Domain name of the origin. Each origin can contain only one wildcard character (*), for example, **https://*.vbs.example.com**. **Default value**: None
accessContorlAllow-Headers	str	**Explanation:** If **RequestHeader** in the request meets the CORS rules of the bucket, **AllowedHeader** specified in the CORS rules is returned. **AllowedHeader** indicates the allowed headers for cross-origin requests. Only CORS requests matching the allowed headers are valid. **Restrictions:** Each header can contain only one wildcard character (*). Spaces, ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None

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Parameter	Type	Description
accessContorlAllow-Methods	str	**Explanation:** **AllowedMethod** in the CORS rules of the bucket. It specifies the HTTP method of cross-origin requests, that is, the operation type of buckets and objects. **Value range**: The following HTTP methods are supported: • GET • PUT • HEAD • POST • DELETE **Default value**: None
accessContorlExpo-seHeaders	str	**Explanation:** **ExposeHeader** in the CORS rules of the bucket. It specifies the CORS-allowed additional headers in the response. These headers provide additional information to clients. By default, your browser can only access headers **Content-Length** and **Content-Type**. If your browser needs to access other headers, add them to a list of the allowed additional headers. **Restrictions:** Spaces, wildcard characters (*), ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None

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Parameter	Type	Description
accessContorlMax-Age	int	**Explanation:** **MaxAgeSeconds** in the CORS rules of the bucket. It specifies the time your client can cache the response for a cross-origin request. **Restrictions:** Each CORS rule can contain only one **MaxAgeSeconds**. **Value range**: An integer greater than or equal to 0, in seconds **Default value**: 100
contentLength	int	**Explanation:** Object size **Value range**: The value ranges from 0 TB to 48.8 TB, in bytes. **Default value**: None
cacheControl	str	**Explanation:** **Cache-Control** header in the response **Default value**: None
contentDisposition	str	**Explanation:** **Content-Disposition** header in the response **Default value**: None
contentEncoding	str	**Explanation:** **Content-Encoding** header in the response **Default value**: None
contentLanguage	str	**Explanation:** **Content-Language** header in the response **Default value**: None

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Parameter	Type	Description
contentType	str	**Explanation:** MIME type of the file to be uploaded. MIME type is a standard way of describing a data type and is used by the browser to decide how to display data. **Value range**: See **What Is Content-Type (MIME)? (Python SDK)** **Default value**: None
expires	str	**Explanation:** **Expires** header in the response **Default value**: None
lastModified	str	**Explanation:** Time when the last modification was made to the object **Restrictions:** The time must be in the GMT format, for example, **Wed, 25 Mar 2020 02:39:52 GMT**. **Default value**: None

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Parameter	Type	Description
etag	str	**Explanation:** Base64-encoded, 128-bit MD5 value of an object. ETag is the unique identifier of the object contents and is used to determine whether the contents of an object are changed. For example, if the ETag value is **A** when an object is uploaded and is **B** when the object is downloaded, this indicates the contents of the object are changed. The ETag reflects changes only to the contents of an object, not its metadata. Objects created by the upload and copy operations have unique ETags after being encrypted using MD5. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None
versionId	str	**Explanation:** Object version ID. **Value range**: The value must contain 32 characters. **Default value**: None

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Parameter	Type	Description
restore	str	**Explanation:** Restore status of an object. This header is returned when an Archive object is being restored or has been restored. For example, **ongoing-request="true"** indicates that the object is being restored. **ongoing-request="false", expiry-date="Wed, 7 Nov 2012 00:00:00 GMT"** indicates that the object has been restored. **expiry-date** indicates when the restored object expires. **Restrictions:** If the object is not in the Archive storage class, this parameter is left blank. **Default value**: None
expiration	str	**Explanation:** Expiration details. Example: **"expiry-date=\"Mon, 11 Sep 2023 00:00:00 GMT\""** **Default value**: None
sseKms	str	**Explanation:** Objects are encrypted using SSE-KMS on the server side. **Value range**: **kms** **Default value**: None

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Parameter	Type	Description
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. key_id In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, the system will create one and use it by default.
sseC	str	**Explanation:** SSE-C algorithm **Value range**: AES256 **Default value**: None
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None

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Parameter	Type	Description
websiteRedirectLocation	str	**Explanation:** If the bucket is configured with website hosting, the request for obtaining the object can be redirected to another object in the bucket or an external URL. This parameter specifies the address the request for the object is redirected to. The request is redirected to object **anotherPage.html** in the same bucket: **WebsiteRedirectLocation:/anotherPage.html** The request is redirected to an external URL **http://www.example.com/**: **WebsiteRedirectLocation:http://www.example.com/** OBS obtains the specified value from the header and stores it in the object metadata **WebsiteRedirectLocation**. **Restrictions:** • The value must start with a slash (/), **http://**, or **https://** and cannot exceed 2 KB. • OBS only supports redirection for objects in the root directory of a bucket. **Default value**: None

Table 9-83 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.

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Parameter	Type	Description
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

Code Examples

This example downloads an object using streaming.

```
from obs import GetObjectRequest
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify the additional parameter of an object download request.
    getObjectRequest = GetObjectRequest()
    # Rewrite the Content-Type header in the response.
    getObjectRequest.content_type = 'text/plain'
    bucketName="examplebucket"
    objectKey="objectname"
    # Download the object using streaming.
    resp = obsClient.getObject(bucketName=bucketName,objectKey=objectKey, getObjectRequest=getObjectRequest, loadStreamInMemory=False)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Object Succeeded')
        print('requestId:', resp.requestId)
        # Read the object content.
        while True:
            chunk = resp.body.response.read(65536)
            if not chunk:
                break
            print(chunk)
        resp.body.response.close()
    else:
```

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```
        print('Get Object Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Object Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Downloading Objects**
- **(GitHub) Sample Code for Downloading an Object**
- **OBS Error Codes**
- **FAQ for Object Download Failure**

9.12 Downloading an Object - File-Based (SDK for Python)

Function

This API downloads an object as a file from OBS to your local computer.

Restrictions

- To download an object, you must be the bucket owner or have the required permission (**obs:object:GetObject** in IAM or **GetObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- Objects in the Archive storage class can be downloaded only when they are restored.

Method

```
ObsClient.getObject(bucketName, objectKey, downloadPath, getObjectRequest, headers,
loadStreamInMemory, progressCallback, extensionHeaders)
```

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Request Parameters

Table 9-84 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
downloadPath	str	No	**Explanation:** The download path with the file name contained, for example, **aa/bb.txt**. **Default value**: None
getObjectRequest	**GetObjectRequest**	No	**Explanation:** Additional parameters of an object download request **Value range**: See **Table 9-85**.
headers	**GetObjectHeader**	No	**Explanation:** Headers in the request used for obtaining the storage class, redundancy policy, and other basic information about the object **Value range**: See **Table 9-86**.

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Parameter	Type	Mandatory (Yes/No)	Description
loadStreamInMemory	bool	No	**Explanation:** Whether to load the data stream of the object to memory **Value range**: **True**: The obtained data stream is loaded to memory with **downloadPath** ignored. **False**: The obtained data stream is not loaded to memory. **Default value**: False
progressCallback	callable	No	**Explanation:** Callback function for obtaining the download progress **Default value**: None **NOTE** This function contains the following parameters in sequence: number of downloaded bytes, total number of bytes, and used time (in seconds). For details about the sample code, see **Downloading an Object - Obtaining the Download Progress (SDK for Python)**.
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Table 9-85 GetObjectRequest

Parameter	Type	Mandatory (Yes/No)	Description
cache_control	str	No	**Explanation:** **Cache-Control** is rewritten in the response. **Default value**: None
content_disposition	str	No	**Explanation:** **Content-Disposition** is rewritten in the response. **Default value**: None
content_encoding	str	No	**Explanation:** **Content-Encoding** is rewritten in the response. **Default value**: None
content_language	str	No	**Explanation:** **Content-Language** is rewritten in the response. **Default value**: None
content_type	str	No	**Explanation:** **Content-Type** is rewritten in the response. **Default value**: None
expires	str	No	**Explanation:** **Expires** is rewritten in the response. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
versionId	str	No	**Explanation:** Object version ID, for example, **G001117FCE89978B0000401205D5DC9** **Value range**: The value must contain 32 characters. **Default value**: None. If this parameter is left blank, the latest version of the object is obtained.

Table 9-86 GetObjectHeader

Parameter	Type	Mandatory (Yes/No)	Description
range	str	No	**Explanation:** Download range. For example, **0-999** indicates the download range is from byte 1 to byte 1,000. **Value range**: Value range: 0 to the object length minus 1. Format: *x-y*, indicating the range is from byte x+1 to byte y+1 **Restrictions:** The upper limit of **range** is the length of the object minus 1. If the specified value exceeds this limit, the length of the object minus 1 is used. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
if_match	str	No	**Explanation:** Preset ETag. If the ETag of the object to be downloaded is the same as the preset ETag, the object is returned. Otherwise, an error is returned. **Value range**: The value must contain 32 characters. **Default value**: None
if_none_match	str	No	**Explanation:** Preset ETag. If the ETag of the object to be downloaded is different from the preset ETag, the object is returned. Otherwise, an error is returned. **Value range**: The value must contain 32 characters. **Default value**: None
if_modified_since	str or **DateTime**	No	**Explanation:** The object is returned if it has been modified since the specified time; otherwise, an error is returned. **Restrictions:** The value must be in the GMT format. For example, **Wed, 25 Mar 2020 02:39:52 GMT**. You can refer to **Table 9-87** to specify time. For example, **DateTime(year=2023, month=9, day=12)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
if_unmodified_since	str or DateTime	No	**Explanation:** The object is returned if it has not been modified since the specified time; otherwise, an error is returned. **Restrictions:** The value must be in the GMT format. For example, **Wed, 25 Mar 2020 02:39:52 GMT**. You can refer to **Table 9-87** to specify time. For example, **DateTime(year=2023, month=9, day=12)** **Default value**: None
origin	str	No	**Explanation:** Origin of the cross-domain request specified by the preflight request. Generally, it is a domain name. **Restrictions:** Each origin can contain only one wildcard character (*). **Default value**: None
requestHeaders	str	No	**Explanation:** HTTP headers in a cross-origin request Only CORS requests matching the allowed headers are valid. **Restrictions:** Each header can contain only one wildcard character (*). Spaces, ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
sseHeader	SseCHeader	No	**Explanation:** Server-side decryption headers. For details, see **Table 9-88**. **Restrictions:** If the object uploaded to the server is encrypted on the server using the encryption key provided by the client, downloading the object requires including the encryption key in the message. **Default value**: None

Table 9-87 DateTime

Parameter	Type	Description
year	int	**Explanation:** Year in UTC **Default value**: None
month	int	**Explanation:** Month in UTC **Default value**: None
day	int	**Explanation:** Day in UTC **Default value**: None
hour	int	**Explanation:** Hour in UTC **Restrictions:** The value is in 24-hour format. **Default value**: 0

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Parameter	Type	Description
min	int	**Explanation:** Minute in UTC **Default value**: 0
sec	int	**Explanation:** Second in UTC **Default value**: 0

Table 9-88 SseCHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-C used for encrypting objects **Value range**: **AES256** **Default value**: None
key	str	Yes	**Explanation:** Key used in SSE-C encryption. It corresponds to the encryption method. For example, if **encryption** is set to **AES256**, the key is calculated using the AES-256 algorithm. **Value range**: The value must contain 32 characters. **Default value**: None

List of returned results

Table 9-89 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

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Table 9-90 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 9-91 GetResult.body

GetResult.body Type	Description
ObjectStream	**Explanation:** Response to the request for downloading an object

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Table 9-92 ObjectStream

Parameter	Type	Description
response	object	**Explanation:** If **loadStreamInMemory** is set to **False** and **downloadPath** is left blank in the request, this parameter is returned and indicates a readable stream. You can read object content from it. **Default value**: None
buffer	object	**Explanation:** If **loadStreamInMemory** is set to **True** in the request, this parameter is returned and indicates the data stream in the memory. **Default value**: None
size	int	**Explanation:** If **loadStreamInMemory** is set to **True** in the request, this parameter is returned and indicates the size of the data stream. **Value range**: An integer greater than or equal to 0, in bytes **Default value**: None
url	str	**Explanation:** If **loadStreamInMemory** is set to **False** and **downloadPath** is not left blank, this parameter is returned and indicates the download path. **Default value**: None
deleteMarker	bool	**Explanation:** Whether the deleted object is a delete marker **Value range**: • **True**: The deleted object is a delete marker. • **False**: The deleted object is not a delete marker. **Default value**: False

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Parameter	Type	Description
storageClass	str	**Explanation:** Object storage class. **Value range**: • If the storage class is Standard, leave this parameter blank. • For details about the available storage classes, see **Table 9-93**. **Default value**: None
accessContorlAllo-wOrigin	str	**Explanation:** If **Origin** in the request meets the CORS rules of the bucket, **AllowedOrigin** specified in the CORS rules is returned. **AllowedOrigin** indicates the origin from which the requests can access the bucket. **Restrictions:** Domain name of the origin. Each origin can contain only one wildcard character (*), for example, **https://*.vbs.example.com**. **Default value**: None
accessContorlAllow-Headers	str	**Explanation:** If **RequestHeader** in the request meets the CORS rules of the bucket, **AllowedHeader** specified in the CORS rules is returned. **AllowedHeader** indicates the allowed headers for cross-origin requests. Only CORS requests matching the allowed headers are valid. **Restrictions:** Each header can contain only one wildcard character (*). Spaces, ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None

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Parameter	Type	Description
accessContorlAllow-Methods	str	**Explanation:** **AllowedMethod** in the CORS rules of the bucket. It specifies the HTTP method of cross-origin requests, that is, the operation type of buckets and objects. **Value range**: The following HTTP methods are supported: • GET • PUT • HEAD • POST • DELETE **Default value**: None
accessContorlExpo-seHeaders	str	**Explanation:** **ExposeHeader** in the CORS rules of the bucket. It specifies the CORS-allowed additional headers in the response. These headers provide additional information to clients. By default, your browser can only access headers **Content-Length** and **Content-Type**. If your browser needs to access other headers, add them to a list of the allowed additional headers. **Restrictions:** Spaces, wildcard characters (*), ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None

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Parameter	Type	Description
accessContorlMax-Age	int	**Explanation:** **MaxAgeSeconds** in the CORS rules of the bucket. It specifies the time your client can cache the response for a cross-origin request. **Restrictions:** Each CORS rule can contain only one **MaxAgeSeconds**. **Value range**: An integer greater than or equal to 0, in seconds **Default value**: 100
contentLength	int	**Explanation:** Object size **Value range**: The value ranges from 0 TB to 48.8 TB, in bytes. **Default value**: None
cacheControl	str	**Explanation:** **Cache-Control** header in the response **Default value**: None
contentDisposition	str	**Explanation:** **Content-Disposition** header in the response **Default value**: None
contentEncoding	str	**Explanation:** **Content-Encoding** header in the response **Default value**: None
contentLanguage	str	**Explanation:** **Content-Language** header in the response **Default value**: None

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Parameter	Type	Description
contentType	str	**Explanation:** MIME type of the file to be uploaded. MIME type is a standard way of describing a data type and is used by the browser to decide how to display data. **Value range**: See **What Is Content-Type (MIME)? (Python SDK)** **Default value**: None
expires	str	**Explanation:** **Expires** header in the response **Default value**: None
lastModified	str	**Explanation:** Time when the last modification was made to the object **Restrictions:** The time must be in the GMT format, for example, **Wed, 25 Mar 2020 02:39:52 GMT**. **Default value**: None

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Parameter	Type	Description
etag	str	**Explanation:** Base64-encoded, 128-bit MD5 value of an object. ETag is the unique identifier of the object contents and is used to determine whether the contents of an object are changed. For example, if the ETag value is **A** when an object is uploaded and is **B** when the object is downloaded, this indicates the contents of the object are changed. The ETag reflects changes only to the contents of an object, not its metadata. Objects created by the upload and copy operations have unique ETags after being encrypted using MD5. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None
versionId	str	**Explanation:** Object version ID. **Value range**: The value must contain 32 characters. **Default value**: None

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Parameter	Type	Description
restore	str	**Explanation:** Restore status of an object. This header is returned when an Archive object is being restored or has been restored. For example, **ongoing-request="true"** indicates that the object is being restored. **ongoing-request="false", expiry-date="Wed, 7 Nov 2012 00:00:00 GMT"** indicates that the object has been restored. **expiry-date** indicates when the restored object expires. **Restrictions:** If the object is not in the Archive storage class, this parameter is left blank. **Default value**: None
expiration	str	**Explanation:** Expiration details. Example: **"expiry-date=\"Mon, 11 Sep 2023 00:00:00 GMT\""** **Default value**: None
sseKms	str	**Explanation:** Objects are encrypted using SSE-KMS on the server side. **Value range**: **kms** **Default value**: None

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Parameter	Type	Description
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. key_id In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, the system will create one and use it by default.
sseC	str	**Explanation:** SSE-C algorithm **Value range**: AES256 **Default value**: None
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None

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Parameter	Type	Description
websiteRedirectLocation	str	**Explanation:** If the bucket is configured with website hosting, the request for obtaining the object can be redirected to another object in the bucket or an external URL. This parameter specifies the address the request for the object is redirected to. The request is redirected to object **anotherPage.html** in the same bucket: **WebsiteRedirectLocation:/anotherPage.html** The request is redirected to an external URL **http://www.example.com/**: **WebsiteRedirectLocation:http://www.example.com/** OBS obtains the specified value from the header and stores it in the object metadata **WebsiteRedirectLocation**. **Restrictions:** • The value must start with a slash (/), **http://**, or **https://** and cannot exceed 2 KB. • OBS only supports redirection for objects in the root directory of a bucket. **Default value**: None

Table 9-93 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.

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Parameter	Type	Description
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

Code Examples

This example downloads a file.

```
from obs import GetObjectHeader
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify the additional headers of the request for downloading an object.
    headers = GetObjectHeader()
    # (Optional) The object is returned if it has been modified since the specified time; otherwise, an error is returned.
    headers.if_modified_since = 'date'
    # Specify the full path (localfile as an example) to which objects are downloaded. The full path contains the local file name.
    downloadPath = 'localfile'
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Perform the file-based download.
    resp = obsClient.getObject(bucketName, objectKey, downloadPath, headers=headers)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Object Succeeded')
        print('requestId:', resp.requestId)
        print('url:', resp.body.url)
    else:
        print('Get Object Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
```

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```
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Object Failed')
    print(traceback.format_exc())
```

NOTE

- Use **downloadPath** to specify the path for saving the file to be downloaded. (If you choose the current directory, it must be contained in the path, for example, **./***xxx*. The path cannot contain only the file name *xxx*.)
- If **loadStreamInMemory** is set to **True**, **downloadPath** is omitted.

NOTICE

If the value of **downloadPath** is a file path instead of a folder path, the object is downloaded as the file.

Helpful Links

- Downloading Objects
- (GitHub) Sample Code for Downloading an Object
- OBS Error Codes
- FAQ for Object Download Failure

9.13 Downloading an Object - Range-Based (SDK for Python)

Function

This API downloads partial data of an object by specifying a range. If the specified range is from **0** to **1000**, data from byte 0 to byte 1,000, 1,001 bytes in total, are returned. If the specified range is invalid, data of the whole object is returned.

Restrictions

- To download an object, you must be the bucket owner or have the required permission (**obs:object:GetObject** in IAM or **GetObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- Objects in the Archive storage class can be downloaded only when they are restored.
- If the specified range is invalid (for example, the start or end position is set to a negative integer or the range is larger than the object length), the whole object is returned.

Method

```
ObsClient.getObject(bucketName, objectKey, downloadPath, getObjectRequest, headers,
loadStreamInMemory, progressCallback, extensionHeaders)
```

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Request Parameters

Table 9-94 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
downloadPath	str	No	**Explanation:** The download path with the file name contained, for example, **aa/bb.txt**. **Default value**: None
getObjectRequest	**GetObjectRequest**	No	**Explanation:** Additional parameters of an object download request **Value range**: See **Table 9-95**.
headers	**GetObjectHeader**	No	**Explanation:** Additional headers of an object download request **Value range**: See **Table 9-96**.

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Parameter	Type	Mandatory (Yes/No)	Description
loadStreamInMemory	bool	No	**Explanation:** Whether to load the data stream of the object to memory **Value range**: **True**: The obtained data stream is loaded to memory with **downloadPath** ignored. **False**: The obtained data stream is not loaded to memory. **Default value**: False
progressCallback	callable	No	**Explanation:** Callback function for obtaining the download progress **Default value**: None **NOTE** This function contains the following parameters in sequence: number of downloaded bytes, total number of bytes, and used time (in seconds). For details about the sample code, see **Downloading an Object - Obtaining the Download Progress (SDK for Python)**.
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Table 9-95 GetObjectRequest

Parameter	Type	Mandatory (Yes/No)	Description
cache_control	str	No	**Explanation:** **Cache-Control** is rewritten in the response. **Default value**: None
content_disposition	str	No	**Explanation:** **Content-Disposition** is rewritten in the response. **Default value**: None
content_encoding	str	No	**Explanation:** **Content-Encoding** is rewritten in the response. **Default value**: None
content_language	str	No	**Explanation:** **Content-Language** is rewritten in the response. **Default value**: None
content_type	str	No	**Explanation:** **Content-Type** is rewritten in the response. **Default value**: None
expires	str	No	**Explanation:** **Expires** is rewritten in the response. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
versionId	str	No	**Explanation:** Object version ID, for example, **G001117FCE89978B0000401205D5DC9** **Value range**: The value must contain 32 characters. **Default value**: None. If this parameter is left blank, the latest version of the object is obtained.

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Table 9-96 GetObjectHeader

Parameter	Type	Mandatory (Yes/No)	Description
range	str	No	**Explanation:** The object content within the specified range is downloaded. If the range value is invalid, the entire object is downloaded. **Value range**: The upper limit of **range** is the length of the object minus 1. If the specified value exceeds this limit, the length of the object minus 1 is used. **Restrictions:** • The value of **range** ranges from 0 to the object size minus 1. The start value of **range** is mandatory. If only the start value is specified, the object content from the start value to the object size minus 1 is downloaded. bytes=byte_range Example 1: bytes=0-4 Example 2: bytes=1024 Example 3: bytes=10-20,30-40 (multiple ranges) • Even when the **range** header is included, the ETag value in the response still corresponds to the entire object, not just the specified range. **Default value**: None
if_match	str	No	**Explanation:** Preset ETag. If the ETag of the object to be downloaded is the same as the preset ETag, the object is returned. Otherwise, an error is returned. **Value range**: The value must contain 32 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
if_none_match	str	No	**Explanation:** Preset ETag. If the ETag of the object to be downloaded is different from the preset ETag, the object is returned. Otherwise, an error is returned. **Value range**: The value must contain 32 characters. **Default value**: None
if_modified_since	str or **DateTime**	No	**Explanation:** The object is returned if it has been modified since the specified time; otherwise, an error is returned. **Restrictions:** You can generate a date time by referring to **Table 9-97**. For example, **DateTime(year=2023, month=9, day=12)** **Default value**: None
if_unmodified_since	str or **DateTime**	No	**Explanation:** The object is returned if it has not been modified since the specified time; otherwise, an error is returned. **Restrictions:** You can generate a date time by referring to **Table 9-97**. For example, **DateTime(year=2023, month=9, day=12)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
origin	str	No	**Explanation:** Origin of the cross-domain request specified by the preflight request. Generally, it is a domain name. **Restrictions:** Each origin can contain only one wildcard character (*). **Default value**: None
requestHeaders	str	No	**Explanation:** HTTP headers in a cross-origin request. Only CORS requests matching the allowed headers are valid. **Restrictions:** Each header can contain only one wildcard character (*). Spaces, ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None
sseHeader	**SseCHeader**	No	**Explanation:** Server-side decryption headers. For details, see **Table 9-98**. **Restrictions:** If the object uploaded to the server is encrypted on the server using the encryption key provided by the client, downloading the object requires including the encryption key in the message. **Default value**: None

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Table 9-97 DateTime

Parameter	Type	Description
year	int	**Explanation:** Year in UTC **Default value**: None
month	int	**Explanation:** Month in UTC **Default value**: None
day	int	**Explanation:** Day in UTC **Default value**: None
hour	int	**Explanation:** Hour in UTC **Restrictions:** The value is in 24-hour format. **Default value**: 0
min	int	**Explanation:** Minute in UTC **Default value**: 0
sec	int	**Explanation:** Second in UTC **Default value**: 0

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Table 9-98 SseCHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-C used for encrypting objects **Value range**: **AES256** **Default value**: None
key	str	Yes	**Explanation:** Key used in SSE-C encryption. It corresponds to the encryption method. For example, if **encryption** is set to **AES256**, the key is calculated using the AES-256 algorithm. **Value range**: The value must contain 32 characters. **Default value**: None

List of returned results

Table 9-99 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

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Table 9-100 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 9-101 GetResult.body

GetResult.body Type	Description
ObjectStream	**Explanation:** Response to the request for downloading an object

Table 9-102 ObjectStream

Parameter	Type	Description
response	object	**Explanation:** If **loadStreamInMemory** is set to **False** and **downloadPath** is left blank in the request, this parameter is returned and indicates a readable stream. You can read object content from it.

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Parameter	Type	Description
buffer	object	**Explanation:** If **loadStreamInMemory** is set to **True** in the request, this parameter is returned and indicates the data stream in the memory.
size	int	**Explanation:** If **loadStreamInMemory** is set to **True** in the request, this parameter is returned and indicates the size of the data stream. **Value range**: 0 to (2^{63} – 1), in bytes
url	str	**Explanation:** If **loadStreamInMemory** is set to **False** and **downloadPath** is not left blank, this parameter is returned and indicates the download path.
deleteMarker	bool	**Explanation:** Whether the deleted object is a delete marker **Value range**: • **True**: The deleted object is a delete marker. • **False**: The deleted object is not a delete marker. **Default value**: False
storageClass	str	**Explanation:** Object storage class. **Value range**: • If the storage class is Standard, leave this parameter blank. • For details about the available storage classes, see **Table 9-103**. **Default value**: None

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Parameter	Type	Description
accessContorlAllo-wOrigin	str	**Explanation:** If **Origin** in the request meets the CORS rules of the bucket, **AllowedOrigin** specified in the CORS rules is returned. **AllowedOrigin** indicates the origin from which the requests can access the bucket. **Restrictions:** Domain name of the origin. Each origin can contain only one wildcard character (*), for example, **https://*.vbs.example.com**. **Default value**: None
accessContorlAllow-Headers	str	**Explanation:** If **RequestHeader** in the request meets the CORS rules of the bucket, **AllowedHeader** specified in the CORS rules is returned. **AllowedHeader** indicates the allowed headers for cross-origin requests. Only CORS requests matching the allowed headers are valid. **Restrictions:** Each header can contain only one wildcard character (*). Spaces, ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None
accessContorlAllow-Methods	str	**Explanation:** **AllowedMethod** in the CORS rules of the bucket. It specifies the HTTP method of cross-origin requests, that is, the operation type of buckets and objects. **Value range**: The following HTTP methods are supported: ● GET ● PUT ● HEAD ● POST ● DELETE **Default value**: None

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Parameter	Type	Description
accessContorlExpo-seHeaders	str	**Explanation:** **ExposeHeader** in the CORS rules of the bucket. It specifies the CORS-allowed additional headers in the response. These headers provide additional information to clients. By default, your browser can only access headers **Content-Length** and **Content-Type**. If your browser needs to access other headers, add them to a list of the allowed additional headers. **Restrictions:** Spaces, wildcard characters (*), ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None
accessContorlMax-Age	int	**Explanation:** **MaxAgeSeconds** in the CORS rules of the bucket. It specifies the time your client can cache the response for a cross-origin request. **Restrictions:** Each CORS rule can contain only one **MaxAgeSeconds**. **Value range**: 0 to (2^{31} – 1), in seconds **Default value**: 100
contentLength	int	**Explanation:** Object size **Value range**: The value ranges from 0 TB to 48.8 TB, in bytes. **Default value**: None
cacheControl	str	**Explanation:** **Cache-Control** header in the response **Default value**: None

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Parameter	Type	Description
contentDisposition	str	**Explanation:** **Content-Disposition** header in the response **Default value**: None
contentEncoding	str	**Explanation:** **Content-Encoding** header in the response **Default value**: None
contentLanguage	str	**Explanation:** **Content-Language** header in the response **Default value**: None
contentType	str	**Explanation:** MIME type of the file to be uploaded. MIME type is a standard way of describing a data type and is used by the browser to decide how to display data. **Value range**: See **What Is Content-Type (MIME)? (Python SDK)** **Default value**: None
expires	str	**Explanation:** **Expires** header in the response **Default value**: None
lastModified	str	**Explanation:** Time when the last modification was made to the object **Restrictions:** The time must be in the GMT format, for example, **Wed, 25 Mar 2020 02:39:52 GMT**. **Default value**: None

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Parameter	Type	Description
etag	str	**Explanation:** Base64-encoded, 128-bit MD5 value of an object. ETag is the unique identifier of the object contents and is used to determine whether the contents of an object are changed. For example, if the ETag value is **A** when an object is uploaded and is **B** when the object is downloaded, this indicates the contents of the object are changed. The ETag reflects changes only to the contents of an object, not its metadata. Objects created by the upload and copy operations have unique ETags after being encrypted using MD5. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None
versionId	str	**Explanation:** Object version ID. **Value range**: The value must contain 32 characters. **Default value**: None

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Parameter	Type	Description
restore	str	**Explanation:** Restore status of an object. This header is returned when an Archive object is being restored or has been restored. For example, **ongoing-request="true"** indicates that the object is being restored. **ongoing-request="false", expiry-date="Wed, 7 Nov 2012 00:00:00 GMT"** indicates that the object has been restored. **expiry-date** indicates when the restored object expires. **Restrictions:** If the object is not in the Archive storage class, this parameter is left blank. **Default value**: None
expiration	str	**Explanation:** Expiration details. Example: **"expiry-date=\"Mon, 11 Sep 2023 00:00:00 GMT\""** **Default value**: None
sseKms	str	**Explanation:** Objects are encrypted using SSE-KMS on the server side. **Value range**: **kms** **Default value**: None

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Parameter	Type	Description
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. key_id In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, the system will create one and use it by default.
sseC	str	**Explanation:** SSE-C algorithm **Value range**: **AES256** **Default value**: None
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None

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Parameter	Type	Description
websiteRedirectLocation	str	**Explanation:** If the bucket is configured with website hosting, the request for obtaining the object can be redirected to another object in the bucket or an external URL. This parameter specifies the address the request for the object is redirected to. The request is redirected to object **anotherPage.html** in the same bucket: **WebsiteRedirectLocation:/anotherPage.html** The request is redirected to an external URL **http://www.example.com/**: **WebsiteRedirectLocation:http://www.example.com/** OBS obtains the specified value from the header and stores it in the object metadata **WebsiteRedirectLocation**. **Restrictions:** • The value must start with a slash (/), **http://**, or **https://** and cannot exceed 2 KB. • OBS only supports redirection for objects in the root directory of a bucket. **Default value**: None

Table 9-103 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.

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Parameter	Type	Description
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

Code Examples

This example downloads part of object **objectname** by specifying a range from 0 to 1,000. You can also specify multiple ranges when obtaining the **objectname** object.

```
from obs import GetObjectHeader
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify the additional headers of the request for downloading an object.
    headers = GetObjectHeader()
    # Specify the range (0-1000 in this example) of the object bytes to be returned.
    # You can specify multiple ranges when obtaining an object. For example, headers.range='0-1000,2000-3000'.
    headers.range = '0-1000'
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Perform the range download. If loadStreamInMemory is set to True, downloadpath will be invalid, and data streams will be downloaded to the memory.
    resp = obsClient.getObject(bucketName, objectKey, loadStreamInMemory=True, headers=headers)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Object Succeeded')
        print('requestId:', resp.requestId)
        # Obtain the object content.
        print('buffer:', resp.body.buffer)
    else:
```

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```
        print('Get Object Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Object Failed')
    print(traceback.format_exc())
```

NOTE

- If the specified range is invalid (for example, the start or end position is set to a negative integer or the range is larger than the object length), the whole object is returned.

Helpful Links

- **Downloading Objects**
- **(GitHub) Sample Code for Downloading an Object**
- **OBS Error Codes**
- **FAQ for Object Download Failure**

9.14 Downloading an Object - Resumable (SDK for Python)

Function

Downloading large files often fails due to unstable network or program breakdown. It is a waste of resources to download files again. Moreover, the restarted download may still fail due to an unstable network. To resolve such issues, the resumable download API splits the file to be downloaded into multiple parts and downloads them separately. The download result of each part is recorded in a checkpoint file in real time. Only when all parts are downloaded is a message indicating the download is successful returned. If any parts fail to be downloaded, a message is returned telling you to call the API again to download the failed parts. Since the checkpoint file contains the progress of all parts, it helps you avoid downloading all parts in re-downloads, so that you can enjoy a cost-effective, efficient download.

Restrictions

- To download an object, you must be the bucket owner or have the required permission (**obs:object:GetObject** in IAM or **GetObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- The resumable download is an encapsulated and enhanced version of **partial download**.
- This API saves resources and improves efficiency upon the re-download, and speeds up the download process by concurrently downloading parts. You do not need to worry about internal service details, such as the creation and deletion of checkpoint files, division of objects, or concurrent downloads of parts.
- **EnableCheckpoint**: The default value is **False**, indicating that resumable download is disabled. In this case, the resumable download API is a simple

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encapsulation of the partial download API, and no checkpoint file will be generated.

- **CheckpointFile**: This parameter is valid only when **EnableCheckpoint** is **True**.

Method

```
ObsClient.downloadFile(bucketName, objectKey, downloadFile, partSize, taskNum, enableCheckpoint, checkpointFile, header, versionId, progressCallback, extensionHeaders)
```

Request Parameters

Table 9-104 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
downloadFile	str	Yes	**Explanation:** Full local path for saving the file to be downloaded **Default value**: None
partSize	int	No	**Explanation:** Part size **Value range**: The value must be greater than 0 but less than the object size, in bytes. **Default value**: 5MB

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Parameter	Type	Mandatory (Yes/No)	Description
taskNum	int	No	**Explanation:** Maximum number of parts that can be downloaded concurrently in a multipart download **Value range**: The value must be greater than 0 but not exceed the result of the file size divided by the part size (rounded up). **Default value**: **1**, indicating concurrent downloads are not used.
enableCheckpoint	bool	No	**Explanation:** Whether to enable the resumable download mode **Value range**: **True**: The resumable download mode is enabled. **False**: The resumable download mode is disabled. **Default value**: **False**
checkpointFile	str	No	**Explanation:** Path of a file generated for recording the progress of a resumable download. The file contains the information about parts and progress. **Restrictions:** This parameter is valid only for resumable uploads. **Default value**: If this parameter is left blank, the checkpoint file will be saved in the current directory.

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Parameter	Type	Mandatory (Yes/No)	Description
header	GetObjectHeader	No	**Explanation:** Headers in the request used for obtaining the storage class, redundancy policy, and other basic information about the object **Value range**: See Table 9-105. **Default value**: None
versionId	str	No	**Explanation:** Object version ID, for example, **G001117FCE89978B0000401205D5DC9** **Value range**: The value must contain 32 characters. **Default value**: None. If this parameter is left blank, the latest version of the object is obtained.
progressCallback	callable	No	**Explanation:** Callback function for obtaining the download progress **Default value**: None **NOTE** This function contains the following parameters in sequence: number of downloaded bytes, total number of bytes, and used time (in seconds). For details about the sample code, see **Downloading an Object - Obtaining the Download Progress (SDK for Python)**.
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Table 9-105 GetObjectHeader

Parameter	Type	Mandatory (Yes/No)	Description
range	str	No	**Explanation:** Download range. For example, **0-999** indicates the download range is from byte 1 to byte 1,000. **Value range**: Value range: 0 to the object length minus 1. Format: *x-y*, indicating the range is from byte x+1 to byte y+1 **Restrictions:** The upper limit of **range** is the length of the object minus 1. If the specified value exceeds this limit, the length of the object minus 1 is used. **Default value**: None
if_match	str	No	**Explanation:** Preset ETag. If the ETag of the object to be downloaded is the same as the preset ETag, the object is returned. Otherwise, an error is returned. **Value range**: The value must contain 32 characters. **Default value**: None
if_none_match	str	No	**Explanation:** Preset ETag. If the ETag of the object to be downloaded is different from the preset ETag, the object is returned. Otherwise, an error is returned. **Value range**: The value must contain 32 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
if_modified_since	str or **DateTime**	No	**Explanation:** The object is returned if it has been modified since the specified time; otherwise, an error is returned. **Restrictions:** The value must be in the GMT format. For example, **Wed, 25 Mar 2020 02:39:52 GMT**. You can refer to **Table 9-106** to specify time. For example, **DateTime(year=2023, month=9, day=12)** **Default value**: None
if_unmodified_since	str or **DateTime**	No	**Explanation:** The object is returned if it has not been modified since the specified time; otherwise, an error is returned. **Restrictions:** The value must be in the GMT format. For example, **Wed, 25 Mar 2020 02:39:52 GMT**. You can refer to **Table 9-106** to specify time. For example, **DateTime(year=2023, month=9, day=12)** **Default value**: None
origin	str	No	**Explanation:** Origin of the cross-domain request specified by the preflight request. Generally, it is a domain name. **Restrictions:** Each origin can contain only one wildcard character (*). **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
requestHeaders	str	No	**Explanation:** HTTP headers in a cross-origin request Only CORS requests matching the allowed headers are valid. **Restrictions:** Each header can contain only one wildcard character (*). Spaces, ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None
sseHeader	**SseCHeader**	No	**Explanation:** Server-side decryption headers. For details, see **Table 9-107**. **Restrictions:** If the object uploaded to the server is encrypted on the server using the encryption key provided by the client, downloading the object requires including the encryption key in the message. **Default value**: None

Table 9-106 DateTime

Parameter	Type	Description
year	int	**Explanation:** Year in UTC **Default value**: None
month	int	**Explanation:** Month in UTC **Default value**: None

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Parameter	Type	Description
day	int	**Explanation:** Day in UTC **Default value**: None
hour	int	**Explanation:** Hour in UTC **Restrictions:** The value is in 24-hour format. **Default value**: 0
min	int	**Explanation:** Minute in UTC **Default value**: 0
sec	int	**Explanation:** Second in UTC **Default value**: 0

Table 9-107 SseCHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-C used for encrypting objects **Value range**: **AES256** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
key	str	Yes	**Explanation:** Key used in SSE-C encryption. It corresponds to the encryption method. For example, if **encryption** is set to **AES256**, the key is calculated using the AES-256 algorithm. **Value range**: The value must contain 32 characters. **Default value**: None

Responses

Table 9-108 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 9-109 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None

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Parameter	Type	Description
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None

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Parameter	Type	Description
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 9-110 GetResult.body

GetResult.body Type	Description
GetObjectMetadataResponse	**Explanation:** For details, see **Table 9-111**.

Table 9-111 GetObjectMetadataResponse

Parameter	Type	Description
storageClass	str	**Explanation:** Object storage class. **Value range**: • If the storage class is Standard, leave this parameter blank. • For details about the available storage classes, see **Table 9-112**. **Default value**: None
accessContorlAllo-wOrigin	str	**Explanation:** If **Origin** in the request meets the CORS rules of the bucket, **AllowedOrigin** specified in the CORS rules is returned. **AllowedOrigin** indicates the origin from which the requests can access the bucket. **Restrictions:** Domain name of the origin. Each origin can contain only one wildcard character (*), for example, **https://*.vbs.example.com**. **Default value**: None

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Parameter	Type	Description
accessContorlAllow-Headers	str	**Explanation:** If **RequestHeader** in the request meets the CORS rules of the bucket, **AllowedHeader** specified in the CORS rules is returned. **AllowedHeader** indicates the allowed headers for cross-origin requests. Only CORS requests matching the allowed headers are valid. **Restrictions:** Each header can contain only one wildcard character (*). Spaces, ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None
accessContorlAllow-Methods	str	**Explanation:** **AllowedMethod** in the CORS rules of the bucket. It specifies the HTTP method of cross-origin requests, that is, the operation type of buckets and objects. **Value range**: The following HTTP methods are supported: ● GET ● PUT ● HEAD ● POST ● DELETE **Default value**: None

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Parameter	Type	Description
accessContorlExpo-seHeaders	str	**Explanation:** **ExposeHeader** in the CORS rules of the bucket. It specifies the CORS-allowed additional headers in the response. These headers provide additional information to clients. By default, your browser can only access headers **Content-Length** and **Content-Type**. If your browser needs to access other headers, add them to a list of the allowed additional headers. **Restrictions:** Spaces, wildcard characters (*), ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None
accessContorlMax-Age	int	**Explanation:** **MaxAgeSeconds** in the CORS rules of the bucket. It specifies the time your client can cache the response for a cross-origin request. **Restrictions:** Each CORS rule can contain only one **MaxAgeSeconds**. **Value range**: An integer greater than or equal to 0, in seconds **Default value**: 100
contentLength	int	**Explanation:** Object size **Value range**: The value ranges from 0 TB to 48.8 TB, in bytes. **Default value**: None

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Parameter	Type	Description
contentType	str	**Explanation:** MIME type of the object to be downloaded. MIME type is a standard way of describing a data type and is used by the browser to decide how to display data. **Value range**: See **What Is Content-Type (MIME)? (Python SDK)** **Default value**: None
lastModified	str	**Explanation:** Time when the last modification was made to the object **Restrictions:** The time must be in the GMT format, for example, **Wed, 25 Mar 2020 02:39:52 GMT**. **Default value**: None
etag	str	**Explanation:** Base64-encoded, 128-bit MD5 value of an object. ETag is the unique identifier of the object contents and is used to determine whether the contents of an object are changed. For example, if the ETag value is **A** when an object is uploaded and is **B** when the object is downloaded, this indicates the contents of the object are changed. The ETag reflects changes only to the contents of an object, not its metadata. Objects created by the upload and copy operations have unique ETags after being encrypted using MD5. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None

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Parameter	Type	Description
versionId	str	**Explanation:** Object version ID. **Value range**: The value must contain 32 characters. **Default value**: None
restore	str	**Explanation:** Restore status of an object. This header is returned when an Archive object is being restored or has been restored. For example, **ongoing-request="true"** indicates that the object is being restored. **ongoing-request="false", expiry-date="Wed, 7 Nov 2012 00:00:00 GMT"** indicates that the object has been restored. **expiry-date** indicates when the restored object expires. **Restrictions:** This parameter is only available for Archive objects. **Default value**: None
expiration	str	**Explanation:** Expiration details. Example: **"expiry-date=\"Mon, 11 Sep 2023 00:00:00 GMT\""** **Default value**: None
sseKms	str	**Explanation:** SSE-KMS is used for encrypting objects on the server side. **Value range**: **kms** **Default value**: None

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Parameter	Type	Description
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. key_id In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, the system will create one and use it by default.
sseC	str	**Explanation:** SSE-C algorithm **Value range**: AES256 **Default value**: None
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None

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Parameter	Type	Description
websiteRedirectLocation	str	**Explanation:** If the bucket is configured with website hosting, the request for obtaining the object can be redirected to another object in the bucket or an external URL. This parameter specifies the address the request for the object is redirected to. The request is redirected to object **anotherPage.html** in the same bucket: **WebsiteRedirectLocation:/anotherPage.html** The request is redirected to an external URL **http://www.example.com/**: **WebsiteRedirectLocation:http://www.example.com/** OBS obtains the specified value from the header and stores it in the object metadata **WebsiteRedirectLocation**. **Restrictions:** ● The value must start with a slash (/), **http://**, or **https://** and cannot exceed 2 KB. ● OBS only supports redirection for objects in the root directory of a bucket. **Default value**: None
isAppendable	bool	**Explanation:** Whether the object is appendable **Value range**: **True**: The object is appendable. **False**: The object is not appendable. **Default value**: None
nextPosition	int	**Explanation:** Start position for next appending **Value range**: 0 to the object length, in bytes. **Default value**: None

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Table 9-112 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

Code Examples

This example downloads object **objectname** from bucket **examplebucket** using resumable download.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
```

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```
    # Specify the full path to which objects are downloaded. The full path contains the local file name.
    downloadFile = 'localfile'
    # Specify the number of parts that can be concurrently downloaded.
    taskNum = 5
    # Specify the part size.
    partSize = 10 * 1024 * 1024
    # Enable the resumable download by setting enableCheckpoint to True.
    enableCheckpoint = True
    # Download the object using resumable download.
    resp = obsClient.downloadFile(bucketName, objectKey, downloadFile, partSize, taskNum,
enableCheckpoint)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Download File Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Download File Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Download File Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Downloading Objects**
- **(GitHub) Sample Code for Downloading an Object**
- **OBS Error Codes**
- **FAQ for Object Download Failure**

9.15 Downloading an Object - Obtaining the Download Progress (SDK for Python)

You can obtain the download progress when downloading an object in binary, streaming, file-based, or resumable mode.

This example returns the object download progress.

Sample code is as follows:

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using
hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://
support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from
environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it
with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify
security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
```

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```
# Obtain the download progress.
def callback(transferredAmount, totalAmount, totalSeconds):
    # Obtain the average download rate (KB/s).
    print(transferredAmount * 1.0 / totalSeconds / 1024)
    # Obtain the download progress in percentage.
    print(transferredAmount * 100.0 / totalAmount)

try:
    bucketName="examplebucket"
    objectKey="objectname"
    # Download an object.
    resp = obsClient.getObject(bucketName=bucketName,objectKey=objectKey, progressCallback=callback)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Object Succeeded')
        print('requestId:', resp.requestId)
        # Read the object content.
        while True:
            chunk = resp.body.response.read(65536)
            if not chunk:
                break
            print(chunk)
        resp.body.response.close()
    else:
        print('Get Object Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Object Failed')
    print(traceback.format_exc())
```

9.16 Uploading an Object - Creating a Folder (SDK for Python)

Function

This API creates a folder in an existing bucket to manage data in OBS.

OBS does not involve folders like in a file system. All elements stored in OBS buckets are objects. To create a folder in OBS is essentially to create an object whose size is 0 and whose name ends with a slash (/). Such objects are no different from other objects (you can perform normal operations on them such as download and delete), except that they are displayed as folders in OBS console.

Restrictions

- To create a folder, you must be the bucket owner or have the required permission (**obs:object:PutObject** in IAM or **PutObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- To create a folder in OBS is essentially to create an object whose size is 0 and whose name ends with a slash (/).
- If the folder you create is a subfolder, its parent folders will not be automatically created. For example, if you call this API to create folder **src1/src2/src3/**, this folder will be created, but **src1/** and **src1/src2/** will not.

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Method

```
ObsClient.putContent(bucketName, objectKey, content, metadata, headers, progressCallback, autoClose, extensionHeaders)
```

Request Parameters

Table 9-113 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
content	str or readable object	No	**Explanation:** Content of the object to be uploaded **Value range**: None **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
metadata	dict	No	**Explanation:** Custom metadata of the object to be uploaded. You can add a header starting with **x-obs-meta-** in the request to define metadata. The custom metadata will be returned in the response when you retrieve the object or query the object metadata. **Restrictions:** • The custom metadata cannot exceed 8 KB. To measure the custom metadata, sum the number of bytes in the UTF-8 encoding of each key and value. • The custom metadata keys are case insensitive, but are stored in lowercase in OBS. The key values are case sensitive. • Both custom metadata keys and their values must conform to US-ASCII standards. If non-ASCII or unrecognizable characters are required, they must be encoded and decoded in URL or Base64 on the client, because the server does not perform such operations. **Default value**: None
headers	**PutObjectHeader**	No	**Explanation:** Headers in the request used for configuring the storage class, redundancy policy, and other basic information about the object **Value range**: See **Table 9-114**. **Default value**: None

Parameter	Type	Mandatory (Yes/No)	Description
progressCallback	callable	No	**Explanation:** Callback function for obtaining the upload progress **Default value**: None **NOTE** This function contains the following parameters in sequence: number of uploaded bytes, total number of bytes, and used time (in seconds). For details about the sample code, see **Obtaining the Upload Progress (SDK for Python)**. Streaming uploads, file-based uploads, multipart uploads, appendable uploads, and resumable uploads are supported.
autoClose	bool	No	**Explanation:** Whether or not to automatically close data streams after the upload is complete **Value range**: **True**: The data stream is automatically closed. **False**: The data stream is not automatically closed. **Default value**: True
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Table 9-114 PutObjectHeader

Parameter	Type	Mandatory (Yes/No)	Description
md5	str	No	**Explanation:** Base64-encoded MD5 value of the data to be uploaded. It is used for the OBS server to verify data integrity. **Value range**: Base64-encoded 128-bit MD5 value of the request body calculated according to RFC 1864 Example: **n58IG6hfM7vqI4K0vnWpog==** **Default value**: None
acl	str	No	**Explanation:** ACL that can be pre-defined during object creation For details about the ACL, see **ACLs**. **Value range**: For details about the available options, see **HeadPermission**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
location	str	No	**Explanation:** If the bucket is configured with website hosting, the request for obtaining the object can be redirected to another object in the bucket or an external URL. The request is redirected to object **anotherPage.html** in the same bucket: **location:/anotherPage.html** The request is redirected to an external URL **http://www.example.com/**: **location:http://www.example.com/** OBS obtains the specified value from the header and stores it in the object metadata **location**. **Restrictions:** • The value must start with a slash (/), **http://**, or **https://** and cannot exceed 2 KB. • OBS only supports redirection for objects in the root directory of a bucket. **Default value**: None
contentType	str	No	**Explanation:** MIME type of the file to be uploaded. MIME type is a standard way of describing a data type and is used by the browser to decide how to display data. **Value range**: See **What Is Content-Type (MIME)? (Python SDK)** **Default value**: If you do not specify **contentType** when uploading an object, the SDK determines the object type based on the suffix of the specified object name and automatically assigns a value to **contentType**.

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Parameter	Type	Mandatory (Yes/No)	Description
contentLength	int	No	**Explanation:** Size of the object to be uploaded **Restrictions:** • The object size in a single upload ranges from 0 to 5 GB. • To upload files larger than 5 GB, **multipart uploads** should be used. **Default value**: If this parameter is not specified, OBS SDK for Python automatically calculates the size of the object.
sseHeader	**SseCHeader** or **SseKmsHeader**	No	**Explanation:** Header for server-side encryption. For details, see **Table 9-117** or **Table 9-118**. **Default value**: None
storageClass	str	No	**Explanation:** Storage class of the object **Value range**: See **Table 9-116**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
successActionRedirect	str	No	**Explanation:** Address (URL) to which a successfully answered request is redirected • If the value is valid and the request is successful, OBS returns status code **303**. **Location** in the returned results contains **SuccessActionRedirect** as well as the bucket name, object name, and object ETag. • If the value is invalid, OBS ignores this parameter. In such case, **Location** in the returned results indicates the object address, and OBS returns a status code based on whether the operation succeeds or fails. **Default value**: None
extensionGrants	list of **ExtensionGrant**	No	**Explanation:** List of the extended permissions for the object to be uploaded **Value range**: See **Table 9-119**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
expires	int	No	**Explanation:** Expiration time of the object (calculated from the latest modification time of the object). Expired objects are automatically deleted. **Restrictions:** This parameter can be configured only when uploading the object. It cannot be modified by calling a metadata modification API. **Value range**: An integer greater than or equal to 0, in days **Default value**: None

Table 9-115 HeadPermission

Constant	Default Value	Description
HeadPermission.PRIVATE	private	Private read/write A bucket or object can only be accessed by its owner.
HeadPermission.PUBLIC_READ	public-read	Public read and private write If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket. If it is granted on an object, anyone can read the content and metadata of the object.

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Constant	Default Value	Description
HeadPermission.PUBLIC_READ_WRITE	public-read-write	Public read/write If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart upload tasks. If it is granted on an object, anyone can read the content and metadata of the object.
HeadPermission.PUBLIC_READ_DELIVERED	public-read-delivered	Public read on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions, and read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_DELIVERED** cannot be applied to objects.
HeadPermission.PUBLIC_READ_WRITE_DELIVERED	public-read-write-delivered	Public read/write on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart uploads. They can also read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_WRITE_DELIVERED** cannot be applied to objects.

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Constant	Default Value	Description
HeadPermission.BUCKET_OWNER_FULL_CONTROL	bucket-owner-full-control	If this permission is granted on an object, only the bucket and object owners have the full control over the object. By default, if you upload an object to a bucket owned by another user, the bucket owner does not have the permissions on your object. After you grant this permission to the bucket owner, the bucket owner can have full control over your object.

Table 9-116 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

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Table 9-117 SseCHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-C used for encrypting objects **Value range**: **AES256** **Default value**: None
key	str	Yes	**Explanation:** Key used in SSE-C encryption. It corresponds to the encryption method. For example, if **encryption** is set to **AES256**, the key is calculated using the AES-256 algorithm. **Value range**: The value must contain 32 characters. **Default value**: None

Table 9-118 SseKmsHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-KMS used for encrypting objects **Value range**: **kms** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
key	str	No	**Explanation:** Master key used in SSE-KMS **Value range**: The following two formats are supported: • *regionID*:*domainID*:**key/***key_id* • *key_id* In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, OBS will create one and use it by default.

Table 9-119 ExtensionGrant

Parameter	Type	Mandatory (Yes/No)	Description
granteeId	str	No	**Explanation:** Account (domain) ID of the grantee **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
permission	str	No	**Explanation:** Granted **permissions** **Default value**: None

Table 9-120 Permission

Constant	Description
READ	Read permission A grantee with this permission for a bucket can obtain the list of objects, multipart uploads, bucket metadata, and object versions in the bucket. A grantee with this permission for an object can obtain the object content and metadata.
WRITE	Write permission A grantee with this permission for a bucket can upload, overwrite, and delete any object or part in the bucket. Such permission for an object is not applicable.
READ_ACP	Permission to read ACL configurations A grantee with this permission can obtain the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently.
WRITE_ACP	Permission to modify ACL configurations A grantee with this permission can update the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently. A grantee with this permission can modify the ACL, thus obtaining full access permissions.
FULL_CONTROL	Full control access, including read and write permissions for a bucket and its ACL, or for an object and its ACL. A grantee with this permission for a bucket has **READ**, **WRITE**, **READ_ACP**, and **WRITE_ACP** permissions for the bucket. A grantee with this permission for an object has **READ**, **READ_ACP**, and **WRITE_ACP** permissions for the object.

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Responses

Table 9-121 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 9-122 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 9-123 GetResult.body

GetResult.body Type	Description
PutContentResponse	**Explanation:** Response to the request for uploading an object. For details, see **Table 9-12**.

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Table 9-124 PutContentResponse

Parameter	Type	Description
storageClass	str	**Explanation:** Storage class of the object **Value range**: • If the storage class is Standard, leave this parameter blank. • For details about the available storage classes, see **Table 9-116**. **Default value**: None
versionId	str	**Explanation:** Object version ID. If versioning is enabled for the bucket, the object version ID will be returned. **Value range**: The value must contain 32 characters. **Default value**: None
etag	str	**Explanation:** Base64-encoded, 128-bit MD5 value of an object. ETag is the unique identifier of the object contents and is used to determine whether the contents of an object are changed. For example, if the ETag value is **A** when an object is uploaded and is **B** when the object is downloaded, this indicates the contents of the object are changed. The ETag reflects changes only to the contents of an object, not its metadata. Objects created by the upload and copy operations have unique ETags after being encrypted using MD5. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None

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Parameter	Type	Description
sseKms	str	**Explanation:** SSE-KMS algorithm **Value range**: **kms** **Default value**: None
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. key_id In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, the system will create one and use it by default.
sseC	str	**Explanation:** SSE-C algorithm **Value range**: AES256 **Default value**: None

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Parameter	Type	Description
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None
objectUrl	str	**Explanation:** Full path to the object **Default value**: None

Code Examples

This example creates a folder named **parent_directory/**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    # Specify a folder name ending with a slash (/).
    objectKey = "parent_directory/"
    # Create a folder object whose name ends with a slash (/). To avoid unexpected charges, do not upload files to the folder during creation.
    resp = obsClient.putContent(bucketName, objectKey, content=None)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Put Content Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Put Content Failed')
        print('requestId:', resp.requestId)
```

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```
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Put Content Failed')
    print(traceback.format_exc())
```

Helpful Links

- To create a folder in OBS by this API is essentially to create an object whose size is 0 and whose name ends with a slash (/). For details about error codes, see **OBS Error Codes**.

9.17 Copying an Object (SDK for Python)

Function

This API copies an object stored in OBS to another path, with a copy created during the process. You can create a copy of an object up to 5 GB in a single operation.

Restrictions

- To copy an object, you must be the bucket owner or have the required permission (**obs:object:PutObject** in IAM or **PutObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- The object copy request carries the information about the source bucket and object to be copied in the header field. The message body cannot be carried.
- The target object size ranges from 0 to 5 GB. If the source object size exceeds 5 GB, you can only copy parts of the object by referring to **APIs Related to Multipart Upload (SDK for Python)**.

Method

```
ObsClient.copyObject(sourceBucketName, sourceObjectKey, destBucketName, destObjectKey, metadata, headers, versionId, extensionHeaders)
```

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Request Parameters

Table 9-125 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
sourceBucketName	str	Yes	**Explanation:** Name of the source bucket **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
sourceObjectKey	str	Yes	**Explanation:** Source object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
versionId	str	No	**Explanation:** Version ID of the source object, for example, **G001117FCE89978B0000401205D5DC9A** **Value range**: The value must contain 32 characters. **Default value**: If this parameter is left blank, the latest version of the source object is copied.

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Parameter	Type	Mandatory (Yes/No)	Description
destBucketName	str	Yes	**Explanation:** Target bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
destObjectKey	str	Yes	**Explanation:** Target object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
metadata	dict	No	**Explanation:** Custom metadata of the target object You can add a header starting with **x-obs-meta-** in the request to define metadata. The custom metadata will be returned in the response when you retrieve the object or query the object metadata. **Restrictions:** • You need to set **directive** in headers to **REPLACE**. • The custom metadata cannot exceed 8 KB. To measure the custom metadata, sum the number of bytes in the UTF-8 encoding of each key and value. • The custom metadata keys are case insensitive, but are stored in lowercase in OBS. The key values are case sensitive. • Both custom metadata keys and their values must conform to US-ASCII standards. If non-ASCII or unrecognizable characters are required, they must be encoded and decoded in URL or Base64 on the client, because the server does not perform such operations. **Default value**: None
headers	**CopyObjectHeader**	No	**Explanation:** Request headers for copying an object. For details, see **Table 9-126**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

Table 9-126 CopyObjectHeader

Parameter	Type	Mandatory (Yes/No)	Description
acl	str	No	**Explanation:** ACL that can be pre-defined during object copying **Default value**: None
directive	str	No	**Explanation:** Whether to copy source object attributes to the target object **Value range**: • **COPY** (attributes of the target object are copied from the source object) • **REPLACE** (attributes of the target object are replaced with values specified in the request parameters) **Default value**: COPY

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Parameter	Type	Mandatory (Yes/No)	Description
if_match	str	No	**Explanation:** Preset ETag. If the ETag of the object to be downloaded is the same as the preset ETag, the object is returned. Otherwise, an error is returned. **Value range**: The value must contain 32 characters. **Default value**: None
if_none_match	str	No	**Explanation:** Preset ETag. If the ETag of the object to be downloaded is different from the preset ETag, the object is returned. Otherwise, an error is returned. **Value range**: The value must contain 32 characters. **Default value**: None
if_modified_since	str or **DateTime**	No	**Explanation:** The source object is copied if it has been modified since the specified time; otherwise, an exception is thrown. **Restrictions:** The value must be in the GMT format. For example, **Wed, 25 Mar 2020 02:39:52 GMT**. You can refer to **Table 9-129** to specify time. For example, **DateTime(year=2023, month=9, day=12)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
if_unmodified_since	str or DateTime	No	**Explanation:** The source object is copied if it has not been modified since the specified time; otherwise, an exception is thrown. **Restrictions:** The value must be in the GMT format. For example, **Wed, 25 Mar 2020 02:39:52 GMT**. You can refer to Table 9-129 to specify time. For example, **DateTime(year=2023, month=9, day=12)** **Default value**: None
location	str	No	**Explanation:** If the bucket is configured with website hosting, the request for obtaining the object can be redirected to another object in the bucket or an external URL. The request is redirected to object **anotherPage.html** in the same bucket: **location:/anotherPage.html** The request is redirected to an external URL **http://www.example.com/**: **location:http://www.example.com/** OBS obtains the specified value from the header and stores it in the object metadata **location**. **Restrictions:** • The value must start with a slash (/), **http://**, or **https://** and cannot exceed 2 KB. • OBS only supports redirection for objects in the root directory of a bucket. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
destSseHeader	SseCHeader or SseKmsHeader	No	**Explanation:** Header for server-side encryption. It is used to encrypt the target object. **Value range**: See Table 9-130 or Table 9-131. **Default value**: None
sourceSseHeader	SseCHeader	No	**Explanation**: Header for server-side decryption. It is used to decrypt the source object. **Value range**: See Table 9-130. **Default value**: None
cacheControl	str	No	**Explanation:** **Cache-Control** is rewritten in the response. **Default value**: None
contentDisposition	str	No	**Explanation:** **Content-Disposition** is rewritten in the response. **Default value**: None
contentEncoding	str	No	**Explanation:** **Content-Encoding** is rewritten in the response. **Default value**: None
contentLanguage	str	No	**Explanation:** **Content-Language** is rewritten in the response. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
contentType	str	No	**Explanation:** MIME type of the file to be uploaded. MIME type is a standard way of describing a data type and is used by the browser to decide how to display data. **Value range**: See **What Is Content-Type (MIME)? (Python SDK)** **Default value**: None
expires	str	No	**Explanation:** Expiration details. Example: **"expiry-date=\"Mon, 11 Sep 2023 00:00:00 GMT\""** **Default value**: None
storageClass	str	No	**Explanation:** Object storage class. **Value range**: • If the storage class is Standard, leave this parameter blank. • For details about the available storage classes, see **Table 9-128**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
successActionRedirect	str	No	**Explanation:** Address (URL) to which a successfully answered request is redirected • If the value is valid and the request is successful, OBS returns status code **303**. **Location** in the returned results contains **SuccessActionRedirect** as well as the bucket name, object name, and object ETag. • If the value is invalid, OBS ignores this parameter. In such case, **Location** in the returned results indicates the object address, and OBS returns a status code based on whether the operation succeeds or fails. **Default value**: None
extensionGrants	list of **ExtensionGrant**	No	**Explanation:** List of the extended permissions for the object **Value range**: See **Table 9-132**. **Default value**: None

Table 9-127 HeadPermission

Constant	Default Value	Description
HeadPermission.PRIVATE	private	Private read/write A bucket or object can only be accessed by its owner.

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Constant	Default Value	Description
HeadPermission.PUBLIC_READ	public-read	Public read and private write If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket. If it is granted on an object, anyone can read the content and metadata of the object.
HeadPermission.PUBLIC_READ_WRITE	public-read-write	Public read/write If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart upload tasks. If it is granted on an object, anyone can read the content and metadata of the object.
HeadPermission.PUBLIC_READ_DELIVERED	public-read-delivered	Public read on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions, and read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_DELIVERED** cannot be applied to objects.
HeadPermission.PUBLIC_READ_WRITE_DELIVERED	public-read-write-delivered	Public read/write on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart uploads. They can also read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_WRITE_DELIVERED** cannot be applied to objects.

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Constant	Default Value	Description
HeadPermission.BUCKET_OWNER_FULL_CONTROL	bucket-owner-full-control	If this permission is granted on an object, only the bucket and object owners have the full control over the object. By default, if you upload an object to a bucket owned by another user, the bucket owner does not have the permissions on your object. After you grant this permission to the bucket owner, the bucket owner can have full control over your object.

Table 9-128 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

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Table 9-129 DateTime

Parameter	Type	Description
year	int	**Explanation:** Year in UTC **Default value**: None
month	int	**Explanation:** Month in UTC **Default value**: None
day	int	**Explanation:** Day in UTC **Default value**: None
hour	int	**Explanation:** Hour in UTC **Restrictions:** The value is in 24-hour format. **Default value**: 0
min	int	**Explanation:** Minute in UTC **Default value**: 0
sec	int	**Explanation:** Second in UTC **Default value**: 0

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Table 9-130 SseCHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-C used for encrypting objects **Value range**: **AES256** **Default value**: None
key	str	Yes	**Explanation:** Key used in SSE-C encryption. It corresponds to the encryption method. For example, if **encryption** is set to **AES256**, the key is calculated using the AES-256 algorithm. **Value range**: The value must contain 32 characters. **Default value**: None

Table 9-131 SseKmsHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-KMS used for encrypting objects **Value range**: **kms** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
key	str	No	**Explanation:** Master key used in SSE-KMS **Value range**: The following two formats are supported: • *regionID*:*domainID*:**key/***key_id* • *key_id* In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, OBS will create one and use it by default.

Table 9-132 ExtensionGrant

Parameter	Type	Mandatory (Yes/No)	Description
granteeId	str	No	**Explanation:** Account (domain) ID of the grantee **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
permission	str	No	**Explanation:** Granted **permissions** **Default value**: None

Table 9-133 Permission

Constant	Description
READ	Read permission A grantee with this permission for a bucket can obtain the list of objects, multipart uploads, bucket metadata, and object versions in the bucket. A grantee with this permission for an object can obtain the object content and metadata.
WRITE	Write permission A grantee with this permission for a bucket can upload, overwrite, and delete any object or part in the bucket. Such permission for an object is not applicable.
READ_ACP	Permission to read ACL configurations A grantee with this permission can obtain the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently.
WRITE_ACP	Permission to modify ACL configurations A grantee with this permission can update the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently. A grantee with this permission can modify the ACL, thus obtaining full access permissions.
FULL_CONTROL	Full control access, including read and write permissions for a bucket and its ACL, or for an object and its ACL. A grantee with this permission for a bucket has **READ**, **WRITE**, **READ_ACP**, and **WRITE_ACP** permissions for the bucket. A grantee with this permission for an object has **READ**, **READ_ACP**, and **WRITE_ACP** permissions for the object.

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Responses

Table 9-134 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 9-135 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 9-136 GetResult.body

GetResult.body Type	Description
CopyObjectResponse	**Explanation:** Response to the request for copying an object

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Table 9-137 CopyObjectResponse

Parameter	Type	Description
lastModified	str	**Explanation:** Time when the last modification was made to the target object **Value range**: UTC time **Default value**: None
etag	str	**Explanation:** Base64-encoded, 128-bit MD5 value of an object. ETag is the unique identifier of the object contents and is used to determine whether the contents of an object are changed. For example, if the ETag value is **A** when an object is uploaded and is **B** when the object is downloaded, this indicates the contents of the object are changed. The ETag reflects changes only to the contents of an object, not its metadata. Objects created by the upload and copy operations have unique ETags after being encrypted using MD5. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None
copySourceVersionId	str	**Explanation:** Version ID of the source object. **Value range**: The value must contain 32 characters. **Default value**: None

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Parameter	Type	Description
versionId	str	**Explanation:** Version ID of the target object **Value range**: The value must contain 32 characters. **Default value**: None
sseKms	str	**Explanation:** SSE-KMS is used for encrypting objects on the server side. **Value range**: **kms** **Default value**: None
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. *key_id* In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, OBS will create one and use it by default.

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Parameter	Type	Description
sseC	str	**Explanation:** Algorithm used to encrypt and decrypt objects with SSE-C **Value range**: **AES256** **Default value**: None
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None

Code Examples

This example copies an object from one bucket to another.

```
from obs import ObsClient
from obs import CopyObjectHeader
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify additional headers of the request for copying an object.
    headers = CopyObjectHeader()
    # Set directive of headers to REPLACE when custom metadata is configured.
    headers.directive = 'REPLACE'
    # Specify the value of if_match. If the ETag of the source object is the same as the one specified by this parameter, the source object is copied. Otherwise, an error code is returned.
    headers.if_match = '8f4e**********ba8c'
```

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```
    # Specify custom metadata of the target object.
    metadata = {'meta1': 'value1'}
    # Specify a source bucket.
    sourceBucketName = 'sourcebucket'
    # Specify a source object.
    sourceObjectKey = 'sourceobjectkey'
    # Specify a target bucket.
    destBucketName = 'destbucket'
    # Specify a target object name.
    destObjectKey = 'destobjectkey'
    # Copy the object.
    resp = obsClient.copyObject(sourceBucketName, sourceObjectKey, destBucketName, destObjectKey,
                                metadata, headers)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Copy Object Succeeded')
        print('requestId:', resp.requestId)
        print('etag:', resp.body.etag)
        print('lastModified:', resp.body.lastModified)
        print('versionId:', resp.body.versionId)
        print('copySourceVersionId:', resp.body.copySourceVersionId)
    else:
        print('Copy Object Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Copy Object Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Copying Objects**
- **(GitHub) Sample Code for Object Copy**
- **OBS Error Codes**

9.18 Deleting an Object (SDK for Python)

Function

This API deletes an object in the specified bucket to save space and costs.

Restrictions

- To delete an object, you must be the bucket owner or have the required permission (**obs:object:DeleteObject** in IAM or **DeleteObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- If versioning is not enabled for a bucket, deleted objects cannot be recovered.

Method

```
ObsClient.deleteObject(bucketName, objectKey, versionId, extensionHeaders)
```

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Request Parameters

Table 9-138 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Target object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
versionId	str	No	**Explanation:** Object version ID, for example, **G001117FCE89978B0000401205D5DC9** **Value range**: The value must contain 32 characters. **Default value**: None. If this parameter is left blank, the latest version of the object is deleted.
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Table 9-139 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 9-140 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 9-141 GetResult.body

GetResult.body Type	Description
DeleteObjectResponse	**Explanation:** Response results of the request for deleting an object For details, see **Table 9-142**.

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Table 9-142 DeleteObjectResponse

Parameter	Type	Description
deleteMarker	bool	**Explanation:** Whether the deleted object is a delete marker **Value range**: • **true**: The deleted object is a delete marker. • **false**: The deleted object is not a delete marker. **Default value**: false
versionId	str	**Explanation:** Object version ID, for example, **G001117FCE89978B0000401205D5DC9** **Value range**: The value must contain 32 characters. **Default value**: None. If this parameter is left blank, the latest version of the object is deleted.

Code Examples

This example deletes object **objectname** from bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables (recommended) or import it in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them using environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Specify versionId to delete an object version. If versioning is not enabled, do not specify that parameter.
    # versionId = 'G001119522F0D8Cxxxxxxxxxxxxxxxx'
    # Delete the object.
```

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```
    resp = obsClient.deleteObject(bucketName, objectKey)
    # If the return code is 2xx, the API is successfully called. Otherwise, the API fails to be called. If a nonexistent version ID is used to delete a versioned object (that is, the requested object does not exist), a success message is still returned.
    if resp.status < 300:
        print('Delete Object Succeeded')
        print('requestId:', resp.requestId)
        print('deleteMarker:', resp.body.deleteMarker)
        print('versionId:', resp.body.versionId)
    else:
        print('Delete Object Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Delete Object Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Deleting an Object**
- **(GitHub) Sample Code for Object Deletion**
- **OBS Error Codes**

9.19 Batch Deleting Objects (SDK for Python)

Function

This API deletes objects in a batch from a specific bucket. Deleted objects cannot be restored.

OBS does not involve folders like in a file system. All elements stored in OBS buckets are objects. A folder you see on the console or other tools in OBS is essentially an object whose size is 0 and whose name ends with a slash (/). To delete a folder, you need to list all objects whose names are prefixed with the folder name and then call the batch deletion API.

In a batch delete operation, OBS concurrently deletes the specified objects and returns the deletion result of each object.

Restrictions

- To delete objects in a batch, you must be the bucket owner or have the required permission (**obs:object:DeleteObject** in IAM or **DeleteObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- If versioning is not enabled for a bucket, deleted objects cannot be recovered.
- A maximum of 1,000 objects can be deleted at a time. If you send a request for deleting more than 1,000 objects, OBS returns an error message.
- After concurrent tasks are assigned, if an internal error occurs during cyclic deletion of multiple objects, an object may be deleted in the index data but still exist in the metadata.

Method

```
ObsClient.deleteObjects(bucketName, deleteObjectsRequest, extensionHeaders)
```

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Request Parameters

Table 9-143 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set

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Parameter	Type	Mandatory (Yes/No)	Description
			in the first creation request. **Default value**: None
deleteObjectsRequest	**DeleteObjectsRequest**	Yes	**Explanation:** Request parameters of deleting objects in a batch For details, see **Table 9-144**. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

Table 9-144 DeleteObjectsRequest

Parameter	Type	Mandatory (Yes/No)	Description
quiet	bool	No	**Explanation:** Response mode to the request for deleting objects in a batch **Value range**: • **False**: The detailed mode. Results of both successful and failed deletions are returned. • **True**: The quiet mode. Only results of failed deletions are returned. **Default value**: False

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Parameter	Type	Mandatory (Yes/No)	Description
objects	list of **Object**	Yes	**Explanation:** List of objects to be deleted. For details, see **Table 9-145**. **Default value**: None
encoding_type	str	No	**Explanation:** Encoding type for **Key** in the response. If **Key** in the response contains control characters that are not supported by the XML 1.0 standard, you can specify this parameter to encode **Key**. **Value range**: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied to **Key**.

Table 9-145 Object

Parameter	Type	Mandatory (Yes/No)	Description
key	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
versionId	str	No	**Explanation:** Object version ID, for example, **G001117FCE89978B0000401205D5DC9** **Value range**: The value must contain 32 characters. **Default value**: None. If this parameter is left blank, the latest version of the object is deleted.
encoding_type	str	No	**Explanation:** Encoding type for some elements in the response. If delimiter, key_marker, prefix, nextKeyMarker, and key contain control characters that are not supported by the XML 1.0 standard, you can set encoding_type to encode delimiter, key_marker, prefix (including the Prefix in commonPrefixes), nextKeyMarker, and key in the response. **Value range**: Type: string. Value option: **url**

Responses

Table 9-146 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

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Table 9-147 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 9-148 GetResult.body

GetResult.body Type	Description
DeleteObjectResponse	**Explanation:** Response results of the request for deleting objects in a batch For details, see **Table 9-149**.

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Table 9-149 DeleteObjectResponse

Parameter	Type	Description
deleteMarker	bool	**Explanation:** Whether the deleted object is a delete marker **Value range**: • **true**: The deleted object is a delete marker. • **false**: The deleted object is not a delete marker. **Default value**: false
versionId	str	**Explanation:** Object version ID, for example, **G001117FCE89978B0000401205D5DC9** **Value range**: The value must contain 32 characters. **Default value**: None. If this parameter is left blank, the latest version of the object is deleted.

Code Examples

This example deletes objects **objectkey1** and **objectkey2** from bucket **examplebucket** in a batch.

```
from obs import ObsClient
import os
from obs import DeleteObjectsRequest
from obs import Object
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify the objects to be deleted in a batch.
    object1 = Object(key='objectkey1', versionId=None)
    object2 = Object(key='objectkey2', versionId=None)
```

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```
# Specify encoding_type when the object name contains special characters.
    encoding_type = 'url'
    bucketName = "examplebucket"
    # Batch delete the objects.
    resp = obsClient.deleteObjects(bucketName, DeleteObjectsRequest(quiet=False, objects=[object1,
object2],
                                                    encoding_type=encoding_type))

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Delete Objects Succeeded')
        print('requestId:', resp.requestId)
        if resp.body.deleted:
            index = 1
            for delete in resp.body.deleted:
                print('delete[' + str(index) + ']')
                print('key:', delete.key, ',deleteMarker:', delete.deleteMarker, ',deleteMarkerVersionId:',
                      delete.deleteMarkerVersionId)
                print('versionId:', delete.versionId)
                index += 1
        if resp.body.error:
            index = 1
            for err in resp.body.error:
                print('err[' + str(index) + ']')
                print('key:', err.key, ',code:', err.code, ',message:', err.message)
                print('versionId:', err.versionId)
                index += 1
    else:
        print('Delete Objects Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Delete Objects Failed')
    print(traceback.format_exc())
```

This example deletes all objects prefixed with **test/** in bucket **examplebucket**.

WARNING

In the example below, if the value of **prefix** is an empty string or NULL, all files in the bucket will be deleted.

```
from obs import ObsClient
import os
from obs import DeleteObjectsRequest
from obs import Object
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using
hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://
support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from
environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it
with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify
security_token when creating an instance.
```

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```
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    # Specify the folder to be deleted.
    prefix = 'test/'
    # Specify the maximum number of objects to be listed at a time. 1000 is used in this example.
    max_num = 1000
    mark = None
    index = 1
    failed_list = []
    while True:
        resp = obsClient.listObjects(bucketName=bucketName, prefix=prefix, marker=mark,
max_keys=max_num,
                                     encoding_type='url')
        if resp.status < 300:
            need_to_delete_objects = [Object(key=i["key"], versionId=None) for i in resp.body["contents"]]
            del_resp = obsClient.deleteObjects(bucketName,
                                               DeleteObjectsRequest(False, need_to_delete_objects, encoding_type="url"))
            for delete in del_resp.body.deleted:
                print("Successfully deleted %s " % delete.key)
                index += 1
            if del_resp.body.error:
                for err in del_resp.body.error:
                    print("Failed to delete %s" % err.key)
                    failed_list.append(err.key)
            if resp.body.is_truncated is True:
                mark = resp.body.next_marker
            else:
                break
        else:
            print('errorCode:', resp.errorCode)
            print('errorMessage:', resp.errorMessage)
            break
    print("Total deleted %s objects" % index)
    for i in failed_list:
        print("Failed to delete %s, please try again" % i)
except:
    print('Delete Objects Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Deleting Objects**
- **(GitHub) Sample Code for Object Batch Deletion**
- **OBS Error Codes**

9.20 Obtaining Object Metadata (SDK for Python)

Function

Object metadata is a set of name-value pairs that describe the object and is used for object management.

Currently, only the system-defined metadata can be obtained. System-defined metadata consists of system-controlled metadata and user-controlled metadata.

This API sends a HEAD request to obtain the metadata of an object in a specified bucket.

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Restrictions

- To obtain object metadata, you must be the bucket owner or have the required permission (**obs:object:GetObject** in IAM or **GetObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- Users with the READ permission on objects can send HEAD requests to retrieve metadata from objects. The metadata of the objects is included in the response.

Method

```
ObsClient.getObjectMetadata(bucketName, objectKey, versionId, sseHeader, origin, requestHeaders, extensionHeaders)
```

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Request Parameters

Table 9-150 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
versionId	str	No	**Explanation:** Object version ID, for example, **G001117FCE89978B0000401205D5DC9A** **Value range**: The value must contain 32 characters. **Default value**: None
origin	str	No	**Explanation:** Origin of the cross-domain request specified by the preflight request. Generally, it is a domain name. **Restrictions:** You can configure one or more rules and use at most one wildcard character (*) in each rule. If you want to configure multiple rules, separate them using a line breaker. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
requestHeaders	str	No	**Explanation:** HTTP headers in a cross-origin request Only CORS requests matching the allowed headers are valid. **Restrictions:** You can enter multiple allowed headers, with one separated from another using a line break. Each header can contain one wildcard character (*) at most. Spaces, ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None
sseHeader	SseCHeader	No	**Explanation:** Header for server-side decryption **Value range**: For details, see **Table 9-151**. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Table 9-151 SseCHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-C used for encrypting objects **Value range**: **AES256** **Default value**: None
key	str	Yes	**Explanation:** Key used in SSE-C encryption. It corresponds to the encryption method. For example, if **encryption** is set to **AES256**, the key is calculated using the AES-256 algorithm. **Value range**: The value must contain 32 characters. **Default value**: None

Responses

Table 9-152 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

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Table 9-153 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 9-154 GetResult.body

GetResult.body Type	Description
GetObjectMetadataResponse	**Explanation:** Response to the request for obtaining object metadata For details, see **Table 9-155**.

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Table 9-155 GetObjectMetadataResponse

Parameter	Type	Description
storageClass	str	**Explanation:** Object storage class. **Value range**: • If the storage class is Standard, leave this parameter blank. • For details about the available storage classes, see **Table 9-156**. **Default value**: None
accessContorlAllo-wOrigin	str	**Explanation:** If **Origin** in the request meets the CORS rules of the bucket, **AllowedOrigin** specified in the CORS rules is returned. **AllowedOrigin** indicates the origin from which requests can access the bucket. **Restrictions:** Domain name of the origin. Each origin can contain only one wildcard character (*), for example, **https://*.vbs.example.com**. **Default value**: None
accessContorlAllow-Headers	str	**Explanation:** If **RequestHeader** in the request meets the CORS rules of the bucket, **AllowedHeader** specified in the CORS rules is returned. **AllowedHeader** indicates the allowed headers for cross-origin requests. Only CORS requests matching the allowed headers are valid. **Restrictions:** Each header can contain at most one wildcard character (*). Spaces, ampersands (&), colons (:), less-than signs (<), and full-width characters are not allowed. **Default value**: None

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Parameter	Type	Description
accessContorlAllow-Methods	str	**Explanation:** **AllowedMethod** in the CORS rules of the bucket. It specifies the HTTP method of cross-origin requests, that is, the operation type of buckets and objects. **Value range**: The following HTTP methods are supported: • GET • PUT • HEAD • POST • DELETE **Default value**: None
accessContorlExpo-seHeaders	str	**Explanation:** **ExposeHeader** in the CORS rules of the bucket. It specifies the CORS-allowed additional headers in the response. These headers provide additional information to clients. By default, your browser can only access headers **Content-Length** and **Content-Type**. If your browser needs to access other headers, add them to a list of the allowed additional headers. **Restrictions:** Spaces, wildcard characters (*), ampersands (&), colons (:), and less-than signs (<) are not allowed. **Default value**: None

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Parameter	Type	Description
accessContorlMax-Age	int	**Explanation:** **MaxAgeSeconds** in the CORS rules of the bucket. It specifies the time your client can cache the response for a cross-origin request. **Restrictions:** Each CORS rule can contain only one **MaxAgeSeconds**. **Value range**: An integer greater than or equal to 0, in seconds **Default value**: 100
contentLength	int	**Explanation:** Object size **Value range**: The value ranges from 0 TB to 48.8 TB, in bytes. **Default value**: None
contentType	str	**Explanation:** MIME type of the file to be uploaded. MIME type is a standard way of describing a data type and is used by the browser to decide how to display data. **Value range**: See **What Is Content-Type (MIME)? (Python SDK)** **Default value**: None
lastModified	str	**Explanation:** Time when the last modification was made to the object **Restrictions:** The time must be in the GMT format, for example, **Wed, 25 Mar 2020 02:39:52 GMT**. **Default value**: None

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Parameter	Type	Description
etag	str	**Explanation:** Base64-encoded, 128-bit MD5 value of an object. ETag is the unique identifier of the object contents and is used to determine whether the contents of an object are changed. For example, if the ETag value is **A** when an object is uploaded and is **B** when the object is downloaded, this indicates the contents of the object are changed. The ETag reflects changes only to the contents of an object, not its metadata. Objects created by the upload and copy operations have unique ETags after being encrypted using MD5. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None
versionId	str	**Explanation:** Object version ID. **Value range**: The value must contain 32 characters. **Default value**: None

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Parameter	Type	Description
restore	str	**Explanation:** Restore status of an object. This header is returned when an Archive object is being restored or has been restored. For example, **ongoing-request="true"** indicates that the object is being restored. **ongoing-request="false", expiry-date="Wed, 7 Nov 2012 00:00:00 GMT"** indicates that the object has been restored. **expiry-date** indicates when the restored object expires. **Restrictions:** This parameter is only available for Archive objects. **Default value**: None
expiration	str	**Explanation:** Expiration details. Example: **"expiry-date=\"Mon, 11 Sep 2023 00:00:00 GMT\""** **Default value**: None
sseKms	str	**Explanation:** SSE-KMS is used for encrypting objects on the server side. **Value range**: **kms** **Default value**: None

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Parameter	Type	Description
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. key_id In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, the system will create one and use it by default.
sseC	str	**Explanation:** SSE-C algorithm **Value range**: AES256 **Default value**: None
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None

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Parameter	Type	Description
websiteRedirectLocation	str	**Explanation:** If the bucket is configured with website hosting, the request for obtaining the object can be redirected to another object in the bucket or an external URL. This parameter specifies the address the request for the object is redirected to. The request is redirected to object **anotherPage.html** in the same bucket: **WebsiteRedirectLocation:/anotherPage.html** The request is redirected to an external URL **http://www.example.com/**: **WebsiteRedirectLocation:http://www.example.com/** OBS obtains the specified value from the header and stores it in the object metadata **WebsiteRedirectLocation**. **Restrictions:** ● The value must start with a slash (/), **http://**, or **https://** and cannot exceed 2 KB. ● OBS only supports redirection for objects in the root directory of a bucket. **Default value**: None
isAppendable	bool	**Explanation:** Whether the object is appendable **Value range**: **True**: The object is appendable. **False**: The object is not appendable. **Default value**: None
nextPosition	int	**Explanation:** Start position for next appending **Value range**: 0 to the object length, in bytes. **Default value**: None

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Table 9-156 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

NOTE

You can obtain custom metadata from the response headers.

Code Examples

This example returns the metadata of object **objectname**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
```

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```
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Obtain object metadata.
    resp = obsClient.getObjectMetadata(bucketName, objectKey)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Object Metadata Succeeded')
        print('requestId:', resp.requestId)
        print('etag:', resp.body.etag)
        print('lastModified:', resp.body.lastModified)
        print('contentType:', resp.body.contentType)
        print('contentLength:', resp.body.contentLength)
    else:
        print('Get Object Metadata Failed')
        print('requestId:', resp.requestId)
        print('status:', resp.status)
        print('reason:', resp.reason)
except:
    print('Get Object Metadata Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Querying Object Metadata**
- **(GitHub) Sample Code for Obtaining Object Metadata**
- **OBS Error Codes**

9.21 Modifying Object Metadata (SDK for Python)

Function

Object metadata is a set of name-value pairs that describe the object and is used for object management.

Currently, only the system-defined metadata can be modified.

System-defined metadata consists of system-controlled metadata and user-controlled metadata. The kind of metadata like **Last-Modified** is controlled by the system and cannot be modified. However, the kind of metadata configured for objects such as **ContentLanguage** can be modified by calling APIs.

This API modifies, deletes, or adds metadata to objects in a bucket.

Restrictions

- To configure object metadata, you must be the bucket owner or have the required permission (**obs:object:ModifyObjectMetaData** in IAM or **ModifyObjectMetaData** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- If versioning is enabled for a bucket, you can set metadata for objects of the latest version, but cannot set metadata for objects of historical versions.
- You cannot set metadata for Archive objects.

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Method

```
ObsClient.setObjectMetadata(bucketName, objectKey, metadata, headers, versionId, extensionHeaders)
```

Request Parameters

Table 9-157 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
metadata	dict	No	**Explanation:** Custom metadata of the object. You can add a header starting with **x-obs-meta-** in the request to define metadata. The custom metadata will be returned in the response when you retrieve the object or query the object metadata. **Restrictions:** • The custom metadata cannot exceed 8 KB. To measure the custom metadata, sum the number of bytes in the UTF-8 encoding of each key and value. • The custom metadata keys are case insensitive, but are stored in lowercase in OBS. The key values are case sensitive. • Both custom metadata keys and their values must conform to US-ASCII standards. If non-ASCII or unrecognizable characters are required, they must be encoded and decoded in URL or Base64 on the client, because the server does not perform such operations. **Default value**: None
headers	**SetObjectMetadataHeader**	No	**Explanation:** Request headers for configuring object metadata. For details, see **Table 9-158**.

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Parameter	Type	Mandatory (Yes/No)	Description
versionId	str	No	**Explanation:** Object version ID, for example, **G001117FCE89978B0000401205D5DC9A** **Value range**: The value must contain 32 characters. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Table 9-158 SetObjectMetadataHeader

Parameter	Type	Mandatory (Yes/No)	Description
removeUnset	bool	No	**Explanation:** Used to set the metadata operation indicator **Value range**: **True**: The metadata operation indicator is **REPLACE**. **REPLACE** uses the complete header carried in the current request to replace the original one and deletes the metadata that is not specified. **False**: The metadata operation indicator is **REPLACE_NEW**. **REPLACE_NEW** replaces the metadata that already has a value, assigns a value to the metadata that does not have a value, and retains the metadata that is not specified. **Default value**: False

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Parameter	Type	Mandatory (Yes/No)	Description
location	str	No	**Explanation:** If the bucket is configured with website hosting, the request for obtaining the object can be redirected to another object in the bucket or an external URL. The request is redirected to object **anotherPage.html** in the same bucket: **WebsiteRedirectLocation:/anotherPage.html** The request is redirected to an external URL **http://www.example.com/**: **WebsiteRedirectLocation:http://www.example.com/** OBS obtains the specified value from the header and stores it in the object metadata **WebsiteRedirectLocation**. **Restrictions:** • The value must start with a slash (/), **http://**, or **https://** and cannot exceed 2 KB. • OBS only supports redirection for objects in the root directory of a bucket. **Default value**: None
cacheControl	str	No	**Explanation:** **Cache-Control** header in the response. It specifies the cache behavior of the web page when an object is downloaded. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
contentDisposition	str	No	**Explanation:** **Content-Disposition** header in the response It specifies the name of an object when it is downloaded. **Default value**: None
contentEncoding	str	No	**Explanation:** **Content-Encoding** header in the response It specifies the content encoding format when an object is downloaded. **Default value**: None
contentLanguage	str	No	**Explanation:** **Content-Language** header in the response It specifies the content language format when an object is downloaded. **Default value**: None
contentType	str	No	**Explanation:** **Content-Type** header in the response. It specifies the file type of an object when it is downloaded. **Default value**: None
expires	str	No	**Explanation:** **Expires** header in the response. It specifies the cache expiration time of the web page when the object is downloaded. **CAUTION** This parameter cannot be used to configure the expiration time of an object. To configure the object expiration time, see **Setting an Object Expiration Time (SDK for Python)**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
storageClass	str	No	**Explanation:** Storage classes **Value range**: See **Table 9-159**. **Default value**: None

Table 9-159 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

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Responses

Table 9-160 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 9-161 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example configures the object metadata.

```
from obs import SetObjectMetadataHeader
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://
```

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```
support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify custom metadata.
    metadata = {'property1': 'property-value1', 'property2': 'property-value2'}
    # Specify the additional headers of the request for configuring object metadata.
    headers = SetObjectMetadataHeader()
    # (Optional) Specify the MIME type of the object.
    headers.contentType = "Your Content-Type"
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Configure metadata for the object.
    resp = obsClient.setObjectMetadata(bucketName, objectKey, metadata, headers)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Set Object Metadata Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Set Object Metadata Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Set Object Metadata Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Modifying Object Metadata**
- **(GitHub) Sample Code for Configuring Object Metadata**
- **OBS Error Codes**

9.22 Configuring an Object ACL (SDK for Python)

Function

Access control lists (ACLs) allow resource owners to grant other accounts the permissions to access resources. By default, only the resource owner has full control over resources when a bucket or object is created. That is, the bucket creator has full control over the bucket, and the object uploader has full control over the object. Other accounts do not have the permissions to access resources. If resource owners want to grant other accounts the read and write permissions on resources, they can use ACLs. ACLs grant permissions to accounts. After an account is granted permissions, both the account and its IAM users can access the resources. If an object is encrypted with SSE-KMS, the ACL configured for it is not in effect in the cross-tenant case.

For more information, see **ACLs**.

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Restrictions

- To configure an object ACL, you must be the bucket owner or have the required permission (**obs:object:PutObjectAcl** in IAM or **PutObjectAcl** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- An object can have a maximum of 100 rules in its ACL.

Method

```
ObsClient.setObjectAcl(bucketName, objectKey, acl, versionId, aclControl, extensionHeaders)
```

Request Parameters

Table 9-162 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
acl	**ACL**	No	**Explanation:** ACL of an object. **Value range**: See **Table 9-163**. **Default value**: None
versionId	str	No	**Explanation:** Object version ID, for example, **G001117FCE89978B0000401205D5DC9A** **Value range**: The value must contain 32 characters. **Default value**: None
aclControl	**HeadPermission**	No	**Explanation:** Pre-defined ACL. For details, see **Table 9-164**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

NOTE

acl and **aclControl** are mutually exclusive.

Table 9-163 ACL

Parameter	Type	Mandatory (Yes/No)	Description
owner	**Owner**	Yes if used as a request parameter	**Explanation:** Bucket owner For details, see **Table 9-165**. **Restrictions:** **Owner** and **Grants** must be used together and they cannot be used with **aclControl**. **Default value**: None
grants	list of **Grant**	Yes if used as a request parameter	**Explanation:** List of grantees' permission information. For details, see **Table 9-166**. **Restrictions:** **Owner** and **Grants** must be used together and they cannot be used with **aclControl**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
delivered	bool	No if used as a request parameter	**Explanation:** Whether the bucket ACL is applied to objects in the bucket. This parameter is valid only when you configure the object ACL. **Value range:** **True**: The bucket ACL is applied to objects in the bucket. **False**: The bucket ACL is not applied to objects in the bucket. **Default value**: False

Table 9-164 HeadPermission

Constant	Default Value	Description
HeadPermission.PRIVATE	private	Private read/write A bucket or object can only be accessed by its owner.
HeadPermission.PUBLIC_READ	public-read	Public read and private write If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket. If it is granted on an object, anyone can read the content and metadata of the object.
HeadPermission.PUBLIC_READ_WRITE	public-read-write	Public read/write If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart upload tasks. If it is granted on an object, anyone can read the content and metadata of the object.

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Constant	Default Value	Description
HeadPermission.PUBLIC_READ_DELIVERED	public-read-delivered	Public read on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions, and read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_DELIVERED** cannot be applied to objects.
HeadPermission.PUBLIC_READ_WRITE_DELIVERED	public-read-write-delivered	Public read/write on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart uploads. They can also read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_WRITE_DELIVERED** cannot be applied to objects.
HeadPermission.BUCKET_OWNER_FULL_CONTROL	bucket-owner-full-control	If this permission is granted on an object, only the bucket and object owners have the full control over the object. By default, if you upload an object to a bucket owned by another user, the bucket owner does not have the permissions on your object. After you grant this permission to the bucket owner, the bucket owner can have full control over your object.

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Table 9-165 Owner

Parameter	Type	Mandatory (Yes/No)	Description
owner_id	str	Yes if used as a request parameter	**Explanation:** Account (domain) ID of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None
owner_name	str	No if used as a request parameter	**Explanation:** Account name of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

Table 9-166 Grant

Parameter	Type	Mandatory (Yes/No)	Description
grantee	**Grantee**	Yes if used as a request parameter	**Explanation:** Grantee **Value range**: See **Table 9-168**. **Default value**: None
permission	str	Yes if used as a request parameter	**Explanation:** Granted permission **Value range**: See **Table 9-167**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
delivered	bool	No if used as a request parameter	**Explanation:** Whether the bucket ACL is applied to all objects in the bucket **Value range**: **True**: The bucket ACL is applied to all objects in the bucket. **False**: The bucket ACL is not applied to all objects in the bucket. **Default value**: False

Table 9-167 Permission

Constant	Description
READ	Read permission A grantee with this permission for a bucket can obtain the list of objects, multipart uploads, bucket metadata, and object versions in the bucket. A grantee with this permission for an object can obtain the object content and metadata.
WRITE	Write permission A grantee with this permission for a bucket can upload, overwrite, and delete any object or part in the bucket. Such permission for an object is not applicable.
READ_ACP	Permission to read ACL configurations A grantee with this permission can obtain the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently.
WRITE_ACP	Permission to modify ACL configurations A grantee with this permission can update the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently. A grantee with this permission can modify the ACL, thus obtaining full access permissions.

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Constant	Description
FULL_CONTROL	Full control access, including read and write permissions for a bucket and its ACL, or for an object and its ACL. A grantee with this permission for a bucket has **READ**, **WRITE**, **READ_ACP**, and **WRITE_ACP** permissions for the bucket. A grantee with this permission for an object has **READ**, **READ_ACP**, and **WRITE_ACP** permissions for the object.

Table 9-168 Grantee

Parameter	Type	Mandatory (Yes/No)	Description
grantee_id	str	Yes if the parameter is used as a request parameter and **group** is left blank	**Explanation:** Account (domain) ID of the grantee **Value range**: To obtain an account ID, see **Obtaining the Account ID**. **Default value**: None
grantee_name	str	No if used as a request parameter	**Explanation:** Account name of the grantee **Restrictions:** • Cannot contain full-width characters. • Starts with a letter. • Contains 6 to 32 characters. • Contains only letters, digits, hyphens (-), and underscores (_). **Default value**: None
group	str	Yes if the parameter is used as a request parameter and **grantee_id** is left blank	**Explanation:** Authorized user group **Value range**: See **Table 9-169**. **Default value**: None

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Table 9-169 Group

Constant	Description
ALL_USERS	All users
AUTHENTICATED_USERS	Authorized users. This constant is deprecated.
LOG_DELIVERY	Log delivery group. This constant is deprecated.

Responses

Table 9-170 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 9-171 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None

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Parameter	Type	Description
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Setting an Object ACL by Specifying acl

This example sets the ACL for object **objectname** to read and write for an IAM user (**userid**).

```
from obs import ObsClient
import os
from obs import ACL
from obs import Owner
from obs import Grant, Permission
from obs import Grantee
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify the account ID of the bucket owner (ownerid as an example).
    owner = Owner(owner_id='ownerid')
    # Grant the read and write permissions to an IAM user (userid).
    grantee = Grantee(grantee_id='userid')
    grant0 = Grant(grantee=grantee, permission=Permission.READ)
    grant0 = Grant(grantee=grantee, permission=Permission.WRITE)
    # Set the ACL.
    acl = ACL(owner=owner, grants=[grant0])
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Configure the object ACL by specifying acl.
    resp = obsClient.setObjectAcl(bucketName, objectKey, acl)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Set Object Acl Succeeded')
        print('requestId:', resp.requestId)
    else:
```

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```
        print('Set Object Acl Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Set Object Acl Failed')
    print(traceback.format_exc())
```

Setting an Object ACL by Specifying aclControl

This example sets a pre-defined object ACL to private read and write.

```
from obs import ObsClient
import os
from obs import HeadPermission
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Set the pre-defined ACL to PRIVATE to ensure high security.
    aclControl = HeadPermission.PRIVATE
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Configure the object ACL by specifying acl.
    resp = obsClient.setObjectAcl(bucketName, objectKey, aclControl=aclControl)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Set Object Acl Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Set Object Acl Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Set Object Acl Failed')
    print(traceback.format_exc())
```

Helpful Links

- Configuring an Object ACL
- (GitHub) Sample Code for Configuring Object ACL
- OBS Error Codes

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9.23 Obtaining an Object ACL (SDK for Python)

Function

Access control lists (ACLs) allow resource owners to grant other accounts the permissions to access resources. By default, only the resource owner has full control over resources when a bucket or object is created. That is, the bucket creator has full control over the bucket, and the object uploader has full control over the object. Other accounts do not have the permissions to access resources. If resource owners want to grant other accounts the read and write permissions on resources, they can use ACLs. ACLs grant permissions to accounts. After an account is granted permissions, both the account and its IAM users can access the resources. For more information, see **ACLs**.

This API obtains the ACL of an object in a specified bucket.

Restrictions

- To obtain an object ACL, you must be the bucket owner or have the required permission (**obs:object:GetObjectAcl** in IAM or **GetObjectAcl** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- To call this API, you must have the read permission on the ACL of the object.

Method

```
ObsClient.getObjectAcl(bucketName, objectKey, versionId, extensionHeaders)
```

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Request Parameters

Table 9-172 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
versionId	str	No	**Explanation:** Object version ID, for example, **G001117FCE89978B0000401205D5DC9A** **Value range**: The value must contain 32 characters. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Table 9-173 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 9-174 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 9-175 GetResult.body

GetResult.body Type	Description
ACL	**Explanation:** Object ACL. For details, see **ACL**. **Default value**: None

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Table 9-176 ACL

Parameter	Type	Mandatory (Yes/No)	Description
owner	**Owner**	Yes if used as a request parameter	**Explanation:** Bucket owner. For details, see **Table 9-177**. **Restrictions:** **owner** and **grants** must be used together and they cannot be used with **ACL**. **Default value**: None
grants	list of **Grant**	Yes if used as a request parameter	**Explanation:** List of grantees' permission information. For details, see **Table 9-178**. **Default value**: None
delivered	bool	No if used as a request parameter	**Explanation:** Whether the bucket ACL is applied to all objects in the bucket **Value range**: **True**: The bucket ACL is applied to all objects in the bucket. **False**: The bucket ACL is not applied to all objects in the bucket. **Default value**: False

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Table 9-177 Owner

Parameter	Type	Mandatory (Yes/No)	Description
owner_id	str	Yes if used as a request parameter	**Explanation:** Account (domain) ID of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None
owner_name	str	No if used as a request parameter	**Explanation:** Account name of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

Table 9-178 Grant

Parameter	Type	Mandatory (Yes/No)	Description
grantee	**Grantee**	Yes if used as a request parameter	**Explanation:** Grantee information. For details, see **Table 9-180**. **Default value**: None
permission	str	Yes if used as a request parameter	**Explanation:** Granted permission **Value range**: See **Table 9-179**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
delivered	bool	No if used as a request parameter	**Explanation:** Whether the bucket ACL is applied to all objects in the bucket **Value range**: **True**: The bucket ACL is applied to all objects in the bucket. **False**: The bucket ACL is not applied to all objects in the bucket. **Default value**: False

Table 9-179 Permission

Constant	Description
READ	Read permission A grantee with this permission for a bucket can obtain the list of objects, multipart uploads, bucket metadata, and object versions in the bucket. A grantee with this permission for an object can obtain the object content and metadata.
WRITE	Write permission A grantee with this permission for a bucket can upload, overwrite, and delete any object or part in the bucket. Such permission for an object is not applicable.
READ_ACP	Permission to read ACL configurations A grantee with this permission can obtain the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently.
WRITE_ACP	Permission to modify ACL configurations A grantee with this permission can update the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently. A grantee with this permission can modify the ACL, thus obtaining full access permissions.

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Constant	Description
FULL_CONTROL	Full control access, including read and write permissions for a bucket and its ACL, or for an object and its ACL. A grantee with this permission for a bucket has **READ**, **WRITE**, **READ_ACP**, and **WRITE_ACP** permissions for the bucket. A grantee with this permission for an object has **READ**, **READ_ACP**, and **WRITE_ACP** permissions for the object.

Table 9-180 Grantee

Parameter	Type	Mandatory (Yes/No)	Description
grantee_id	str	Yes if the parameter is used as a request parameter and **group** is left blank	**Explanation:** Account (domain) ID of the grantee **Value range**: To obtain an account ID, see **Obtaining the Account ID**. **Default value**: None
grantee_name	str	No if used as a request parameter	**Explanation:** Account name of the grantee **Restrictions:** • Cannot contain full-width characters. • Starts with a letter. • Contains 6 to 32 characters. • Contains only letters, digits, hyphens (-), and underscores (_). **Default value**: None
group	str	Yes if the parameter is used as a request parameter and **grantee_id** is left blank	**Explanation:** Authorized user group **Value range**: See **Table 9-181**. **Default value**: None

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Table 9-181 Group

Constant	Description
ALL_USERS	All users
AUTHENTICATED_USERS	Authorized users. This constant is deprecated.
LOG_DELIVERY	Log delivery group. This constant is deprecated.

Code Examples

This example returns the object ACL information of object **objectname**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Obtain the ACL of an object in a specified bucket.
    resp = obsClient.getObjectAcl(bucketName, objectKey)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Object Acl Succeeded')
        print('requestId:', resp.requestId)
        print('owner_id:', resp.body.owner.owner_id)
        print('owner_name:', resp.body.owner.owner_name)

        index = 1
        for grant in resp.body.grants:
            print('grant [' + str(index) + ']')
            print('grantee_id:', grant.grantee.grantee_id)
            print('grantee_name:', grant.grantee.grantee_name)
            print('group:', grant.grantee.group)
            print('permission:', grant.permission)
            index += 1
    else:
        print('Get Object Acl Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Object Acl Failed')
    print(traceback.format_exc())
```

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Helpful Links

- Obtaining Object ACL Configuration
- (GitHub) Sample Code for Obtaining Object ACL
- OBS Error Codes

9.24 Restoring an Archive Object (SDK for Python)

Function

To obtain the contents of an object in the Archive storage class, you need to restore the object first and then you can download it. After an object is restored, a copy of the object is saved in the Standard storage class. By doing so, the object in the Archive storage class and its copy in the Standard storage class co-exist in the bucket. The copy will be automatically deleted once its retention period expires.

This API is used to restore Archive objects in a specified bucket.

CAUTION

To prolong the validity period of the Archive data restored, you can repeatedly restore the data, but you will be billed for each restoration. After a second restore, the validity period of Standard object copies will be prolonged, and you need to pay for storing these copies during the prolonged period.

Restrictions

- To restore an Archive object, you must be the bucket owner or have the required permission (**obs:object:RestoreObject** in IAM or **RestoreObject** in a bucket policy.) For details, see Introduction to OBS Access Control, IAM Custom Policies, and Configuring an Object Policy.
- To prolong the validity period of the Archive data restored, you can repeatedly restore the data, but you will be billed for each restore. After a second restore, the validity period of Standard object copies will be prolonged, and you need to pay for storing these copies during the prolonged period.

Method

```
ObsClient.restoreObject(bucketName, objectKey, days, tier, versionId, extensionHeaders)
```

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Request Parameters

Table 9-182 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket properties comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
days	int	Yes	**Explanation:** After an object is restored, a Standard copy of it is generated. This parameter specifies how long the Standard copy can be retained, that is, the validity period of the restored object. **Value range**: The value ranges from 1 to 30, in days. **Default value**: None
tier	str	No	**Explanation:** Retrieval speed tiers. You can select a suitable tier based on your requirements for retrieval speed. **Value range**: See **Table 9-183**. **Default value**: Standard

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Parameter	Type	Mandatory (Yes/No)	Description
versionId	str	No	**Explanation:** **Default value**: None. If this parameter is left blank, the latest version of the object is specified.
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

Table 9-183 RestoreTier

Constant	Description
Expedited	Objects can be restored at an expedited speed within 1 to 5 minutes.
Standard	Objects can be restored at a standard speed within 3 to 5 hours.

Responses

Table 9-184 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

NOTE

If **GetResult.status** is **202**, the object is being restored. If **GetResult.status** is **200**, the object has been restored.

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Table 9-185 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example restores the Archive object **objectname**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
```

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```
    # Specify how long the restored object will be retained, in days. The value ranges from 1 to 30.
    days = 1
    # Specify the restoration speed. Options: Expedited or Standard
    tier = "Expedited"
    # Restore the Archive object.
    resp = obsClient.restoreObject(bucketName, objectKey, days, tier)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Restore Object Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Restore Object Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Restore Object Failed')
    print(traceback.format_exc())
```

Helpful Links

- Restoring Archive Objects
- (GitHub) Sample Code for Restoring an Archive Object
- OBS Error Codes

9.25 Using CRC64 to Verify File Consistency (SDK for Python)

NOTICE

- CRC calculation is a compute-intensive process that requires a large number of shift, exclusive OR (XOR), and table lookup operations. Enabling CRC consumes additional time, and the larger the data volume, the more CPU time is required. In C extension mode, calculating CRC for 1 GB of data takes about 4 to 6 seconds.
- The OBS SDK for Python requires crcmod to calculate CRC checksums, and crcmod depends on the **Python.h** file in the **python-devel** package. crcmod supports both the C extension mode and the Python mode. If there is no **Python.h** file in the system, the OBS SDK for Python can still be installed, but the C extension mode of crcmod will fail to be installed. In this case, when calculating CRC checksums during upload or download, the system will use the pure Python mode, whose performance and efficiency are far lower than those of the C extension mode. Therefore, before installing the OBS SDK for Python, ensure that **python-devel** has been installed. If it is not installed, disable CRC64 verification.

You can use the following APIs to verify file consistency using CRC64 during uploads:

- Uploading Objects - Text-Based (SDK for Python)
- Uploading an Object - File-Based (SDK for Python)
- Uploading an Object - Append (SDK for Python)

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- **Uploading an Object - Resumable (SDK for Python)**
- **Multipart Upload Overview (SDK for Python)**

You can use the following APIs to verify file consistency using CRC64 during downloads:

- **Downloading an Object - File-Based (SDK for Python)**
- **Downloading an Object - Resumable (SDK for Python)**
- **Downloading an Object - Binary (SDK for Python)**
- **Downloading an Object - Streaming (SDK for Python)**

You can use the following APIs to obtain the CRC64 value of an object:

- **Downloading an Object - Range-Based (SDK for Python)**
- **Obtaining Object Metadata (SDK for Python)**

Sample Code 1: Performing a Text-Based Upload

This example uses CRC64 to verify file consistency during text upload.

```
from obs import ObsClient
from obs import PutObjectHeader
import os
import traceback

# Obtain an AK and SK pair using environment variables (recommended) or import it in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
# Before running the sample code, ensure that the environment variables AccessKeyID and SecretAccessKey have been configured.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them using environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Specify the text to be uploaded.
    content = 'Hello OBS'
    # Specify the additional headers for object upload.
    headers = PutObjectHeader()
    # Calculate the CRC64 value of the data to be uploaded and submit the CRC64 value to the server for verification.
    headers.isAttachCrc64 = True
    # Upload the text.
    resp = obsClient.putContent(bucketName, objectKey, content, headers=headers)
    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Put Content Succeeded')
        print('requestId:', resp.requestId)
        print('crc64:', resp.body.crc64)
    else:
        print('Put Content Failed')
        print('requestId:', resp.requestId)
```

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```
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Put Content Failed')
    print(traceback.format_exc())
```

Sample Code 2: Performing a File-Based Upload

This example uses CRC64 to verify file consistency during single file upload.

```
from obs import ObsClient
from obs import PutObjectHeader
import os
import traceback

# Obtain an AK and SK pair using environment variables (recommended) or import it in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
# Before running the sample code, ensure that the environment variables AccessKeyID and SecretAccessKey have been configured.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them using environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify the additional headers for object upload.
    headers = PutObjectHeader()
    # (Optional) Specify the MIME type of the object to be uploaded.
    headers.contentType = 'text/plain'
    # Calculate the CRC64 value of the data to be uploaded and submit the CRC64 value to the server for verification.
    headers.isAttachCrc64 = True
    bucketName = "examplebucket"
    # Specify the object name (the name after the file is uploaded).
    objectKey = "objectname"
    # Specify the full path of the file to be uploaded, for example, aa/bb.txt.
    file_path = 'localfile'
    # Specify the custom metadata of the file.
    metadata = {'meta1': 'value1', 'meta2': 'value2'}
    # Upload the file.
    resp = obsClient.putFile(bucketName, objectKey, file_path, metadata, headers)
    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Put File Succeeded')
        print('requestId:', resp.requestId)
        print('crc64:', resp.body.crc64)
        print('versionId:', resp.body.versionId)
        print('storageClass:', resp.body.storageClass)
    else:
        print('Put File Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Put File Failed')
    print(traceback.format_exc())
```

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Sample Code 3: Performing an Append Upload

This example uses CRC64 to verify file consistency during append upload.

```
from obs import ObsClient
from obs import AppendObjectContent, AppendObjectHeader
import os
import traceback

# Obtain an AK and SK pair using environment variables (recommended) or import it in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them using environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    headers = AppendObjectHeader()
    # Calculate the CRC64 value of the data to be uploaded and submit the CRC64 value to the server for verification.
    headers.isAttachCrc64 = True
    # Specify the message body for append upload.
    content = AppendObjectContent()
    # Specify the content to be appended.
    content.content = 'Hello OBS'
    # Specify the starting position (byte 0 in this example) the content is appended to.
    content.position = 0
    # If you upload an object for the first time using the append upload, an error will be reported (status code 409) if an ordinary object with the same name already exists.
    bucketName = "examplebucket"
    # Specify the name of the object to append content to.
    objectKey = "objectname"
    # Append content to the object.
    resp = obsClient.appendObject(bucketName, objectKey, content, headers=headers)

    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Append Object Succeeded')
        print('requestId:', resp.requestId)
        print('crc64:', resp.body.crc64)
        print('nextPosition:', resp.body.nextPosition)
    else:
        print('Append Object Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Append Object Failed')
    print(traceback.format_exc())
```

Sample Code 4: Performing a Resumable Upload

This example uses CRC64 to verify file consistency during resumable upload.

```
from obs import ObsClient
import os
import traceback
```

```
# Obtain an AK and SK pair using environment variables (recommended) or import it in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them using environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)

try:
    bucketName = "examplebucket"
    # Specify the object name (the name after the file is uploaded).
    objectKey = "objectname"
    # Specify the path of the file to be uploaded.
    uploadFile = 'localfile'
    # Specify the number of parts that can be concurrently uploaded.
    taskNum = 5
    # Specify the part size, in bytes. 10 MB is used as an example.
    partSize = 10 * 1024 * 1024
    # Enable the resumable upload by setting enableCheckpoint to True.
    enableCheckpoint = True
    # Upload the object using resumable upload.
    resp = obsClient.uploadFile(bucketName, objectKey, uploadFile, partSize, taskNum, enableCheckpoint, encoding_type='url', isAttachCrc64=True)

    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Upload File Succeeded')
        print('requestId:', resp.requestId)
        print('crc64:', resp.body.crc64)
    else:
        print('Upload File Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Upload File Failed')
    print(traceback.format_exc())
```

Code Example 5: Performing a Multipart Upload

This example uses CRC64 to verify file consistency during multipart upload.

```
# -*- coding:utf-8 -*-
from obs import ObsClient,CompleteMultipartUploadRequest, CompletePart
import os
import traceback
# Obtain an AK and SK pair using environment variables (recommended) or import it in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them using environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"
```

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```
# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify
security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
  #Specify the bucket name.
   bucketName = "examplebucket"
   #Specify the object name.
   objectKey = "objectname"
   # Specify the MIME type of the object.
   contentType = 'text/plain'
   # Initiate a multipart upload.
   resp = obsClient.initiateMultipartUpload(bucketName, objectKey,
                                            contentType=contentType)
   #Obtain the uploadId.
   uploadId = resp.body["uploadId"]
   #Specify the size of the part to upload.
   partSize = 10 * 1024 * 1024
   #Specify the part number.
   partNum = 1
   # Specify whether object indicates the file path. True is used here. The default value is False.
   isFile = True
   #Specify the local object file to upload.
   filepath = r"D:\tmp\file.txt"
   contentLength = os.path.getsize(filepath)
   #Specify the start offset of a part in the source file.
   offset = 0
   etags = {}
   crc64s = {}

   while offset < contentLength:
      partSize = min(partSize, (contentLength - offset));
      # Upload parts.
      resp1 = obsClient.uploadPart(bucketName, objectKey, partNum, uploadId, filepath, isFile, partSize,
offset, isAttachCrc64=True)
      etags[partNum] = resp1.body.etag
      crc64s[partNum] = resp1.body.crc64
      offset = offset + partSize
      partNum = partNum + 1

   completes = []
   for i in range(1, partNum):
      completes.append(CompletePart(i, etags[i], crc64s[i], partSize))
   # Assemble parts.
   completeMultipartUploadRequest = CompleteMultipartUploadRequest(parts = completes)
   resp = obsClient.completeMultipartUpload(bucketName, objectKey, uploadId,
completeMultipartUploadRequest, isAttachCrc64=True)
   # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
   if resp.status < 300:
      print('Upload Part Succeeded')
      print('requestId:', resp.requestId)
      print('crc64:', resp.body.crc64)
   else:
      print('Upload Part Failed')
      print('requestId:', resp.requestId)
      print('errorCode:', resp.errorCode)
      print('errorMessage:', resp.errorMessage)
except:
   print('multPartsUpload Failed')
   print(traceback.format_exc())
```

Sample Code 6: Performing a File-Based Download

This example uses CRC64 to verify file consistency during file download.

```
from obs import ObsClient
import os
import traceback
```

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```
# Obtain an AK and SK pair using environment variables (recommended) or import it in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them using environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify the full path (localfile as an example) to which the file is downloaded. The full path contains the local file name.
    downloadPath = 'localfile'
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Download the file.
    resp = obsClient.getObject(bucketName, objectKey, downloadPath, isAttachCrc64=True)
    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Get Object Succeeded')
        print('requestId:', resp.requestId)
        print('crc64:', resp.body.crc64)
    else:
        print('Get Object Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Object Failed')
    print(traceback.format_exc())
```

Sample Code 7: Performing a Resumable Download

This example uses CRC64 to verify file consistency during resumable download.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables (recommended) or import it in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them using environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Specify the full path to which the object is downloaded. The full path contains the local file name.
    downloadFile = 'localfile'
```

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```
    # Specify the number of parts that can be concurrently downloaded.
    taskNum = 5
    # Specify the part size.
    partSize = 10 * 1024 * 1024
    # Enable the resumable download by setting enableCheckpoint to True.
    enableCheckpoint = True
    # Download the object using resumable download.
    resp = obsClient.downloadFile(bucketName, objectKey, downloadFile, partSize, taskNum,
enableCheckpoint, isAttachCrc64=True)

    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Download File Succeeded')
        print('requestId:', resp.requestId)
        print('crc64:', resp.body.crc64)
    else:
        print('Download File Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Download File Failed')
    print(traceback.format_exc())
```

Sample Code 8: Performing a Binary Download

This example uses CRC64 to verify file consistency during binary download.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables (recommended) or import it in other ways. Using
hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://
support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them using
environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it
with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify
security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # If loadStreamInMemory is set to True, downloadpath will be invalid. The binary stream of the file
will be downloaded to the memory.
    #Download the object in a binary stream.
    resp = obsClient.getObject(bucketName=bucketName,objectKey=objectKey, loadStreamInMemory=True,
isAttachCrc64=True)
    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Get Object Succeeded')
        print('requestId:', resp.requestId)
        # Obtain the object content.
        print('buffer:', resp.body.buffer)
        print('size:', resp.body.size)
        print('crc64:', resp.body.crc64)
    else:
        print('Get Object Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
```

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```
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Object Failed')
    print(traceback.format_exc())
```

Sample Code 9: Performing a Streaming Download

This example uses CRC64 to verify file consistency during streaming download.

```
from obs import GetObjectRequest
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables (recommended) or import it in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them using environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify the additional parameters for object download.
    getObjectRequest = GetObjectRequest()
    # Rewrite the Content-Type header in the response.
    getObjectRequest.content_type = 'text/plain'
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Download the object using streaming.
    resp = obsClient.getObject(bucketName=bucketName,objectKey=objectKey,
getObjectRequest=getObjectRequest, loadStreamInMemory=False, isAttachCrc64=True)
    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Get Object Succeeded')
        print('requestId:', resp.requestId)
        print('crc64 in obs:', resp.body.crc64)
        # Read the object content.
        while True:
            chunk = resp.body.response.read(65536)
            if not chunk:
                break
            print(chunk)
        resp.body.response.close()
    else:
        print('Get Object Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Object Failed')
    print(traceback.format_exc())
```

Sample Code 10: Performing a Range-Based Download

This example uses CRC64 to verify file consistency during range download.

```
from obs import GetObjectHeader
from obs import ObsClient
```

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```
import os
import traceback

# Obtain an AK and SK pair using environment variables (recommended) or import it in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them using environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify the additional headers for object download.
    headers = GetObjectHeader()
    # Specify the range (0-1000 in this example) of the object bytes to be returned.
    # You can specify multiple ranges when obtaining an object. For example, headers.range='0-1000,2000-3000'.
    headers.range = '0-1000'
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Perform the range download. If loadStreamInMemory is set to True, downloadpath will be invalid, and data streams will be downloaded to the memory.
    resp = obsClient.getObject(bucketName, objectKey, loadStreamInMemory=True, headers=headers)
    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Get Object Succeeded')
        print('requestId:', resp.requestId)
        # Obtain the object content.
        print('buffer:', resp.body.buffer)
        print('crc64:', resp.body.crc64)
    else:
        print('Get Object Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Object Failed')
    print(traceback.format_exc())
```

Sample Code 11: Obtaining Object Metadata

This example obtains the CRC64 value of **objectname** in bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables (recommended) or import it in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them using environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one currently in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"
```

```
# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify
security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Obtain object metadata.
    resp = obsClient.getObjectMetadata(bucketName, objectKey)
    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Get Object Metadata Succeeded')
        print('requestId:', resp.requestId)
        print('etag:', resp.body.etag)
        print('crc64:', resp.body.crc64)
        print('lastModified:', resp.body.lastModified)
        print('contentType:', resp.body.contentType)
        print('contentLength:', resp.body.contentLength)
    else:
        print('Get Object Metadata Failed')
        print('requestId:', resp.requestId)
        print('status:', resp.status)
        print('reason:', resp.reason)
except:
    print('Get Object Metadata Failed')
    print(traceback.format_exc())
```

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10 APIs Related to Multipart Upload (SDK for Python)

10.1 Multipart Upload Overview (SDK for Python)

You can upload large files using multipart upload. Multipart upload is applicable to many scenarios, including:

- Files to be uploaded are larger than 100 MB.
- The network condition is poor. Connection to the OBS server is constantly down.
- Sizes of files to be uploaded are uncertain.

A multipart upload consists of the following steps:

1. **Initiate a multipart upload** (**ObsClient.initiateMultipartUpload**).
2. **Upload parts one by one or concurrently** (**ObsClient.uploadPart**).
3. **Assemble parts** (**ObsClient.completeMultipartUpload**) or **abort the multipart upload** (**ObsClient.abortMultipartUpload**).

This example shows a complete multipart upload, including initiating a multipart upload, uploading parts, and assembling parts.

```
# -*- coding:utf-8 -*-
from obs import ObsClient,CompleteMultipartUploadRequest, CompletePart
import os
import traceback
# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"
```

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```
# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify
security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    #Bucket name
    bucketName = "examplebucket"
    #Object name
    objectKey = "objectname"
    # Specify the MIME type for the object.
    contentType = 'text/plain'
    # Initiate a multipart upload.
    resp = obsClient.initiateMultipartUpload(bucketName, objectKey,
                                             contentType=contentType)
    #Obtain the uploadId.
    uploadId = resp.body["uploadId"]
    #Specify the size of the part to upload.
    partSize = 512 * 1024 * 1024
    #Specify the part number.
    partNum = 1
    # Specify whether object indicates the file path. True is used here. The default value is False.
    isFile = True
    #Specify the local object file to upload.
    filepath = r"D:\tmp\file.txt"
    contentLength = os.path.getsize(filepath)
    #Start offset of a part in the source file.
    offset = 0
    etags = {}

    while offset < contentLength:
        partSize = min(partSize, (contentLength - offset));
        # Upload parts.
        resp1 = obsClient.uploadPart(bucketName, objectKey, partNum, uploadId, filepath, isFile, partSize,
offset)
        etags[partNum] = resp1.body.etag
        offset = offset + partSize
        partNum = partNum + 1

    completes = []
    for i in range(1, partNum):
        completes.append(CompletePart(i, etags[i]))
    # Assemble parts.
    completeMultipartUploadRequest = CompleteMultipartUploadRequest(parts = completes)
    resp = obsClient.completeMultipartUpload(bucketName, objectKey, uploadId,
completeMultipartUploadRequest)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Upload Part Succeeded')
        print('requestId:', resp.requestId)
        print('etag:', resp.body.etag)
    else:
        print('Upload Part Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('multPartsUpload Failed')
    print(traceback.format_exc())
```

Below lists other multipart upload operations:

- **Listing Uploaded Parts (SDK for Python)**
- **Listing Multipart Uploads (SDK for Python)**
- **Copying a Part (SDK for Python)**
- **Aborting a Multipart Upload (SDK for Python)**

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10.2 Initiating a Multipart Upload (SDK for Python)

Function

This API initiates a multipart upload and returns a globally unique upload ID. You can use the returned upload ID when you later upload, assemble, or list parts. A single object can be involved in multiple multipart uploads. Each multipart upload initiation request can contain additional headers such as **acl**, **metadata**, **contentType**, and **encoding_type**. These headers are recorded in the multipart upload metadata.

Restrictions

- To initiate a multipart upload, you must be the bucket owner or have the required permission (**obs:object:PutObject** in IAM or **PutObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- After initiating a multipart upload and uploading one or more parts, you must assemble the parts or abort the multipart upload. Only after that can OBS stops billing you for storing the uploaded parts.

Method

```
ObsClient.initiateMultipartUpload(bucketName, objectKey, acl, storageClass, metadata,
websiteRedirectLocation, contentType, sseHeader, expires, extensionGrants, extensionHeaders)
```

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Request Parameters

Table 10-1 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
acl	str	No	**Explanation:** ACL that can be pre-defined when a bucket is created. For details about ACLs, see **ACLs**. **Value range**: For details about the available options, see **HeadPermission**. **Default value**: **PRIVATE**
storageClass	str	No	**Explanation:** Object storage class. If this parameter is not set, the object inherits the storage class of its bucket. **Value range**: See **Table 10-3**. **Default value**: **STANDARD**

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Parameter	Type	Mandatory (Yes/No)	Description
metadata	dict	No	**Explanation:** Custom metadata of the object to be uploaded. You can add a header starting with **x-obs-meta-** in the request to define metadata. The custom metadata will be returned in the response when you retrieve the object or query the object metadata. **Restrictions:** ● The custom metadata cannot exceed 8 KB. To measure the custom metadata, sum the number of bytes in the UTF-8 encoding of each key and value. ● The custom metadata keys are case insensitive, but are stored in lowercase in OBS. The key values are case sensitive. ● Both custom metadata keys and their values must conform to US-ASCII standards. If non-ASCII or unrecognizable characters are required, they must be encoded and decoded in URL or Base64 on the client, because the server does not perform such operations. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
websiteRedirect-Location	str	No	**Explanation:** If the bucket is configured with website hosting, the request for obtaining the object can be redirected to another object in the bucket or an external URL. The request is redirected to object **anotherPage.html** in the same bucket: **WebsiteRedirectLocation:/anotherPage.html** The request is redirected to an external URL **http://www.example.com/**: **WebsiteRedirectLocation:http://www.example.com/** OBS obtains the specified value from the header and stores it in the object metadata **WebsiteRedirectLocation**. **Restrictions:** • The value must start with a slash (/), **http://**, or **https://** and cannot exceed 2 KB. • OBS only supports redirection for objects in the root directory of a bucket. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
contentType	str	No	**Explanation:** MIME type of the file to be uploaded. MIME type is a standard way of describing a data type and is used by the browser to decide how to display data. **Value range**: See **What Is Content-Type (MIME)? (Python SDK)** **Default value**: If you do not specify this parameter when uploading an object, the SDK determines the object type based on the suffix of the specified object name and automatically assigns a value to this parameter.
sseHeader	**SseCHeader** or **SseKmsHeader**	No	**Explanation:** Server-side encryption header. If SSE-C is used, see **Table 10-4**. If SSE-KMS is used, see **Table 10-5**. **Default value**: None
expires	int	No	**Explanation:** Expiration time of the object (calculated from the latest modification time of the object). Expired objects are automatically deleted. **Restrictions:** This parameter can be configured only when uploading the object. It cannot be modified by calling a metadata modification API. **Value range**: An integer greater than or equal to 0, in days **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
extensionGrants	list of **Extension Grant**	No	**Explanation:** List of the extended permissions for the object. For details, see **Table 10-6**. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None
encoding_type	str	No	**Explanation:** Encoding type for **Key** in the response. If **Key** in the response contains control characters that are not supported by the XML 1.0 standard, you can specify this parameter to encode **Key**. **Value range**: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied to **Key**.

Table 10-2 HeadPermission

Constant	Default Value	Description
HeadPermission.PRIVATE	private	Private read/write A bucket or object can only be accessed by its owner.

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Constant	Default Value	Description
HeadPermission.PUBLIC_READ	public-read	Public read and private write If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket. If it is granted on an object, anyone can read the content and metadata of the object.
HeadPermission.PUBLIC_READ_WRITE	public-read-write	Public read/write If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart upload tasks. If it is granted on an object, anyone can read the content and metadata of the object.
HeadPermission.PUBLIC_READ_DELIVERED	public-read-delivered	Public read on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart tasks, metadata, and object versions, and read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_DELIVERED** cannot be applied to objects.
HeadPermission.PUBLIC_READ_WRITE_DELIVERED	public-read-write-delivered	Public read/write on a bucket as well as objects in the bucket If this permission is granted on a bucket, anyone can read the object list, multipart uploads, metadata, and object versions in the bucket, and can upload or delete objects, initiate multipart upload tasks, upload parts, assemble parts, copy parts, and abort multipart uploads. They can also read the content and metadata of objects in the bucket. **NOTE** **PUBLIC_READ_WRITE_DELIVERED** cannot be applied to objects.

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Constant	Default Value	Description
HeadPermission.BUCKET_OWNER_FULL_CONTROL	bucket-owner-full-control	If this permission is granted on an object, only the bucket and object owners have the full control over the object. By default, if you upload an object to a bucket owned by another user, the bucket owner does not have the permissions on your object. After you grant this permission to the bucket owner, the bucket owner can have full control over your object.

Table 10-3 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

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Table 10-4 SseCHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-C used for encrypting objects **Value range**: **AES256** **Default value**: None
key	str	Yes	**Explanation:** Key used in SSE-C encryption. It corresponds to the encryption method. For example, if **encryption** is set to **AES256**, the key is calculated using the AES-256 algorithm. **Value range**: The value must contain 32 characters. **Default value**: None

Table 10-5 SseKmsHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-KMS used for encrypting objects **Value range**: **kms** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
key	str	No	**Explanation:** Master key used in SSE-KMS **Value range**: The following two formats are supported: • *regionID*:*domainID*:**key/***key_id* • *key_id* In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, OBS will create one and use it by default.

Table 10-6 ExtensionGrant

Parameter	Type	Mandatory (Yes/No)	Description
granteeId	str	No	**Explanation:** Account (domain) ID of the grantee **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
permission	str	No	**Explanation:** Granted permissions. For details, see Table 10-7. **Default value**: None

Table 10-7 Permission

Constant	Description
READ	Read permission A grantee with this permission for a bucket can obtain the list of objects, multipart uploads, bucket metadata, and object versions in the bucket. A grantee with this permission for an object can obtain the object content and metadata.
WRITE	Write permission A grantee with this permission for a bucket can upload, overwrite, and delete any object or part in the bucket. Such permission for an object is not applicable.
READ_ACP	Permission to read ACL configurations A grantee with this permission can obtain the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently.
WRITE_ACP	Permission to modify ACL configurations A grantee with this permission can update the ACL of a bucket or object. A bucket or object owner has this permission for the bucket or object permanently. A grantee with this permission can modify the ACL, thus obtaining full access permissions.
FULL_CONTROL	Full control access, including read and write permissions for a bucket and its ACL, or for an object and its ACL. A grantee with this permission for a bucket has **READ**, **WRITE**, **READ_ACP**, and **WRITE_ACP** permissions for the bucket. A grantee with this permission for an object has **READ**, **READ_ACP**, and **WRITE_ACP** permissions for the object.

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Responses

Table 10-8 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 10-9 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

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Table 10-10 GetResult.body

GetResult.body Type	Description
InitiateMultipartUploadResponse	**Explanation:** Response to the request for initiating a multipart upload. For details, see **Table 10-11**.

Table 10-11 InitiateMultipartUploadResponse

Parameter	Type	Description
bucketName	str	**Explanation:** Name of the bucket involved in the multipart upload **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Description
objectKey	str	**Explanation:** Name of the object to be uploaded. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
uploadId	str	**Explanation:** Multipart upload ID, for example, **000001648453845DBB78F2340DD460D8** **Value range**: The value must contain 1 to 32 characters. **Default value**: None
sseKms	str	**Explanation:** SSE-KMS is used for encrypting objects on the server side. **Value range**: **kms** **Default value**: None

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Parameter	Type	Description
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. *key_id* In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, OBS will create one and use it by default.
sseC	str	**Explanation:** Algorithm used to encrypt and decrypt objects with SSE-C **Value range**: **AES256** **Default value**: None
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None

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Parameter	Type	Description
encoding_type	str	**Explanation:** Encoding type for **Key** in the response. If **Key** in the response contains control characters that are not supported by the XML 1.0 standard, you can specify this parameter to encode **Key**. **Value range**: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied to **Key**.

Code Examples

This example initiates a multipart upload for bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Specify a pre-defined ACL (PRIVATE as an example).
    acl = 'PRIVATE'
    # Specify a storage class (STANDARD as an example) for the object.
    storageClass = 'STANDARD'
    # Specify a custom metadata of the object.
    metadata = {'key': 'value'}
    # Specify the MIME type for the object.
    contentType = 'text/plain'
    # Specify the lifecycle (7 as an example) for the object, in days.
    expires = 7
    # Initiate a multipart upload.
    resp = obsClient.initiateMultipartUpload(bucketName, objectKey, acl, storageClass, metadata,
                                             contentType=contentType, expires=expires, encoding_type='url')

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Initiate Multipart Upload Succeeded')
        print('requestId:', resp.requestId)
```

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```
        print('bucketName:', resp.body.bucketName)
        print('objectKey:', resp.body.objectKey)
        print('uploadId:', resp.body.uploadId)
    else:
        print('Initiate Multipart Upload Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Initiate Multipart Upload Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Initiating a Multipart Upload**
- **(GitHub) Sample Code for Multipart Uploads**
- **OBS Error Codes**

10.3 Uploading a Part (SDK for Python)

Function

After a multipart upload is initiated, this API uploads a part to a specified bucket. In the upload request, the multipart upload ID must be included. Except for the part lastly being uploaded whose size ranges from 0 to 5 GB, sizes of the other parts range from 100 KB to 5 GB. Part numbers can be any number from 1 to 10,000.

When uploading a part, you must specify its upload ID and part number. A part number uniquely identifies a part and its position in the object you are uploading. If you upload a new part with the same part number as that of a previous part, the previously uploaded part will be overwritten. Whenever you upload a part, OBS returns the ETag header in the response. For each part upload task, you must record the part number and ETag value. These values are required in subsequent requests for you to complete a multipart upload.

Restrictions

- To upload a part, you must be the bucket owner or have the required permission (**obs:object:PutObject** in IAM or **PutObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- After initiating a multipart upload and uploading one or more parts, you must assemble the parts or abort the multipart upload. Only after that can OBS stops billing you for storing the uploaded parts.
- **partNumber** in a multipart upload must be unique. When the same **partNumber** of the same object is concurrently uploaded, last write wins policy is applied. The time of last write is defined as the time when the part metadata is created. To ensure data accuracy, the client must be locked to ensure concurrent uploads of the same part of the same object. Concurrent uploads for different parts of the same object do not need to be locked.

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Method

```
ObsClient.uploadPart(bucketName, objectKey, partNumber, uploadId, object, isFile, partSize, offset,
sseHeader, isAttachMd5, md5, progressCallback, autoClose, extensionHeaders)
```

Request Parameters

Table 10-12 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None **NOTE** The object URL is in the following format: **https://***Bucket name.Domain name/Folder directory level/Object name*. If this object is stored in the root directory of the bucket, its URL does not contain the folder directory level.
partNumber	int	Yes	**Explanation:** Part number **Value range**: [1,10000] **Default value**: None
uploadId	str	Yes	**Explanation:** Multipart upload ID which can be returned by **initiating a multipart upload**, for example, **000001648453845DBB78F2340DD460D8** **Restrictions:** The value must contain 32 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
object	str or readable object	Yes	**Explanation:** Part content to be uploaded **Value range**: A string or a readable object **NOTE** If **object** is a readable object that contains the **read** attribute, data is read from the readable object. Otherwise, the object content is a string. **Default value**: None
isFile	bool	No	**Explanation:** Whether **object** indicates the file path. **Value range**: **True**: **object** indicates the file path. **False**: **object** does not indicate the file path. **Default value**: False
offset	int	No	**Explanation:** Start offset of a part in the source file **Value range**: A non-negative integer not exceeding the size of the object to be uploaded, in bytes **Default value**: 0

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Parameter	Type	Mandatory (Yes/No)	Description
partSize	int	No	**Explanation:** Part size **Restrictions**: • Except for the last uploaded part, all parts must be larger than 100 KB. Part sizes will not be verified during upload because whether an uploaded part is the last one cannot be determined. Their sizes will be verified when being assembled. • The minimum part size supported by an OBS 3.0 bucket is 100 KB, and that supported by an OBS 2.0 bucket is 5 MB. **Value range**: The value ranges from 100 KB to 5 GB, in bytes. **Default value**: 102400
sseHeader	SseCHeader	No	**Explanation:** Server-side encryption header. For details, see **Table 10-13**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
isAttachMd5	bool	No	**Explanation:** Whether to automatically calculate the MD5 value of the data to be uploaded. **Restrictions:** If **isAttachMd5** and **md5** are used at the same time, **isAttachMd5** is invalid. **Value range**: **True**: The MD5 value of the data to be uploaded is automatically calculated. **False**: The MD5 value of the data to be uploaded is not automatically calculated. **Default value**: False
md5	str	No	**Explanation:** Base64-encoded MD5 value of the part to be uploaded, which uniquely identifies the content of the uploaded part and can be used to identify whether the object content is changed. **Restrictions:** If **isAttachMd5** and **md5** are used at the same time, **isAttachMd5** is invalid. **Value range**: The value must contain 32 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
progressCallback	callable	No	**Explanation:** Callback function for obtaining the upload progress **Default value**: None **NOTE** This callback function contains the following parameters in sequence: number of uploaded bytes, total bytes, and used time (in seconds).
autoClose	bool	No	**Explanation:** Whether to automatically close data streams after the upload is complete **Value range**: **True**: The data stream is automatically closed. **False**: The data stream is not automatically closed. **Default value**: True
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Table 10-13 SseCHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-C used for encrypting objects **Value range**: **AES256** **Default value**: None
key	str	Yes	**Explanation:** Key used in SSE-C encryption. It corresponds to the encryption method. For example, if **encryption** is set to **AES256**, the key is calculated using the AES-256 algorithm. **Value range**: The value must contain 32 characters. **Default value**: None

Responses

Table 10-14 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 10-15 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 10-16 GetResult.body

GetResult.body Type	Description
UploadPartResponse	**Explanation:** Response to the request for uploading a part

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Table 10-17 UploadPartResponse

Parameter	Type	Description
etag	str	**Explanation:** Base64-encoded 128-bit MD5 digest of a part. ETag is the unique identifier of the part content. It can be used to determine whether the part content is changed. **Value range**: The value must contain 32 characters. **Default value**: None
sseKms	str	**Explanation:** SSE-KMS is used for encrypting objects on the server side. **Value range**: **kms** **Default value**: None
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. *key_id* In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, OBS will create one and use it by default.

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Parameter	Type	Description
sseC	str	**Explanation:** Algorithm used to encrypt and decrypt objects with SSE-C **Value range**: **AES256** **Default value**: None
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None

Code Examples

This example uploads a part.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    # Specify the name of the object to be uploaded to the bucket.
    objectKey = "objectname"
    # Specify the part number, which ranges from 1 to 10,000
    partNumber = "your partNumber"
    # Specify the ID of the multipart upload.
    uploadId = "your uploadid"
    # Specify the content of the part to be uploaded as a string or readable object.
```

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```
    object = 'Hello OBS'
    # Specify whether object indicates the file path. The default value is False.
    isFile = False
    # Specify the start offset (in bytes) of a part in the source file. The default value is 0.
    offset = 0
    # Specify the size (in bytes) of a part in the source file. The default value is the file size minus offset.
    partSize = 9 * 1024 * 1024
    # Specify whether to automatically calculate the MD5 value of the data to be uploaded. The default
value is False.
    isAttachMd5 = True
    # Upload the part to a specified bucket using the multipart upload ID.
    resp = obsClient.uploadPart(bucketName, objectKey, partNumber, uploadId, object, isFile, partSize,
                                offset, isAttachMd5=isAttachMd5)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Upload Part Succeeded')
        print('requestId:', resp.requestId)
        print('etag:', resp.body.etag)
    else:
        print('Upload Part Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Upload Part Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Uploading a Part**
- **(GitHub) Sample Code for Multipart Uploads**
- **OBS Error Codes**

10.4 Listing Uploaded Parts (SDK for Python)

Function

This API lists the uploaded parts in a specified bucket. This request must contain the multipart upload ID.

You can list the uploaded parts of a specified multipart upload or of all ongoing multipart uploads. A maximum of 1,000 uploaded parts can be returned in a response. If your multipart upload has more than 1,000 parts, you need to send multiple requests to list all uploaded parts. Assembled parts will not be listed.

Restrictions

- To list uploaded parts, you must be the bucket owner or have the required permission (**obs:object:ListMultipartUploadParts** in IAM or **ListMultipartUploadParts** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- A returned list can only be used for verification. After a multipart upload is complete, the result in the list is no longer valid. However, when part numbers and the ETag values returned by OBS are uploaded, the list of part numbers specified by the user will be reserved.

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Method

```
ObsClient.listParts(bucketName, objectKey, uploadId, maxParts, partNumberMarker, extensionHeaders)
```

Request Parameters

Table 10-18 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None **NOTE** The object URL is in the following format: **https://***Bucket name.Domain name/Folder directory level/Object name*. If this object is stored in the root directory of the bucket, its URL does not contain the folder directory level.
uploadId	str	Yes	**Explanation:** Multipart upload ID, for example, **000001648453845DBB78F2340DD460D8** **Value range**: The value must contain 1 to 32 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
maxParts	int	No	**Explanation:** Maximum number of uploaded parts that can be listed per page **Restrictions:** If the specified value is greater than **1000**, only 1,000 parts are returned. **Value range**: The value ranges from **1** to **1000**. **Default value**: **1000**
partNumberMarker	int	No	**Explanation:** Part number after which uploaded part listing begins **Restrictions:** OBS lists only parts with greater numbers than that specified by this parameter. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
encoding_type	str	No	**Explanation:** Encoding type for **Key** in the response. If **Key** in the response contains control characters that are not supported by the XML 1.0 standard, you can specify this parameter to encode **Key**. **Value range**: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied to **objectKey**.

Responses

Table 10-19 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 10-20 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None

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Parameter	Type	Description
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None

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Parameter	Type	Description
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 10-21 GetResult.body

GetResult.body Type	Description
ListPartsResponse	**Explanation:** Response to the request for listing uploaded parts

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Table 10-22 ListPartsResponse

Parameter	Type	Description
bucketName	str	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None
objectKey	str	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Description
uploadId	str	**Explanation:** Multipart upload ID, for example, **000001648453845DBB78F2340DD460D8** **Value range**: The value must contain 32 characters. **Default value**: None
initiator	**Initiator**	**Explanation:** Initiator of the multipart upload. For details, see **Table 10-24**. **Default value**: None
owner	**Owner**	**Explanation:** Owner of the multipart upload, which is consistent with **initiator**. For details, see **Table 10-25**. **Default value**: None
storageClass	str	**Explanation:** Object storage class **Value range**: See **Table 10-23**. **Default value**: None
partNumberMarker	int	**Explanation:** Part number after which part listing begins, which is consistent with that set in the request **Value range**: An integer greater than or equal to 0 **Default value**: None

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Parameter	Type	Description
nextPartNumberMarker	int	**Explanation:** Part number to start with for the next part listing request. **nextPartNumberMarker** is returned when not all the parts are listed. You can set **partNumberMarker** to this value in the next request to list the remaining parts. **Value range**: An integer greater than or equal to 0 **Default value**: None
maxParts	int	**Explanation:** Maximum number of parts that can be listed per page. This parameter is consistent with that set in the request. **Restrictions:** If the specified value is greater than **1000**, only 1,000 parts are returned. **Value range**: The value ranges from **1** to **1000**. **Default value**: **1000**
isTruncated	bool	**Explanation:** Whether all results are returned in the response **Value range**: • **true**: Not all results are returned. • **false**: All results are returned. **Default value**: None
parts	list of **Part**	**Explanation:** List of uploaded parts. For details, see **Table 10-26**. **Default value**: None

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Parameter	Type	Description
encoding_type	str	**Explanation:** Encoding type for some elements in the response. If delimiter, key_marker, prefix, nextKeyMarker, and key contain control characters that are not supported by the XML 1.0 standard, you can set encoding_type to encode delimiter, key_marker, prefix (including the Prefix in commonPrefixes), nextKeyMarker, and key in the response. **Value range**: Value option: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied to elements.

Table 10-23 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

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Table 10-24 Initiator

Parameter	Type	Mandatory (Yes/No)	Description
id	str	Yes if used as a request parameter	**Explanation:** Account (domain) ID of the initiator **Value range**: To obtain an account ID, see **Obtaining the Account ID**. **Default value**: None
name	str	No if used as a request parameter	**Explanation:** Account name of the initiator **Restrictions:** The account name can contain 6 to 32 characters and must start with a letter. Only letters, digits, hyphens (-), and underscores (_) are allowed. **Default value**: None

Table 10-25 Owner

Parameter	Type	Mandatory (Yes/No)	Description
owner_id	str	Yes if used as a request parameter	**Explanation:** Account (domain) ID of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
owner_name	str	No if used as a request parameter	**Explanation:** Account name of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

Table 10-26 Part

Parameter	Type	Description
partNumber	int	**Explanation:** Part number **Value range**: An integer ranging from 1 to 10000 **Default value**: None
lastModified	str	**Explanation:** Time when the part was last modified **Default value**: None
etag	str	**Explanation:** Part ETag, which is a Base64-encoded, 128-bit MD5 value **Value range**: The value must contain 32 characters. **Default value**: None
size	int	**Explanation:** Part size **Default value**: None

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Code Examples

This example lists the parts that have been uploaded in a multipart upload.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Specify the ID of the multipart upload.
    uploadId = "your uploadid"
    # Specify the maximum number (10 as an example) of parts that can be listed per page.
    maxParts = 10
    # List the uploaded parts.
    resp = obsClient.listParts(bucketName, objectKey, uploadId, maxParts, encoding_type='url')

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('List Parts Succeeded')
        print('requestId:', resp.requestId)
        print('bucketName:', resp.body.bucketName)
        print('objectKey:', resp.body.objectKey)
        print('uploadId:', resp.body.uploadId)
        print('storageClass:', resp.body.storageClass)
        print('isTruncated:', resp.body.isTruncated)
        print('initiator:', resp.body.initiator)
        print('owner:', resp.body.owner)

        index = 1
        for part in resp.body.parts:
            print('part [' + str(index) + ']')
            print('partNumber:', part.partNumber)
            print('lastModified:', part.lastModified)
            print('etag:', part.etag)
            print('size:', part.size)
            index += 1
    else:
        print('List Parts Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('List Parts Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Listing Uploaded Parts**

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- **(GitHub) Sample Code for Multipart Uploads**
- **OBS Error Codes**

10.5 Listing Multipart Uploads (SDK for Python)

Function

This API lists ongoing multipart uploads.

Ongoing multipart uploads are the multipart uploads that have been initiated but have not been completed or aborted. A maximum of 1,000 multipart uploads can be returned in a response. If there are over 1,000 ongoing tasks satisfying the list criteria, you need to send more requests to query additional multipart uploads.

Restrictions

- To list multipart uploads, you must be the bucket owner or have the required permission (**obs:bucket:ListBucketMultipartUploads** in IAM or **ListBucketMultipartUploads** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- To list ongoing multipart uploads in a bucket, you must have the **ListBucketMultipartUploads** permission.
- By default, only the bucket owner and multipart upload initiator have this permission. The bucket owner can grant others the **ListBucketMultipartUploads** permission.

Method

```
ObsClient.listMultipartUploads(bucketName, multipart, extensionHeaders)
```

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Request Parameters

Table 10-27 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucket	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None
multipart	**ListMultipartUploadsRequest**	No	**Explanation:** Request parameters for listing multipart uploads. For details, see **Table 10-28**.

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Parameter	Type	Mandatory (Yes/No)	Description
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None
encoding_type	str	No	**Explanation:** Encoding type for **Key** in the response. If **Key** in the response contains control characters that are not supported by the XML 1.0 standard, you can specify this parameter to encode **Key**. **Value range**: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied to **Key**.

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Table 10-28 ListMultipartUploadsRequest

Parameter	Type	Mandatory (Yes/No)	Description
prefix	str	No	**Explanation:** Name prefix that the objects in the multipart uploads to be listed must contain Assume that you have the following objects: **logs/day1**, **logs/day2**, **logs/day3**, and **ExampleObject.jpg**. If you specify **logs/** as the prefix, the multipart uploads of **logs/day1**, **logs/day2**, and **logs/day3** will be returned. If you leave this parameter blank, all multipart uploads in the bucket will be returned. **Restrictions:** The value must contain 1 to 1,024 characters. **Default value**: None
max_uploads	int or str	No	**Explanation:** Maximum number of listed multipart uploads **Restrictions:** If the specified value is greater than **1000**, only 1,000 multipart uploads are returned. **Value range**: An integer from 1 to 1000 **Default value**: 1000

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Parameter	Type	Mandatory (Yes/No)	Description
delimiter	str	No	**Explanation:** Object names are grouped by this parameter, which is often used with **prefix**. If a prefix is specified, objects with the same string from the prefix to the first delimiter are grouped into one **CommonPrefix**. If no prefix is specified, objects with the same string from the first character to the first delimiter are grouped into one **CommonPrefix**. Assume that a bucket has objects **abcd**, **abcde**, and **bbcde** in it. If **delimiter** is set to **d** and **prefix** is set to **a**, objects **abcd** and **abcde** are grouped into a **CommonPrefix** with **abcd** as the prefix. If only **delimiter** is set to **d**, objects **abcd** and **abcde** are grouped into a **CommonPrefix** with **abcd** as the prefix, and **bbcde** is grouped separately into another **CommonPrefix** with **bbcd** as the prefix. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
key_marker	str	No	**Explanation:** Object name after which the multipart upload listing begins **Value range**: The value of **nextKeyMarker** in the response body of the last request **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
upload_id_marker	str	No	**Explanation:** Upload ID after which the multipart upload listing begins **Restrictions:** This parameter is valid only when used with **key_marker**. If both parameters are specified, multipart uploads with IDs greater than the specified **uploadIdMarker** for the specified **keyMarker** are listed. **Value range**: The value of **nextUploadIdMarker** in the response body of the last request **Default value**: None

Responses

Table 10-29 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

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Table 10-30 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 10-31 GetResult.body

GetResult.body Type	Description
ListMultipartUploadsResponse	**Explanation:** Response to the request for listing multipart uploads

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Table 10-32 ListMultipartUploadsResponse

Parameter	Type	Description
bucket	str	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None
keyMarker	str	**Explanation:** Object name after which the multipart upload listing begins, which is consistent with that set in the request. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Description
uploadIdMarker	str	**Explanation:** Upload ID after which the multipart upload listing begins, which is consistent with that set in the request **Value range**: The value must contain 1 to 32 characters. **Default value**: None
nextKeyMarker	str	**Explanation:** Object name to start with for the next multipart upload listing request. **nextKeyMarker** is returned when not all the objects are listed. You can set **key_marker** to this value in the next request to list the remaining multipart uploads. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
nextUploadIdMarker	str	**Explanation:** Upload ID to start with for the next multipart upload listing request. This parameter is used together with **nextKeyMarker**. **nextUploadIdMarker** is returned when not all the objects are listed. You can set **upload_id_marker** to this value in the next request to list the remaining multipart uploads. **Value range**: The value must contain 1 to 32 characters. **Default value**: None

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Parameter	Type	Description
maxUploads	int	**Explanation:** Maximum number of listed multipart uploads, which is consistent with that in the request **Restrictions:** If the specified value is greater than **1000**, only 1,000 multipart uploads are returned. **Value range**: An integer from **1** to **1000** **Default value**: **1000**
isTruncated	bool	**Explanation:** Whether all results are returned in the response **Value range**: • **true**: Not all results are returned. • **false**: All results are returned. **Default value**: None
prefix	str	**Explanation:** Prefix that the object names in the multipart uploads to be listed must contain. This parameter is consistent with that set in the request. Assume that you have the following objects: **logs/day1**, **logs/day2**, **logs/day3**, and **ExampleObject.jpg**. If you specify **logs/** as the prefix, the multipart uploads of **logs/day1**, **logs/day2**, and **logs/day3** will be returned. If you leave this parameter blank, all multipart uploads in the bucket will be returned. **Restrictions:** The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Description
delimiter	str	**Explanation:** A character used to group object names in multipart uploads, which is consistent with that set in the request. This parameter is often used with **prefix**. If a prefix is specified, objects with the same string from the prefix to the first delimiter are grouped into one **CommonPrefixes**. If no prefix is specified, objects with the same string from the first character to the first delimiter are grouped into one **CommonPrefixes**. Assume that a bucket has objects **abcd**, **abcde**, and **bbcde** in it. If **delimiter** is set to **d** and **prefix** is set to **a**, objects **abcd** and **abcde** are grouped into a **CommonPrefixes** with **abcd** as the prefix. If only **delimiter** is set to **d**, objects **abcd** and **abcde** are grouped into a **CommonPrefixes** with **abcd** as the prefix, and **bbcde** is grouped separately into another **CommonPrefixes** with **bbcd** as the prefix. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
upload	list of **Upload**	**Explanation:** List of multipart uploads. For details, see **Table 10-33**. **Default value**: None
commonPrefixs	list of **CommonPrefix**	**Explanation:** List of object name prefixes grouped according to the **delimiter** parameter (if specified) **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Description
encoding_type	str	**Explanation:** Encoding type for **key** in the response. If **key** in the response contains control characters that are not supported by the XML 1.0 standard, you can specify this parameter to encode **key**. **Value range**: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied to **Key**.

Table 10-33 Upload

Parameter	Type	Description
key	str	**Explanation:** Name of the object to be uploaded. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
uploadId	str	**Explanation:** Multipart upload ID, for example, **000001648453845DBB78F2340DD460D8** **Value range**: The value must contain 1 to 32 characters. **Default value**: None
initiator	**Initiator**	**Explanation:** Initiator of the multipart upload. For details, see **Table 10-35**. **Default value**: None

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Parameter	Type	Description
owner	Owner	**Explanation:** Owner of the multipart upload, which is consistent with **initiator**. For details, see **Table 10-36**. **Default value**: None
storageClass	str	**Explanation:** Storage class of the object to be uploaded **Value range**: See **Table 10-37**. **Default value**: None
initiated	str	**Explanation:** Time when the multipart upload is initiated **Restrictions:** The time must be in the ISO8601 format, for example, **2018-01-01T00:00:00.000Z**. Sample code: **DateTime(year=2023, month=9, day=12)** **Default value**: None

Table 10-34 CommonPrefix

Parameter	Type	Description
prefix	str	**Explanation:** List of object name prefixes grouped according to the **delimiter** parameter (if specified) **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Table 10-35 Initiator

Parameter	Type	Mandatory (Yes/No)	Description
id	str	Yes if used as a request parameter	**Explanation:** Account (domain) ID of the initiator **Value range**: To obtain an account ID, see **Obtaining the Account ID**. **Default value**: None
name	str	No if used as a request parameter	**Explanation:** Account name of the initiator **Restrictions:** The account name can contain 6 to 32 characters and must start with a letter. Only letters, digits, hyphens (-), and underscores (_) are allowed. **Default value**: None

Table 10-36 Owner

Parameter	Type	Mandatory (Yes/No)	Description
owner_id	str	Yes if used as a request parameter	**Explanation:** Account (domain) ID of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
owner_name	str	No if used as a request parameter	**Explanation:** Account name of the owner **Value range**: To obtain the account ID, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** **Default value**: None

Table 10-37 StorageClass

Parameter	Type	Description
STANDARD	Standard storage class	**Explanation:** Features low access latency and high throughput and is used for storing massive, frequently accessed (multiple times a month) or small objects (< 1 MB) requiring quick response.
WARM	Infrequent Access storage class	**Explanation:** Used for storing data that is semi-frequently accessed (fewer than 12 times a year) but is instantly available when needed.
COLD	Archive storage class	**Explanation:** Used for storing rarely accessed (once a year) data.
INTELLIGENT_TIERING	Intelligent Tiering	**Explanation:** Is designed to optimize storage costs by automatically moving data to a more economical access tier when data access patterns change. This storage class is ideal for data with constantly changing or unpredictable access patterns.

Code Examples

This example lists multipart uploads in a bucket.

```
from obs import ObsClient
from obs import ListMultipartUploadsRequest
import os
```

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```
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    # Specify the prefix that the object names in the multipart uploads to be listed must contain.
    prefix = 'prefix'
    # Specify the maximum number (10 as an example) of returned multipart uploads. The value ranges from 1 to 1,000. If the value is not in this range, 1,000 is returned by default.
    max_uploads = 10
    # Specify request parameters for listing multipart uploads.
    multipart = ListMultipartUploadsRequest(prefix=prefix, max_uploads=max_uploads)
    # List multipart uploads in a bucket.
    resp = obsClient.listMultipartUploads(bucketName, multipart, encoding_type='url')

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('List Multipart Uploads Succeeded')
        print('requestId:', resp.requestId)
        print('bucket:', resp.body.bucket)
        print('prefix:', resp.body.prefix)
        print('maxUploads:', resp.body.maxUploads)
        print('isTruncated:', resp.body.isTruncated)
        index = 1
        for upload in resp.body.upload:
            print('upload [' + str(index) + ']')
            print('key:', upload.key)
            print('uploadId:', upload.uploadId)
            print('storageClass:', upload.storageClass)
            print('initiated:', upload.initiated)
            print('owner_id:', upload.owner.owner_id)
            print('owner_name:', upload.owner.owner_name)
            index += 1
    else:
        print('List Multipart Uploads Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('List Multipart Uploads Failed')
    print(traceback.format_exc())
```

Helpful Links

- Listing Initiated Multipart Uploads in a Bucket
- (GitHub) Sample Code for Multipart Uploads
- OBS Error Codes

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10.6 Assembling Parts (SDK for Python)

Function

This API assembles the uploaded parts to complete the multipart upload. Before performing this operation, you cannot download the uploaded data. When assembling parts, you need to copy the additional message header information recorded during the multipart upload initiation to the object metadata. Such information is processed the same way the information in a common object upload is processed. In the case of assembling parts concurrently, last write wins is applied, but the time of last write is defined as the time when a multipart upload was initiated.

As long as the multipart upload is not aborted, all uploaded parts occupy the space. However, after you assembled the specified parts, those uploaded but not assembled will be deleted to free up space.

When assembling parts, OBS creates an object by putting part numbers in ascending order. If any object metadata is provided in the initiation of the multipart upload, OBS will associate the metadata with the object. After the multipart upload is complete, the parts will no longer exist. A part assembling request must contain the upload ID, part numbers, and a list of corresponding ETag values. In response to the request, the ETag that uniquely identifies the assembled parts is contained. This ETag is not the MD5 hash value of the entire object.

Restrictions

- To assemble parts, you must be the bucket owner or have the required permission (**obs:object:PutObject** in IAM or **PutObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- After a multipart upload is complete, the uploaded parts that are not assembled will be automatically deleted and cannot be recovered. Before assembling parts, use the API for listing uploaded parts to check all parts to ensure that no part is missed.

Method

```
ObsClient.completeMultipartUpload(bucketName, objectKey, uploadId, completeMultipartUploadRequest, extensionHeaders)
```

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Request Parameters

Table 10-38 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None **NOTE** The object URL is in the following format: **https://***Bucket name.Domain name/Folder directory level/Object name*. If this object is stored in the root directory of the bucket, its URL does not contain the folder directory level.
uploadId	str	Yes	**Explanation:** Multipart upload ID, for example, **000001648453845DBB78F2340DD460D8** **Value range**: The value must contain 32 characters. **Default value**: None
completeMultipartUploadRequest	**CompleteMultipartUploadRequest**	Yes	**Explanation:** Request parameters for assembling parts. For details, see **Table 10-39**.

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Parameter	Type	Mandatory (Yes/No)	Description
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None
encoding_type	str	No	**Explanation:** Encoding type for **key** in the response. If **key** in the response contains control characters that are not supported by the XML 1.0 standard, you can specify this parameter to encode **key**. **Value range**: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied to **Key**.

Table 10-39 CompleteMultipartUploadRequest

Parameter	Type	Mandatory (Yes/No)	Description
parts	list of **CompletePart**	Yes	**Explanation:** List of parts to be assembled. For details, see **Table 10-40**.

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Table 10-40 CompletePart

Parameter	Type	Mandatory (Yes/No)	Description
partNum	int	Yes	**Explanation:** Part number **Value range**: [1,10000] **Default value**: None
etag	str	Yes	**Explanation:** ETag of a part. It is calculated by encoding the 128-bit MD5 value of the part using Base64. **Value range**: The value must contain 32 characters. **Default value**: None

Responses

Table 10-41 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

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Table 10-42 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 10-43 GetResult.body

GetResult.body Type	Description
CompleteMultipartUploadResponse	**Explanation:** Response to the request for assembling parts. For details, see **Table 10-44**.

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Table 10-44 CompleteMultipartUploadResponse

Parameter	Type	Description
etag	str	**Explanation:** The ETag that uniquely identifies the object after its parts were assembled, calculated based on the ETag of each part. **Restrictions:** If an object is encrypted using server-side encryption, the ETag is not the MD5 value of the object. **Value range**: The value must contain 32 characters. **Default value**: None
bucket	str	**Explanation:** Bucket in which parts are assembled **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Description
key	str	**Explanation:** Object name obtained after part assembling. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
location	str	**Explanation:** URL of the generated object after part assembling Example: **https://example-Bucket.obs.regions.myhuaweicloud.com/example-Object** **Default value**: None
versionId	str	**Explanation:** Version ID of the object obtained after part assembling **Value range**: The value must contain 32 characters. **Default value**: None
sseKms	str	**Explanation:** SSE-KMS algorithm **Value range**: **kms** **Default value**: None

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Parameter	Type	Description
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. *key_id* In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, OBS will create one and use it by default.
sseC	str	**Explanation:** SSE-C algorithm **Value range**: **AES256** **Default value**: None
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None

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Parameter	Type	Description
objectUrl	str	**Explanation:** Full path to the obtained object after part assembling **Default value**: None
encoding_type	str	**Explanation:** Encoding type for **Key** in the response. If **Key** in the response contains control characters that are not supported by the XML 1.0 standard, you can specify this parameter to encode **Key**. **Value range**: **url** **Default value**: None. If you leave this parameter blank, encoding is not applied to **Key**.

Code Examples

This example assembles the parts previously uploaded to a bucket.

```
from obs import ObsClient
from obs import CompleteMultipartUploadRequest, CompletePart
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify the list of parts to be assembled by configuring completeMultipartUploadRequest. Each part contains partNum and etag.
    part1 = CompletePart(partNum=1, etag='etag1')
    part2 = CompletePart(partNum=2, etag='etag2')
    completeMultipartUploadRequest = CompleteMultipartUploadRequest(parts=[part1, part2])

    bucketName = "examplebucket"
    objectKey = "objectname"
    # Specify the ID of the multipart upload.
    uploadId = "your uploadid"
    # Assemble the parts uploaded to the bucket.
```

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```
    resp = obsClient.completeMultipartUpload(bucketName, objectKey, uploadId,
completeMultipartUploadRequest, encoding_type='url')

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Complete Multipart Upload Succeeded')
        print('requestId:', resp.requestId)
        print('etag:', resp.body.etag)
        print('bucket:', resp.body.bucket)
        print('key:', resp.body.key)
        print('location:', resp.body.location)
        print('versionId:', resp.body.versionId)
    else:
        print('Complete Multipart Upload Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Complete Multipart Upload Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Completing a Multipart Upload**
- **(GitHub) Sample Code for Multipart Uploads**
- **OBS Error Codes**

10.7 Copying a Part (SDK for Python)

Function

This API copies a part to a specified bucket. This request must contain the multipart upload ID.

After creating a multipart upload, you can specify the upload ID and upload parts for the multipart upload. Alternatively, you can call this API to copy part or all of an uploaded object as a part.

Assume that you copy a source object and save it as **part1**. If there is already a **part1** before the copy, the new **part1** will overwrite the existing **part1**. Then, only the new **part1** can be listed and the old **part1** is deleted. Therefore, when using this API, ensure that the target part does not exist or is no longer used, to avoid accidental deletion. The source object keeps unchanged in the entire copy process.

Restrictions

- To copy a part, you must be the bucket owner or have the required permission (**obs:object:PutObject** in IAM or **PutObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.
- You cannot determine whether a part copy is successful only based on **status_code** in the HTTP header returned. A **200** response indicates that the server has received the request and starts to process the request. Only when the response body contains ETag, the copy is successful, or the copy fails.

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Method

```
ObsClient.copyPart(bucketName, objectKey, partNumber, uploadId, copySource, copySourceRange,
destSseHeader, sourceSseHeader, extensionHeaders)
```

Request Parameters

Table 10-45 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Target bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None **NOTE** The object URL is in the following format: **https://***Bucket name.Domain name/Folder directory level/Object name*. If this object is stored in the root directory of the bucket, its URL does not contain the folder directory level.
partNumber	int	Yes	**Explanation:** Part number **Value range**: [1,10000] **Default value**: None
uploadId	str	Yes	**Explanation:** Multipart upload ID, for example, **000001648453845DBB78F2340DD460D8** **Value range**: The value must contain 32 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
copySource	str	Yes	**Explanation:** Parameter used to specify the source bucket, source object, and source object version ID which can be left blank. It is in the format of *SourceBucketName*/*SourceObjectName*?*versionId*=*SourceObjectVersionId*. **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. ● An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/**

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Parameter	Type	Mandatory (Yes/No)	Description
			folder/test.txt, the object name is **folder/test.txt**. **Default value**: None
copySourceRange	str	No	**Explanation:** Copy source range. For example, **0-999** indicates the range is from byte 1 to byte 1,000. **Value range**: Value range: 0 to the object length minus 1. Format: *x-y*, indicating the range is from byte x+1 to byte y+1 **Restrictions:** The upper limit of **range** is the length of the object minus 1. If the specified value exceeds this limit, the length of the object minus 1 is used. **Default value**: None
destSseHeader	**SseCHeader** or **SseKmsHeader**	No	**Explanation:** Server-side encryption header used for encrypting the target object. For details, see **Table 10-46** or **Table 10-47**.
sourceSseHeader	**SseCHeader**	No	**Explanation:** Server-side decryption header used for decrypting the source object. For details, see **Table 10-46**.
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Table 10-46 SseCHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-C used for encrypting objects **Value range**: **AES256** **Default value**: None
key	str	Yes	**Explanation:** Key used in SSE-C encryption. It corresponds to the encryption method. For example, if **encryption** is set to **AES256**, the key is calculated using the AES-256 algorithm. **Value range**: The value must contain 32 characters. **Default value**: None

Table 10-47 SseKmsHeader

Parameter	Type	Mandatory (Yes/No)	Description
encryption	str	Yes	**Explanation:** SSE-KMS used for encrypting objects **Value range**: **kms** **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
key	str	No	**Explanation:** Master key used in SSE-KMS **Value range**: The following two formats are supported: • *regionID*:*domainID*:**key/***key_id* • *key_id* In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, OBS will create one and use it by default.

Responses

Table 10-48 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

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Table 10-49 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None

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Parameter	Type	Description
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Table 10-50 GetResult.body

GetResult.body Type	Description
CopyPartResponse	**Explanation:** Response to the request for copying a part. For details, see **Table 10-51**.

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Table 10-51 CopyPartResponse

Parameter	Type	Description
etag	str	**Explanation:** Base64-encoded 128-bit MD5 digest of a part. ETag is the unique identifier of the part content. It can be used to determine whether the part content is changed. **Value range**: The value must contain 32 characters. **Default value**: None
lastModified	str	**Explanation:** Time when the last modification was made to the object **Restrictions:** The time must be in the GMT format, for example, **Wed, 25 Mar 2020 02:39:52 GMT**. **Default value**: None
sseKms	str	**Explanation:** SSE-KMS is used for encrypting objects on the server side. **Value range**: **kms** **Default value**: None

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Parameter	Type	Description
sseKmsKey	str	**Explanation:** ID of the KMS master key when SSE-KMS is used **Value range**: Valid value formats are as follows: 1. *regionID*:*domainID*:**key/***key_id* 2. *key_id* In the preceding formats: • *regionID* indicates the ID of the region where the key is used. • *domainID* indicates the ID of the account that the key is for. To obtain it, see **How Do I Get My Account ID and IAM User ID? (SDK for Python)** • *key_id* indicates the ID of the key created on Data Encryption Workshop (DEW). **Default value**: • If this parameter is not specified, the default master key will be used. • If there is no such a default master key, OBS will create one and use it by default.
sseC	str	**Explanation:** Algorithm used to encrypt and decrypt objects with SSE-C **Value range**: **AES256** **Default value**: None
sseCKeyMd5	str	**Explanation:** MD5 value of the key for encrypting objects when SSE-C is used. This value is used to check whether any error occurs during the transmission of the key. **Restrictions:** The value is encrypted by MD5 and then encoded by Base64, for example, **4XvB3tbNTN+tIEVa0/fGaQ==**. **Default value**: None

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Code Examples

This example copies parts from one bucket to another.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Specify the part number, which ranges from 1 to 10,000
    partNumber = "your partNumber"
    # Specify the ID of the multipart upload.
    uploadId = "your uploadid"
    # Specify the source bucket, source object, and source object version ID (optional). The format is source-bucket-name/source-object-name?versionId=source-object-versionId.
    copySource = 'sourcebucketname/sourceobjectkey'
    # [Optional] Specify the copy scope in the format of x-y. Value range: [0, source-object-length – 1].
    # copySourceRange = '0-15'
    # Copy the part to the specified bucket using the multipart upload ID.
    resp = obsClient.copyPart(bucketName, objectKey, partNumber, uploadId, copySource)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Copy Part Succeeded')
        print('requestId:', resp.requestId)
        print('etagValue:', resp.body.etagValue)
        print('modifiedDate:', resp.body.modifiedDate)
    else:
        print('Copy Part Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Copy Part Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Copying a Part**
- **(GitHub) Sample Code for Multipart Uploads**
- **OBS Error Codes**

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10.8 Aborting a Multipart Upload (SDK for Python)

Function

This API aborts a multipart upload using the multipart upload ID.

After a multipart upload is aborted, the upload ID cannot be used to upload any part. The storage occupied by any uploaded parts will be released. If any part uploads are in progress, aborting the multipart upload might or might not make the uploads successful. To release the storage occupied by all uploaded parts, you can only abort the multipart upload after all parts have been uploaded.

Restrictions

- To abort a multipart upload, you must be the bucket owner or have the required permission (**obs:object:AbortMultipartUpload** in IAM or **AbortMultipartUpload** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.

Method

```
ObsClient.abortMultipartUpload(bucketName, objectKey, uploadId, extensionHeaders)
```

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Request Parameters

Table 10-52 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None **NOTE** The object URL is in the following format: **https://***Bucket name.Domain name/Folder directory level/Object name*. If this object is stored in the root directory of the bucket, its URL does not contain the folder directory level.
uploadId	str	Yes	**Explanation:** Multipart upload ID, for example, **000001648453845DBB78F2340DD460D8** **Value range**: The value must contain 32 characters. **Default value**: None
extensionHeaders	dict	No	**Explanation:** Extension headers. **Value range**: See **User-defined Headers (SDK for Python)**. **Default value**: None

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Responses

Table 10-53 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 10-54 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None

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Parameter	Type	Description
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example aborts a multipart upload.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
```

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```
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Specify the ID of the multipart upload.
    uploadId = "your uploadid"
    # Abort the multipart upload.
    resp = obsClient.abortMultipartUpload(bucketName, objectKey, uploadId)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Abort Multipart Upload Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Abort Multipart Upload Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Abort Multipart Upload Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Aborting a Multipart Upload**
- **(GitHub) Sample Code for Multipart Uploads**
- **OBS Error Codes**

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11 Client-Side Encryption APIs (SDK for Python)

11.1 Overview (SDK for Python)

Client-side encryption is a process where data is encrypted using the selected encryption method and information on your local PC before it is transmitted to an OBS server. During this process, the encryption method used and necessary information required for decryption will be stored in object metadata. During a download, the OBS SDK decrypts the data based on the key provided and the information stored in object metadata, and then returns the decrypted data.

WARNING

- OBS does not store your master key in any way. Keep your master key correct and intact. If your master key is lost or mistakenly used, your data cannot be decrypted.
- Do not modify the information required for decryption in object metadata when moving or replicating an encrypted object or modifying the object metadata. If you do so, your data cannot be decrypted.

Encryption Process and Cipher Suites

The OBS Python SDK offers two cipher suite generators: CTRCipherGenerator based on AES-CTR and CtrRSACipherGenerator based on RSA and AES-CTR.

If CTRCipherGenerator is used to upload objects, you need to provide a data key. The SDK then randomly generates an initial value for each object and uses the data key and initial value to encrypt the object. After the encryption, the SDK uploads the encrypted object to OBS and stores its initial value in object metadata. To download this object, you need to provide the corresponding data key. The SDK then automatically obtains the initial value from object metadata, uses the data key provided and initial value to decrypt the object, and returns the decrypted data. If a different data key is provided for download, the SDK returns an unavailable decrypted file.

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If CtrRSACipherGenerator is used to upload objects, you need to provide an RSA public or private key. The SDK then randomly generates a data key and initial value for each object and uses the data key and initial value to encrypt the object. After that, the SDK uploads the encrypted object to OBS and then uses the RSA key to encrypt the data key. The encrypted data key and initial value are stored in the object metadata. To download this object, you need to provide the same RSA public or private key as you provided for the upload. The SDK then automatically obtains the data key and initial value stored in the object metadata and uses the provided key to decrypt the data key. If the provided key does not match the key used for the upload, an error will be reported. After the data key is decrypted, the SDK uses the decrypted data key and initial value to decrypt the object and returns the decrypted data.

API Changes

CryptoObsClient is inherited from ObsClient. Except the APIs listed in the following table, all other APIs of CryptoObsClient are the same as those of ObsClient.

Table 11-1 API description

API	ObsClient API Action	CryptoObsClient API Action
appendObject	Append data to an object.	Report an error.
copyPart	Copy an object part.	Report an error.
initiateMultipartUpload	Initialize a multipart upload.	Report an error.
uploadPart	Upload object parts.	Report an error.
putContent	Upload streams or texts.	Encrypt streams or texts and then upload them to OBS.
putFile	Upload common files to OBS.	Encrypt common files and then upload them to OBS.
getObject	Download files.	Decrypt files and then return the decrypted data.
uploadFile	Upload files in resumable mode to OBS.	Encrypt files and then upload them in resumable mode to OBS.
downloadFile	Download files in resumable mode to your local PC.	Decrypt files and then download them in resumable mode to your local PC.

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API	ObsClient API Action	CryptoObsClient API Action
initiateEncryptedMulti-partUpload	None	Initialize an encrypted multipart upload.
uploadEncryptedPart	None	Encrypt uploaded parts.

Decryption Information in Metadata

The SDK saves the information required for decryption to the custom metadata of an object and does not back it up. If you modify the stored information, data cannot be decrypted. The table below describes the information required for decryption.

Table 11-2 Parameters

Parameter	Mandatory (Yes/No)	Description
encrypted-algorithm	Yes	Information about a cipher suite
encrypted-object-key	Yes (when CtrRSACipherGenerator is used)	Data key encrypted using an RSA key
encrypted-start	Yes	String initially encoded using Base64. It is used to encrypt an object.
master-key-info	No	Information about an encryption key
plaintext-sha256	No	SHA-256 value of an object before encryption
plaintext-content-length	No	Object length before encryption
encrypted-sha256	No	SHA-256 of an encrypted object

11.2 Client-Side Encryption APIs (SDK for Python)

Initializing CryptoCipher

The OBS SDK for Python offers two types of CryptoCipher. Choose the one right for you.

CtrRSACipherGenerator needs an RSA public or private key to encrypt the randomly generated data key.

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Method

```
CtrRSACipherGenerator(master_crypto_key_path, master_key_info=None, need_sha256=False)
```

API Parameters

Table 11-3 CtrRSACipherGenerator

Parameter	Type	Mandatory (Yes/No)	Description
master_crypto_key_path	str	Yes	**Explanation:** Path where the RSA key file is stored **Default value**: None
master_key_info	str	No	**Explanation:** Key information, which is stored in the custom metadata of objects to help you distinguish different data keys. You need to maintain the mapping between **master_key_info** and **crypto_key**. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
need_sha256	bool	No	**Explanation:** Whether to verify the SHA-256 value of the encrypted data and to add SHA-256 values calculated before and after the encryption to the custom metadata **NOTE** To reduce memory overheads, the SDK uses streaming computing, which means that a file needs to be read and encrypted twice in a common upload and three times in a resumable upload. **Value range**: **True**: The SHA-256 value of the encrypted data is verified. The SDK automatically calculates SHA-256 before and after the object is encrypted and saves the two values to the custom metadata of the object. In addition, the SDK adds the SHA-256 value of the encrypted object to the request header when sending a request to the server. After receiving the request, the server calculates the SHA-256 value of the object and checks the consistency between the calculated and the received values. If they are inconsistent, an error message is returned. **False**: The SHA-256 value of the encrypted data is not verified. **Default value**: False

CTRCipherGenerator requires only a data key. This key is used to encrypt all objects.

Method

```
CTRCipherGenerator(crypto_key, master_key_info=None, crypto_iv=None, need_sha256=False)
```

API Parameters

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Table 11-4 CTRCipherGenerator

Parameter	Type	Mandatory (Yes/No)	Description
crypto_key	str or bytes	Yes	**Explanation:** Data key used for encrypting data **Restrictions:** • Length: 32 bytes • If a character string is passed, it is converted to bytes. **Default value**: None
master_key_info	str	No	**Explanation:** Key information, which is stored in the custom metadata of objects to help you distinguish different data keys. You need to maintain the mapping between **master_key_info** and **crypto_key**. **Default value**: None
crypto_iv	str or bytes	No	**Explanation:** Initial value used for encrypting data **Restrictions:** • Length: 16 bytes • If **crypto_iv** is specified, all objects are encrypted using the specified initial value. If **crypto_iv** is not specified, the SDK randomly generates an initial value for each object. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
need_sha256	bool	No	**Explanation:** Whether to verify the SHA-256 value of the encrypted data and to add SHA-256 values calculated before and after the encryption to the custom metadata **NOTE** To reduce memory overheads, the SDK uses streaming computing, which means that a file needs to be read and encrypted twice during a common upload, but in a resumable upload, a file needs to be read and encrypted three times. **Value range**: **True**: The SHA-256 value of the encrypted data is verified. The SDK automatically calculates SHA-256 before and after the object is encrypted and saves the two values to the custom metadata of the object. In addition, the SDK adds the SHA-256 value of the encrypted object to the request header when sending a request to the server. After receiving the request, the server calculates the SHA-256 value of the object and checks the consistency between the calculated and the received values. If they are inconsistent, an error message is returned. **False**: The SHA-256 value of the encrypted data is not verified. **Default value**: False

Initializing CryptoClient

Initializing CryptoClient is inherited from initializing an ObsClient. For details, see **Initializing an Instance of ObsClient (SDK for Python)**.

Method

```
CryptoClient(access_key_id,secret_access_key,server,cipher_generator=your-cipher_generator, *args, **kwargs)
```

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API Parameters

Table 11-5 List of request parameters

Parameter	Description	Recommended Value
access_key_id	**Explanation:** Access key ID (AK) **Default value**: An empty string, indicating an anonymous user	N/A
secret_access_key	**Explanation:** Secret access key (SK) **Default value**: An empty string, indicating an anonymous user	N/A
server	**Explanation:** Server address for accessing OBS. It consists of a protocol type, domain name, and port number, for example, **https://***your-endpoint***:443**. For security purposes, you are advised to use HTTPS. **Default value**: None	N/A
cipher_generator	**Explanation:** Cipher generator used by a client **Value range**: • **CtrRSACipherGenerator** • **CTRCipherGenerator** **Default value**: None	N/A

Initiating an Encrypted Multipart Upload

Initiating an encrypted multipart upload is inherited from the ObsClient API for initiating a multipart upload. For details, see **Initiating a Multipart Upload (SDK for Python)**.

Method

```
CryptoClient.initiateEncryptedMultipartUpload(bucketName, objectKey, crypto_cipher, *args, **kwargs)
```

API Parameters

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Table 11-6 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None **NOTE** The object URL is in the following format: **https://***Bucket name.Domain name/Folder directory level/Object name*. If this object is stored in the root directory of the bucket, its URL does not contain the folder directory level.
crypto_cipher	OBSCipher	Yes	**Explanation:** OBS cipher generated by calling **cipher_generator.new()**. Configure this parameter into the metadata during task initiation. **Value range**: A value generated by calling **cipher_generator.new()**. **cipher_generator** is the **cipher_generator** parameter set for CryptoClient initialization. Example: **cipher = ctr_client.cipher_generator.new("")**. **ctr_client** is the encryption client. **Default value**: None

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Uploading an Encrypted Part

Uploading encrypted parts is inherited from the ObsClient API for uploading parts. For details, see **Uploading a Part (SDK for Python)**.

Method

```
CryptoClient.initiateEncryptedMultipartUpload(bucketName, objectKey, partNumber, uploadId,
crypto_cipher, *args, **kwargs)
```

API Parameters

Table 11-7 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	Yes	**Explanation:** Bucket name **Restrictions:** • A bucket name must be unique across all accounts and regions. • A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. • If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	Yes	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None **NOTE** The object URL is in the following format: **https://***Bucket name.Domain name/Folder directory level/Object name*. If this object is stored in the root directory of the bucket, its URL does not contain the folder directory level.
partNumber	int	Yes	**Explanation:** Part number **Value range:** [1,10000] **Default value**: None
uploadId	str	Yes	**Explanation:** Multipart upload ID, which can be returned by **initiating a multipart upload**, for example, **000001648453845DBB78F2340DD460D8** **Restrictions:** The value must contain 32 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
crypto_cipher	OBSCipher	Yes	**Explanation:** OBS cipher generated by calling **cipher_generator.new()** **Value range**: A value generated by calling **cipher_generator.new()**. **cipher_generator** is the **cipher_generator** parameter set for CryptoClient initialization. Example: **cipher = ctr_client.cipher_generator.new("")**. **ctr_client** is the encryption client. **Default value**: None

Helpful Links

- OBS Error Codes

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12 Other APIs (SDK for Python)

12.1 Creating a Signed URL (SDK for Python)

Function

This API creates a URL whose **Query** parameters are carried with authentication information by specifying the AK and SK, HTTP method, and request parameters. You can provide other users with this URL for temporary access. When generating a URL, you need to specify the validity period of the URL to restrict the access duration of visitors.

If you want to grant other users the permission to perform other operations on buckets or objects (for example, upload or download objects), generate a URL with the corresponding request (for example, to upload an object using the URL that generates the PUT request) and provide the URL for other users.

Restrictions

- If a CORS or signature mismatch error occurs, refer to the following steps to troubleshoot the issue:
  a. If CORS is not configured, you need to configure CORS rules on OBS Console. For details, see **Configuring CORS**.
  b. If the signatures do not match, check whether signature parameters are correct. For details, see **Authentication of Signature in a URL**. For example, during an object upload, the backend uses **Content-Type** to calculate the signature and generate an authorized URL, but if **Content-Type** is not set or is set to an incorrect value when the frontend uses the authorized URL, a CORS error occurs. To avoid this issue, ensure that **Content-Type** fields at both the frontend and backend are kept consistent.

Method

```
ObsClient.createSignedUrl(method, bucketName, objectKey, specialParam, expires, headers, queryParams)
```

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Request Parameters

Table 12-1 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
method	str	Yes	**Explanation:** HTTP methods **Value range**: • GET • POST • PUT • DELETE • HEAD **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	No	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	No	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
specialParam	str	No	**Explanation:** Special operator, which indicates the sub-resource to be operated **Value range**: • versions • uploads • location • storageinfo • quota • storagePolicy • acl • append • logging • policy • lifecycle • website • versioning • cors • notification • tagging • delete • restore **Default value**: None
expires	int	No	**Explanation:** Expiration time of the signed URL **Value range**: • The value of this parameter for temporary credentials ranges from **0** to **86400**, in seconds. • The value of this parameter for permanent keys ranges from **0** to **630720000**, in seconds. **Default value**: 300

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Parameter	Type	Mandatory (Yes/No)	Description
headers	dict	No	**Explanation:** Headers in the request **Default value**: None
queryParams	dict	No	**Explanation:** Query parameters in the request **Default value**: None

CAUTION

If a CORS or signature mismatch error occurs, refer to the following steps to troubleshoot the issue:

1. If CORS is not configured, you need to configure CORS rules on OBS Console. For details, see **Configuring CORS**.
2. If the signatures do not match, check whether signature parameters are correct. For details, see **Authentication of Signature in a URL**. For example, during an object upload, the backend uses **Content-Type** to calculate the signature and generate an authorized URL, but if **Content-Type** is not set or is set to an incorrect value when the frontend uses the authorized URL, a CORS error occurs. To avoid this issue, ensure that **Content-Type** fields at both the frontend and backend are kept consistent.

Responses

Table 12-2 List of returned results

Parameter	Type	Description
signedUrl	str	**Explanation:** Signed URL **Default value**: None
actualSignedRequestHeaders	dict	**Explanation:** Actual headers in the request initiated by using the signed URL **Default value**: None

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Code Examples

This example creates temporary signed URLs.

```
from obs import ObsClient
import os
import traceback
import base64

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Create a signed URL for creating a bucket.
    res1 = obsClient.createSignedUrl(method='PUT', bucketName='bucketname', expires=3600)
    print('signedUrl:', res1.signedUrl)
    print('actualSignedRequestHeaders:', res1.actualSignedRequestHeaders)

    # Create a signed URL for uploading an object.
    res2 = obsClient.createSignedUrl(method='PUT', bucketName='bucketname', objectKey='objectkey', expires=3600,
                                     headers={'Content-Type': 'text/plain'})
    print('signedUrl:', res2.signedUrl)
    print('actualSignedRequestHeaders:', res2.actualSignedRequestHeaders)

    # Create a signed URL for setting an object ACL.
    res3 = obsClient.createSignedUrl(method='PUT', bucketName='bucketname', objectKey='objectkey', specialParam='acl',
                                     expires=3600, headers={'x-obs-acl': 'private'})
    print('signedUrl:', res3.signedUrl)
    print('actualSignedRequestHeaders:', res3.actualSignedRequestHeaders)

    # Create a signed URL for downloading an object.
    res4 = obsClient.createSignedUrl(method='GET', bucketName='bucketname', objectKey='objectkey', expires=3600)
    print('signedUrl:', res4.signedUrl)
    print('actualSignedRequestHeaders:', res4.actualSignedRequestHeaders)

    # Create a signed URL for deleting an object.
    res5 = obsClient.createSignedUrl(method='DELETE', bucketName='bucketname', objectKey='objectkey', expires=3600)
    print('signedUrl:', res5.signedUrl)
    print('actualSignedRequestHeaders:', res5.actualSignedRequestHeaders)

    # Create a signed URL for deleting a bucket.
    res6 = obsClient.createSignedUrl(method='DELETE', bucketName='bucketname', expires=3600)
    print('signedUrl:', res6.signedUrl)
    print('actualSignedRequestHeaders:', res6.actualSignedRequestHeaders)

    # Create a signed URL for initiating a multipart task.
    res7 = obsClient.createSignedUrl(method='POST', bucketName='bucketname', objectKey='objectkey',
                                     specialParam='uploads', expires=3600)
    print('signedUrl:', res7.signedUrl)
    print('actualSignedRequestHeaders:', res7.actualSignedRequestHeaders)
```

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```
    # Create a signed URL for uploading a part.
    res8 = obsClient.createSignedUrl(method='PUT', bucketName='bucketname', objectKey='objectkey',
expires=3600,
                                     queryParams={'partNumber': '1', 'uploadId': '00000*****'})
    print('signedUrl:', res8.signedUrl)
    print('actualSignedRequestHeaders:', res8.actualSignedRequestHeaders)

    # Create a signed URL for assembling parts.
    res9 = obsClient.createSignedUrl(method='POST', bucketName='bucketname', objectKey='objectkey',
expires=3600,
                                     queryParams={'uploadId': '00000*****'})
    print('signedUrl:', res9.signedUrl)
    print('actualSignedRequestHeaders:', res9.actualSignedRequestHeaders)

    # Create a signed URL for image persistency.
    # Name of the bucket that stores the source object
    bucketName = 'originBucketName';
    # Source object name before the processing
    objectKey = 'test.png';

    # Name of the object after processing
    targetObjectName ="save.png"
    # (Optional) Name of the bucket that stores the new object
    targetBucketName ="saveBucketName"
    queryParams={}
    queryParams["x-image-process"]="image/resize,w_100"
    queryParams["x-image-save-object"]=base64.b64encode(targetObjectName .encode("utf-8")).decode()
    # Optional parameter
    queryParams["x-image-save-bucket"]=base64.b64encode(targetBucketName .encode("utf-8")).decode()

    res10 = obsClient.createSignedUrl(method='GET', bucketName=bucketName, objectKey=objectKey,
queryParams=queryParams, expires=3600)
    print('signedUrl:', res10.signedUrl)
    print('actualSignedRequestHeaders:', res10.actualSignedRequestHeaders)
except:
    print(traceback.format_exc())
```

12.2 Generating Authentication Parameters for Browser-Based Uploads (SDK for Python)

Function

This API generates parameters for authentication. The parameters can be used to perform a browser-based upload through POST operations.

NOTE

There are two request parameters generated for authentication:

- **policy**, which corresponds to the **policy** parameter in the form.
- **signature**, which corresponds to the **signature** parameter in the form.

Restrictions

- To upload an object, you must be the bucket owner or have the required permission (**obs:object:PutObject** in IAM or **PutObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.

Method

```
ObsClient.createPostSignature(bucketName, objectKey, expires, formParams)
```

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Request Parameters

Table 12-3 List of request parameters

Parameter	Type	Mandatory (Yes/No)	Description
bucketName	str	No	**Explanation:** Bucket name **Restrictions:** ● A bucket name must be unique across all accounts and regions. ● A bucket name: – Must be 3 to 63 characters long and start with a digit or letter. Lowercase letters, digits, hyphens (-), and periods (.) are allowed. – Cannot be formatted as an IP address. – Cannot start or end with a hyphen (-) or period (.). – Cannot contain two consecutive periods (..), for example, **my..bucket**. – Cannot contain periods (.) and hyphens (-) adjacent to each other, for example, **my-.bucket** or **my.-bucket**. ● If you repeatedly create buckets of the same name in the same region, no error will be reported and the bucket attributes comply with those set in the first creation request. **Default value**: None

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Parameter	Type	Mandatory (Yes/No)	Description
objectKey	str	No	**Explanation:** Object name. An object is uniquely identified by an object name in a bucket. An object name is a complete path that does not contain the bucket name. For example, if the address for accessing the object is **examplebucket.obs.eu-west-101.myhuaweicloud.eu/folder/test.txt**, the object name is **folder/test.txt**. **Value range**: The value must contain 1 to 1,024 characters. **Default value**: None
expires	int	No	**Explanation:** Expiration time of authentication for a browser-based upload **Value range**: An integer greater than or equal to 0, in seconds **Default value**: 300
formParams	dict	No	**Explanation:** Parameters of browser-based uploads, not including **key**, **policy**, and **signature**. **Value range**: • acl • cache-control • content-type • content-disposition • content-encoding • expires **Default value**: None

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Responses

Table 12-4 List of returned results

Parameter	Type	Description
originPolicy	str	**Explanation:** **policy** not encoded by Base64. This parameter can only be used for verification. Example: **{"expiration":"2023-09-12T12:52:59Z","conditions":[{"content-type":"text/plain"},{"bucket":"examplebucket"},{"key":"example/objectname"},]}"** **Default value**: None
policy	str	**Explanation:** Base64-encoded value of **policy** in the form Example: **eyJleHBpcmF0aW9uIjoiMjAyMy0wOS0xMlQxMjo1Mjo1OVoiLCJjb25kaXRpb25zIjpbeyJjb250ZW50LXR5cGUiOiJ0ZXh0L3BsYWluIn0seyJidWNrZXQiOiJleGFtcGxlYnVja2V0In0seyJrZXkiOiJleGFtcGxlL29iamVjdG5hbWUifSxdfQ==** **Default value**: None
signature	str	**Explanation:** **signature** in the form Example: **g0jQr4v9VWd1Q2FOFDG6LGfV9Cw=** **Default value**: None

Code Examples

This example generates authentication parameters **policy** and **signature** for a browser-based upload.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://
```

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```
support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Configure the validity period (in seconds) for a browser-based upload request. 3600 is used as an example.
    expires = 3600
    # Specify parameters for a browser-based upload except key, policy, and signature. In this example, x-obs-acl is set to private and content-type is set to text/plain.
    formParams = {'x-obs-acl': 'private', 'content-type': 'text/plain'}
    # Create parameters for a browser-based upload.
    resp = obsClient.createPostSignature(bucketName, objectKey, expires, formParams)

    print('originPolicy:', resp.originPolicy)
    print('policy:', resp.policy)
    print('signature:', resp.signature)
except:
    print(traceback.format_exc())
```

12.3 Server-Side Encryption (SDK for Python)

Function

This API configures server-side encryption for objects, so that they will be encrypted or decrypted when you upload them to or download them from a bucket.

The encryption and decryption happen on the server side.

There are different encryption methods for you to choose from. Available encryption methods include server-side encryption with KMS-managed keys (SSE-KMS) and server-side encryption with customer-provided keys (SSE-C). Both of the two methods use the AES-256 algorithm.

With SSE-KMS, OBS uses the keys provided by KMS for server-side encryption.

With SSE-C, OBS uses the keys and MD5 values provided by customers for server-side encryption.

When server-side encryption is used, the returned ETag value is not the object's MD5 value. OBS will verify the object's MD5 value as long as the upload request includes the **Content-MD5** header, no matter whether server-side encryption is used or not.

For more information, see **Server-Side Encryption**.

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Restrictions

- To upload an object, you must be the bucket owner or have the required permission (**obs:object:PutObject** in IAM or **PutObject** in a bucket policy). For details, see **Introduction to OBS Access Control**, **IAM Custom Policies**, and **Configuring an Object Policy**.

Method

```
ObsClient.putFile(bucketName, objectKey, file_path, metadata, headers, extensionHeaders)
```

Supported APIs

The following table lists APIs related to server-side encryption:

Method in OBS SDK for Python	Description	Supported Encryption Method
ObsClient.putContent	Sets the encryption algorithm and key during object upload to enable server-side encryption.	SSE-KMS SSE-C
ObsClient.putFile	Sets the encryption algorithm and key during file upload to enable server-side encryption.	SSE-KMS SSE-C
ObsClient.getObject	Sets the decryption algorithm and key during object download to decrypt the object.	SSE-C
ObsClient.copyObject	1. Sets the decryption algorithm and key for decrypting the source object during object copy. 2. Sets the encryption algorithm and key during object copy to enable the encryption algorithm for the target object.	SSE-KMS SSE-C
ObsClient.getObjectMetadata	Sets the decryption algorithm and key when obtaining the object metadata to decrypt the object.	SSE-C
ObsClient.initiateMultipartUpload	Sets the encryption algorithm and key when initializing a multipart upload task to enable server-side encryption for the final object generated.	SSE-KMS SSE-C
ObsClient.uploadPart	Sets the encryption algorithm and key during multipart upload to enable server-side encryption for parts.	SSE-C

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Method in OBS SDK for Python	Description	Supported Encryption Method
ObsClient.copyPart	1. Sets the decryption algorithm and key for decrypting the source object during multipart copy. 2. Sets the encryption algorithm and key during part copy to enable the encryption for the target part.	SSE-C

Responses

Table 12-5 List of returned results

Type	Description
GetResult	**Explanation:** SDK common results

Table 12-6 GetResult

Parameter	Type	Description
status	int	**Explanation:** HTTP status code **Value range**: A status code is a group of digits indicating the status of a response. It ranges from 2*xx* (indicating successes) to 4*xx* or 5*xx* (indicating errors). For more information, see **Status Code**. **Default value**: None
reason	str	**Explanation:** Reason description. **Default value**: None

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Parameter	Type	Description
errorCode	str	**Explanation:** Error code returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
errorMessage	str	**Explanation:** Error message returned by the OBS server. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
requestId	str	**Explanation:** Request ID returned by the OBS server **Default value**: None
indicator	str	**Explanation:** Error indicator returned by the OBS server. **Default value**: None
hostId	str	**Explanation:** Requested server ID. If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
resource	str	**Explanation:** Error source (a bucket or an object). If the value of **status** is less than **300**, this parameter is left blank. **Default value**: None
header	list	**Explanation:** Response header list, composed of tuples. Each tuple consists of two elements, respectively corresponding to the key and value of a response header. **Default value**: None

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Parameter	Type	Description
body	object	**Explanation:** Result content returned after the operation is successful. If the value of **status** is larger than **300**, the value of **body** is null. The value varies with the API being called. For details, see **Bucket-Related APIs (SDK for Python)** and **Object-Related APIs (SDK for Python)**. **Default value**: None

Code Examples

This example uploads and downloads an encrypted file using SSE-KMS.

```
from obs import ObsClient
from obs import PutObjectHeader, GetObjectHeader
from obs import SseKmsHeader
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    put_headers = PutObjectHeader()
    # Specify the SSE-KMS encryption header for the object upload request.
    put_headers.sseHeader = SseKmsHeader.getInstance()

    bucketName = "examplebucket"
    # Specify an object name (the name displayed after the file is uploaded to the bucket).
    objectKey = "objectname"
    # Specify the full path of the file or folder to be uploaded, for example, aa/bb.txt or aa/.
    file_path = 'localfile'
    # Upload the object.
    resp = obsClient.putFile(bucketName, objectKey, file_path, headers=put_headers)


    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Put File Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Put File Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
```

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```
# ----------------------------------------------------------------------------------------------------------------------

    get_headers = GetObjectHeader()
    # Specify the SSE-KMS decryption header for the object download request.
    get_headers.sseHeader = SseKmsHeader.getInstance()

    bucketName = "examplebucket"
    objectKey = "objectname"
    # Specify the full path (localfile as an example) to which objects are downloaded. The full path contains the local file name.
    downloadPath = 'localfile'
    # Download the object.
    resp2 = obsClient.getObject(bucketName, objectKey, downloadPath, headers=get_headers)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp2.status < 300:
        print('Get Object Succeeded')
        print('requestId:', resp2.requestId)
    else:
        print('Get Object Failed')
        print('requestId:', resp2.requestId)
        print('errorCode:', resp2.errorCode)
        print('errorMessage:', resp2.errorMessage)
except:
    print(traceback.format_exc())
```

This example uploads and downloads an encrypted file using SSE-C.

```
from obs import ObsClient
from obs import PutObjectHeader, GetObjectHeader
from obs import SseCHeader
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    put_headers = PutObjectHeader()
    # Specify the SSE-C encryption header for the object upload request. encryption indicates the encryption method and key indicates the SSE-C key generated by the AES 256 algorithm.
    put_headers.sseHeader = SseCHeader(encryption='AES256', key='your sse-c key generated by AES-256 algorithm')

    bucketName = "examplebucket"
    # Specify an object name (the name displayed after the file is uploaded to the bucket).
    objectKey = "objectname"
    # Specify the full path of the file or folder to be uploaded, for example, aa/bb.txt or aa/.
    file_path = 'localfile'
    # Upload the object.
    resp = obsClient.putFile(bucketName, objectKey, file_path, headers=put_headers)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
```

```
        print('Put File Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Put File Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)

# ----------------------------------------------------------------------------------------------------------------

    get_headers = GetObjectHeader()
    # Specify the SSE-C decryption header for an object download request. The key used here must be the
one used for uploading the object.
    get_headers.sseHeader = SseCHeader(encryption='AES256', key='your sse-c key generated by AES-256
algorithm')

    bucketName = "examplebucket"
    objectKey = "objectname"
    # Specify the full path (localfile as an example) to which objects are downloaded. The full path contains
the local file name.
    downloadPath = 'localfile'
    # Download the object.
    resp2 = obsClient.getObject(bucketName, objectKey, downloadPath, headers=get_headers)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp2.status < 300:
        print('Get Object Succeeded')
        print('requestId:', resp2.requestId)
    else:
        print('Get Object Failed')
        print('requestId:', resp2.requestId)
        print('errorCode:', resp2.errorCode)
        print('errorMessage:', resp2.errorMessage)
except:
    print(traceback.format_exc())
```

Helpful Links

- (GitHub) Sample Code for Server-Side Encryption
- OBS Error Codes

12.4 Static Website Hosting (SDK for Python)

Function

This API uploads the files of the static website to your bucket in OBS as objects and configures the **public-read** permission on the files, and then configures the static website hosting mode for your bucket to host your static websites in OBS. After this, when third-party users access your websites, they actually access the objects in your bucket in OBS. When using static website hosting, you can configure request redirection to redirect specific or all requests.

For more information, see **Static Website Hosting**.

Restrictions

- To upload an object, you must have the **obs:object:PutObject** permission. For details, see **Typical Permission Control Scenarios**.

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Uploading a Website File to a Bucket

1. Upload the website files to your bucket in OBS as objects and set the MIME type for the objects.

2. Set the object ACL to public read.

3. Access the objects using a browser.

This example uploads an HTML website file to a bucket and grants the public read permission for the object to implement static website hosting.

```
from obs import ObsClient
import os
from obs import PutObjectHeader
from obs import HeadPermission
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = 'bucketname'
    # Specify a website file name.
    objectKey = 'test.html'
# Specify the path of a local HTML website file.
    file_path = 'localfile.html'
    headers = PutObjectHeader()
    # Specify the MIME type for the object.
    headers.contentType = 'text/html'

    # Upload the object.
    resp = obsClient.putFile(bucketName, objectKey, file_path, headers=headers)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Put File Succeeded')
        print('requestId:', resp.requestId)
        # Set the object ACL to public read.
        resp2 = obsClient.setObjectAcl(bucketName, objectKey, aclControl=HeadPermission.PUBLIC_READ)
        if resp2.status < 300:
            print('Set Object Acl Succeeded')
            print('requestId:', resp2.requestId)
        else:
            print('Set Object Acl Failed')
            print('requestId:', resp2.requestId)
            print('errorCode:', resp2.errorCode)
            print('errorMessage:', resp2.errorMessage)
    else:
        print('Put File Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
```

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```
except:
    print('Put File Failed')
    print(traceback.format_exc())
```

NOTE

You can use **https://***bucketname.your-endpoint***/test.html** in a browser to access files hosted using the sample code.

Configuring Static Website Hosting

This example configures static website hosting for bucket **examplebucket**.

```
from obs import ObsClient
from obs import WebsiteConfiguration
from obs import IndexDocument
from obs import ErrorDocument
from obs import RoutingRule
from obs import Condition
from obs import Redirect
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify an error page when a 4XX error occurs.
    errorDocument = ErrorDocument(key='error.html')
    # Specify a default page.
    indexDocument = IndexDocument(suffix='index.html')
    # Specify a rule for redirecting requests to NotFound.html if the status code is 404.
    routingRule1 = RoutingRule(condition=Condition(httpErrorCodeReturnedEquals=404),
                               redirect=Redirect(protocol='http', replaceKeyWith='NotFound.html'))
    # Configure the redirection rules in list format. Multiple rules can be configured.
    routingRules = [routingRule1]
    bucketName = "examplebucket"
    # Configure static website hosting for the bucket.
    resp = obsClient.setBucketWebsite(bucketName,
                                      WebsiteConfiguration(errorDocument=errorDocument,
indexDocument=indexDocument,
                                                           routingRules=routingRules))

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Set Bucket Website Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Set Bucket Website Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Set Bucket Website Failed')
    print(traceback.format_exc())
```

This example configures redirection for all requests.

```
from obs import ObsClient
import os
import traceback
from obs import WebsiteConfiguration
from obs import RedirectAllRequestTo

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = 'bucketname'
    # Configure redirection for all requests.
    resp = obsClient.setBucketWebsite(bucketName,
                                      WebsiteConfiguration(
                                          redirectAllRequestTo=RedirectAllRequestTo(hostName='www.example.com',
                                                                                    protocol='http')))
    if resp.status < 300:
        print('Set Bucket Website Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Set Bucket Website Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Set Bucket Website Failed')
    print(traceback.format_exc())
```

Viewing Static Website Hosting

This example returns the static website hosting configuration of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify
```

```
security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName="examplebucket"
    # Obtain the static website configuration of the bucket.
    resp = obsClient.getBucketWebsite(bucketName)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Get Bucket Website Succeeded')
        print('requestId:', resp.requestId)
        if resp.body.redirectAllRequestTo:
            print('redirectAllRequestTo.hostName:', resp.body.redirectAllRequestTo.hostName,
                  ',redirectAllRequestTo.protocol:', resp.body.redirectAllRequestTo.protocol)
        if resp.body.indexDocument:
            print('indexDocument.suffix:', resp.body.indexDocument.suffix)
        if resp.body.errorDocument:
            print('errorDocument.key:', resp.body.errorDocument.key)
        if resp.body.routingRules:
            index = 1
            for rout in resp.body.routingRules:
                print('routingRule[', index, ']:')
                index += 1
                print('condition.keyPrefixEquals:', rout.condition.keyPrefixEquals,
                      ',condition.httpErrorCodeReturnedEquals:', rout.condition.httpErrorCodeReturnedEquals)
                print('redirect.protocol:', rout.redirect.protocol, ',redirect.hostName:', rout.redirect.hostName,
                      ',redirect.replaceKeyPrefixWith:', rout.redirect.replaceKeyPrefixWith,
                      ',redirect.replaceKeyWith:', rout.redirect.replaceKeyWith, ',redirect.httpRedirectCode:',
                      rout.redirect.httpRedirectCode)
    else:
        print('Get Bucket Website Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Bucket Website Failed')
    print(traceback.format_exc())
```

Deleting Static Website Hosting

This example deletes the static website hosting configuration of bucket **examplebucket**.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    # Delete the static website hosting configuration of the bucket.
    resp = obsClient.deleteBucketWebsite(bucketName)

    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
```

```
    if resp.status < 300:
        print('Delete Bucket Website Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Delete Bucket Website Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Delete Bucket Website Failed')
    print(traceback.format_exc())
```

Helpful Links

- **Configuring Static Website Hosting for a Bucket**
- **(GitHub) Sample Code for Static Website Hosting**
- **OBS Error Codes**

12.5 User-defined Headers (SDK for Python)

Function

When calling an API, you can configure user-defined headers to meet specific needs. The SDK will automatically calculate the signature for the specified headers if needed.

Method:

You can add the specified headers in **extensionHeaders** in the dictionary format.

Code Examples

This example configures user-defined headers to use the single-connection bandwidth throttling function for downloading object **objectname** from bucket **examplebucket** at a limited rate.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Configure the download rate limit by specifying x-obs-traffic-limit, in bits. The value range is from
```

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```
819200 (100 KB) to 838860800 (100 MB). 819200 is used as an example.
    extensionHeaders = {'x-obs-traffic-limit': 819200}
    # Specify the full path (localfile as an example) to which objects are downloaded. The full path contains the local file name.
    downloadPath = 'localfile'
    # Download the object at a limited rate.
    resp = obsClient.getObject(bucketName, objectKey, downloadPath, extensionHeaders=extensionHeaders)

    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Get Object Succeeded')
        print('requestId:', resp.requestId)
        print('url:', resp.body.url)
    else:
        print('Get Object Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Get Object Failed')
    print(traceback.format_exc())
```

This example configures a user-defined header to implement the upload callback.

```
from obs import ObsClient
import os
import traceback
from urllib.parse import quote
import base64
import json

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Specify a protocol.
    protocol = 'http://'

    # Specify the callback address. If the URL contains any special characters or full-width characters, they must be URL-encoded using quote(str).
    callbackUrl1 = protocol + quote("www.example.com/callback1")
    callbackUrl2 = protocol + quote ("www.example.com/full-width-characters?key=object-name-in-full-width-characters")
    # (Optional) Specify the value of the host header carried in the callback request. If this parameter is not specified, the value of host parsed from callbackUrl is used.
    callbackHost = 'www.example.com'
    # Specify the body of the callback request.
    callbackBody = 'key=$(key)&override=$(override)&size=$(size)&bucket=$(bucket)&etag=$(etag)'
    # Configure the upload callback.
    callBackPolicy = {"callbackBody": callbackBody, "callbackUrl": callbackUrl1 + ';' + callbackUrl2,
                      "callbackHost": callbackHost}

    # Configure the custom headers by specifying extensionHeaders. The input parameters are in the dictionary format.
    # Convert callBackPolicy to a JSON string and then to  binary using json.dumps().encode(). Then, encode the results using Base64 (base64.b64encode()) and convert the encoded data which is in binary
```

```
mode to a string using str(b'str', "utf-8").
    extensionHeaders = {'x-obs-callback': str(base64.b64encode(json.dumps(callBackPolicy).encode()),
"utf-8")}

    bucketName = 'your-bucketName'
    objectKey = 'example.txt'
    content = 'Hello OBS'
    # Upload the text and perform the upload callback.
    resp = obsClient.putContent(bucketName, objectKey, content, extensionHeaders=extensionHeaders)

    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Put Content Succeeded')
        print('requestId:', resp.requestId)
        print('etag:', resp.body.etag)
    else:
        print('Put Content Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Put Content Failed')
    print(traceback.format_exc())
```

This example changes the expiration time of an object using a user-defined header.

```
from obs import ObsClient
import os
import traceback

# Obtain an AK and SK pair using environment variables or import the AK and SK pair in other ways. Using
hard coding may result in leakage.
# Obtain an AK and SK pair on the management console. For details, see https://
support.huaweicloud.com/eu/usermanual-ca/ca_01_0003.html.
ak = os.getenv("AccessKeyID")
sk = os.getenv("SecretAccessKey")
# (Optional) If you use a temporary AK and SK pair and a security token to access OBS, obtain them from
environment variables.
# security_token = os.getenv("SecurityToken")
# Set server to the endpoint corresponding to the bucket. EU-Dublin is used here as an example. Replace it
with the one in use.
server = "https://obs.eu-west-101.myhuaweicloud.eu"

# Create an obsClient instance.
# If you use a temporary AK and SK pair and a security token to access OBS, you must specify
security_token when creating an instance.
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # x-obs-expires indicates how many days after the last modification the object expires. This example
configures 3 days.
    extensionHeaders = {'x-obs-expires': 3}
    # Configure the object metadata.
    resp = obsClient.setObjectMetadata(bucketName, objectKey, extensionHeaders=extensionHeaders)

    # If status code 2xx is returned, the API was called successfully. Otherwise, the call failed.
    if resp.status < 300:
        print('Set Object Metadata Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Set Object Metadata Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print('Set Object Metadata Failed')
    print(traceback.format_exc())
```

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Helpful Links

- **OBS Error Codes**

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13 Troubleshooting (SDK for Python)

13.1 HTTP Status Codes (SDK for Python)

The OBS server complies with the HTTP standard. After an API is called, the OBS server returns a standard HTTP status code. The following tables list the categories of HTTP status codes and the common HTTP status codes in OBS.

- Categories of HTTP status codes

Category	Description
1XX	Informational response. A request is received by the server and the server requires the requester to continue the operation. This category is usually invisible to the client.
2XX	Success. The operation is received and processed successfully.
3XX	Redirection. Further operations to complete the request are required.
4XX	Client errors. The request contains a syntax error, or the request cannot be implemented.
5XX	Server errors. An error occurs when the server is processing the request.

- Common HTTP status codes in OBS and their meanings

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HTTP Status Code	Description	Possible Cause
400 Bad Request	Incorrect request parameter.	• Invalid request parameter. • The consistency check fails after the client request carries MD5. • An invalid parameter is transferred when the SDK is used. • An invalid bucket name is used.
403 Forbidden	Access denied.	• The signature of the request does not match. Generally, the error is caused by incorrect AK/SK. • The account does not have the permission to access the requested resource. • The account is in arrears. • The bucket space is insufficient when a quota is set for the bucket. • Invalid AK • The time difference between the client and the server is too large. That is, the time of the server where the client is located is not synchronized with the time of the NTP service.
404 Not Found	The requested resource does not exist.	• The bucket does not exist. • The object does not exist. • The bucket policy configuration does not exist. For example, the bucket CORS configuration or bucket policy configuration does not exist. • The multipart upload does not exist.
405 Method Not Allowed	The request method is not supported.	The requested method or feature is not supported in the region where the bucket resides.

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HTTP Status Code	Description	Possible Cause
408 Request Timeout	Request timed out.	The socket connection between the server and client timed out.
409 Conflict	Request conflicts occur.	• Buckets of the same name are created in different regions. • Deletion of a non-empty bucket is attempted.
500 Internal Server Error	Internal server error.	Internal server error.
503 Service Unavailable	Service unavailable.	The server cannot be accessed temporarily.

13.2 OBS Server-Side Error Codes (SDK for Python)

If the OBS server encounters an error when processing a request, a response containing the error code and error description is returned.

The following table lists details about each error and its HTTP status code.

HTTP Status Code	Error Code	Error Message	Solution
301 Moved Permanently	PermanentRedirect	The requested bucket can be accessed only through the specified address. Send subsequent requests to the address.	Send the request to the returned redirection address.
301 Moved Permanently	WebsiteRedirect	The website request lacks **bucketName**.	Put the bucket name in the request and try again.
307 Moved Temporarily	TemporaryRedirect	Temporary redirection. If the DNS is updated, the request is redirected to the bucket.	The system automatically redirects the request or sends the request to the redirection address.

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HTTP Status Code	Error Code	Error Message	Solution
400 Bad Request	BadDigest	The specified value of **Content-MD5** does not match the value received by OBS.	Check whether the MD5 value carried in the header is the same as that calculated by the message body.
400 Bad Request	BadDomainName	Invalid domain name.	Use a valid domain name.
400 Bad Request	BadRequest	Invalid request parameter.	Modify the parameter according to the error details returned in the message body.
400 Bad Request	CustomDomainAreadyExist	The configured domain already exists.	It has been configured and does not need to be configured again.
400 Bad Request	CustomDomainNotExist	Delete the domain that does not exist.	It is not configured or has been deleted. You do not need to delete it.
400 Bad Request	EntityTooLarge	The size of the object uploaded using the POST method exceeds the upper limit.	Modify the conditions specified in the policy when posting the object or reduce the object size.
400 Bad Request	EntityTooSmall	The size of the object uploaded using the POST method does not reach the lower limit.	Modify the conditions specified in the policy when posting the object or increase the object size.

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HTTP Status Code	Error Code	Error Message	Solution
400 Bad Request	IllegalLocation-ConstraintException	A request without **Location** is sent for creating a bucket in a non-default region.	Send the bucket creation request to the default region, or send the request with the **Location** of the non-default region.
400 Bad Request	IncompleteBody	No complete request body is received due to network or other problems.	Upload the object again.
400 Bad Request	IncorrectNumber-OfFilesInPost Request	Each POST request must contain one file to be uploaded.	Carry a file to be uploaded.
400 Bad Request	InvalidArgument	Invalid parameter.	Modify the parameter according to the error details returned in the message body.
400 Bad Request	InvalidBucket	The bucket to be accessed does not exist.	Try another bucket name.
400 Bad Request	InvalidBucketNam e	The bucket name specified in the request is invalid, which may have exceeded the maximum length, or contain special characters that are not allowed.	Try another bucket name.

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HTTP Status Code	Error Code	Error Message	Solution
400 Bad Request	InvalidEncryptio-nAlgorithmError	Incorrect encryption algorithm. The object cannot be decrypted due to incorrect encryption header carried when downloading the SSE-C encrypted object.	Carry the correct encryption header when downloading the object.
400 Bad Request	InvalidLocation-Constraint	The specified **Location** in the bucket creation request is invalid or does not exist.	Correct the **Location** in the bucket creation request.
400 Bad Request	InvalidPart	One or more specified parts are not found. The parts may not be uploaded or the specified entity tags (ETags) do not match the parts' ETags.	Specify the correct parts and entity tags.
400 Bad Request	InvalidPartOrder	Parts are not listed in ascending order by part number.	Sort the parts in ascending order and merge them again.
400 Bad Request	InvalidPolicyDocu-ment	The content of the form does not meet the conditions specified in the policy document.	Modify the policy in the constructed form according to the error details in the message body and try again.
400 Bad Request	InvalidRedirectLo-cation	Invalid redirect location.	Specify the correct IP address.
400 Bad Request	InvalidRequest	Invalid request.	Modify the parameter according to the error details returned in the message body.

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HTTP Status Code	Error Code	Error Message	Solution
400 Bad Request	InvalidRequestBody	The request body is invalid. The request requires a message body but no message body is uploaded.	Upload the message body in the correct format.
400 Bad Request	InvalidTargetBucketForLogging	The delivery group has no ACL permission for the target bucket.	Configure the target bucket ACL and try again.
400 Bad Request	KeyTooLongError	The provided key is too long.	Use a shorter key.
400 Bad Request	KMS.DisabledException	The master key is disabled in the SSE-KMS mode.	Replace the key and try again, or contact the technical support.
400 Bad Request	KMS.NotFoundException	The customer master key (CMK) does not exist in SSE-KMS mode.	Retry with the correct master key.
400 Bad Request	MalformedACLError	The provided XML file has syntax errors or does not meet the format requirements.	Use the correct XML format to retry.
400 Bad Request	MalformedError	The XML format in the request is incorrect.	Use the correct XML format to retry.
400 Bad Request	MalformedLoggingStatus	The XML format of **Logging** is incorrect.	Use the correct XML format to retry.
400 Bad Request	MalformedPolicy	The bucket policy does not pass.	Modify the bucket policy according to the error details returned in the message body.
400 Bad Request	MalformedQuotaError	The Quota XML format is incorrect.	Use the correct XML format to retry.

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HTTP Status Code	Error Code	Error Message	Solution
400 Bad Request	MalformedXML	An XML file of a configuration item is in incorrect format.	Use the correct XML format to retry.
400 Bad Request	MaxMessageLengthExceeded	Copying an object does not require a message body in the request.	Remove the message body and retry.
400 Bad Request	MetadataTooLarge	The size of the metadata header has exceeded the upper limit.	Reduce the size of the metadata header.
400 Bad Request	MissingRegion	The region information is missing in the request, and the default region is required in the system.	Carry the region information in the request.
400 Bad Request	MissingRequestBodyError	This error code is returned after you send an empty XML file.	Provide the correct XML file.
400 Bad Request	MissingRequired-Header	A required header is missing in the request.	Provide the required header.
400 Bad Request	MissingSecurity-Header	A required header is missing in the request.	Provide the required header.
400 Bad Request	TooManyBuckets	You have attempted to create more buckets than allowed.	Delete some buckets and try again.
400 Bad Request	TooManyCustomDomains	Too many user accounts are configured.	Delete some user accounts and try again.
400 Bad Request	TooManyWrongSignature	The request is rejected due to high-frequency errors.	Replace AK and try again.

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HTTP Status Code	Error Code	Error Message	Solution
400 Bad Request	UnexpectedContent	The request requires a message body which is not carried by the client, or the request does not require a message body but the client carries the message body.	Try again according to the instruction.
400 Bad Request	UserKeyMustBeSpecified	This operation is only available to special users.	Contact the technical support.
403 Forbidden	AccessDenied	Access denied, because the request does not carry a date header or the header format is incorrect.	Provide a correct date header in the request.
403 Forbidden	AccessForbidden	Insufficient permissions. No CORS rule is configured for the bucket, or the CORS rule is not matched.	Modify the CORS configuration of the bucket or send the matched OPTIONS request based on the CORS configuration of the bucket.
403 Forbidden	AllAccessDisabled	The user has no permission to perform a specific operation. The bucket name is forbidden.	Try another bucket name.
403 Forbidden	DeregisterUserId	The user has been deregistered.	Top up or re-register.
403 Forbidden	InArrearOrInsufficientBalance	The user account is in arrears, or the account balance insufficient.	Top up the account.

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HTTP Status Code	Error Code	Error Message	Solution
403 Forbidden	InsufficientStorageSpace	Insufficient storage space.	If the quota is exceeded, increase quota or delete some objects.
403 Forbidden	InvalidAccessKeyId	The access key ID provided by the customer does not exist in the system.	Provide correct access key ID.
403 Forbidden	NotSignedUp	You have not registered with the system.	Register OBS.
403 Forbidden	RequestTimeTooSkewed	The request time and the server's time differ a lot.	Check whether the difference between the client time and the current time is too large.
403 Forbidden	SignatureDoesNotMatch	The provided signature in the request does not match the signature calculated by OBS.	Check your secret access key and signature calculation method.
403 Forbidden	Unauthorized	You have not been authenticated in real name.	Authenticate your real name and try again.
404 Not Found	NoSuchBucket	The bucket does not exist.	Create a bucket and perform the operation again.
404 Not Found	NoSuchBucketPolicy	No bucket policy exists.	Configure a bucket policy.
404 Not Found	NoSuchCORSConfiguration	No CORS configuration exists.	Configure CORS first.
404 Not Found	NoSuchCustomDomain	The requested user domain does not exist.	Set a user domain first.
404 Not Found	NoSuchKey	The specified key does not exist.	Upload the object first.

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HTTP Status Code	Error Code	Error Message	Solution
404 Not Found	NoSuchLifecycle-Configuration	The requested **Lifecycle** does not exist.	Configure a lifecycle rule first.
404 Not Found	NoSuchUpload	The specified multipart upload does not exist. The upload ID does not exist or the multipart upload has been aborted or completed.	Use the existing part or reinitialize the part.
404 Not Found	NoSuchVersion	The specified version ID does not match any existing version.	Use a correct version ID.
404 Not Found	NoSuchWebsiteConfiguration	The requested website does not exist.	Configure the website first.
405 Method Not Allowed	MethodNotAllowed	The specified method is not allowed against the requested resource. The message "Specified method is not supported." is returned.	The method is not allowed.
408 Request Timeout	RequestTimeout	The socket connection to the server has no read or write operations within the timeout period.	Check the network and try again, or contact technical support.
409 Conflict	BucketAlreadyExists	The requested bucket name already exists. The bucket namespace is shared by all users of OBS. Try again with another bucket name.	Try another bucket name.

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HTTP Status Code	Error Code	Error Message	Solution
409 Conflict	BucketAlreadyOwnedByYou	Your previous request for creating the named bucket succeeded and you already own it.	You do not need to create the bucket again.
409 Conflict	BucketNotEmpty	The bucket that you tried to delete is not empty.	Delete the objects in the bucket and then delete the bucket.
409 Conflict	InvalidBucketState	Invalid bucket status. After cross-region replication is configured, bucket versioning cannot be disabled.	Enable bucket versioning or cancel cross-region replication.
409 Conflict	OperationAborted	A conflicting operation is being performed on this resource. Try again later.	Try again later.
409 Conflict	ServiceNotSupported	The request method is not supported by the server.	Not supported by the server. Contact technical support.
411 Length Required	MissingContentLength	The HTTP header **Content-Length** is not provided.	Provide the Content-Length header.
412 Precondition Failed	PreconditionFailed	At least one of the specified preconditions is not met.	Modify according to the condition prompt in the returned message body.
416 Client Requested Range Not Satisfiable	InvalidRange	The requested range cannot be obtained.	Replace the range value and try again.
500 Internal Server Error	InternalError	An internal error occurs. Try again later.	Contact the technical support.

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HTTP Status Code	Error Code	Error Message	Solution
501 Not Implemented	ServiceNotImplemented	The request method is not implemented by the server.	Not supported currently. Contact the technical support.
503 Service Unavailable	ServiceUnavailable	The server is overloaded or has internal errors.	Try again later or contact the technical support.
503 Service Unavailable	SlowDown	Reduce your request frequency.	Reduce your request frequency.

13.3 Log Analysis (SDK for Python)

Log Configuration

OBS Python SDK provides the logging function based on the Python log library. You can call **ObsClient.initLog** to enable and configure logging. Sample code is as follows:

```
# Import the module.
from obs import LogConf
from obs import ObsClient

# Create an instance of ObsClient.
obsClient = ObsClient(
    access_key_id=os.getenv("AccessKeyID"),
    secret_access_key=os.getenv("SecretAccessKey"),
    server='https://your-endpoint'
)

# Specify the path to the log configuration file and initialize logs of ObsClient.
obsClient.initLog(LogConf('./log.conf'), 'obs_logger');
```

NOTE

- The logging function is disabled by default. You need to enable it manually.
- The log configuration file example (**log.conf**) is included in the OBS Python SDK development package. Modify parameters in **log.conf** as needed.

NOTICE

The log module of the OBS Python SDK is thread secure but not process secure. If ObsClient is used in multi-process scenarios, you must configure an independent log path for each instance of ObsClient to prevent conflicts when multiple processes write logs concurrently.

Log Format

The SDK log format is: *Log time*|*Process ID*|*Thread number*|*Log level*|*Log content*. The following are example logs:

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```
2017-11-06 13:46:54,936|process:6100|thread:12700|DEBUG|HTTP(s)+XML|OBS_LOGGER|__parse_xml,188|
http response result:status:200,reason:OK,code:None,message:None,headers:[('id-2',
'LgOKocHfuHe0rFSUHS6LcChzcoYes0luPgqxhUfCP58xp3MZh2n4YKRPpABV8GEK'), ('connection', 'close'),
('request-id', '0001AFF8E60000015F8FDA1EA5AE04E3'), ('date', 'Mon, 06 Nov 2017 05:42:37 GMT'),
('content-type', 'application/xml')]|
2017-11-06 13:46:54,937|process:6100|thread:12700|INFO|HTTP(s)+XML|OBS_LOGGER|doClose,349|server
inform to close connection|
2017-11-06 13:46:54,937|process:6100|thread:12700|INFO|HTTP(s)+XML|OBS_LOGGER|wrapper,59|
listBuckets cost 56 ms|
```

Log Level

When current logs cannot be used to troubleshoot system faults, you can change the log level to obtain more information. You can obtain the most information in **DEBUG** logs and the least information in **ERROR** logs.

Log level description:

- **DEBUG**: Debugging level. If this level is set, all logs will be printed.
- **INFO**: Information level. If this level is set, logs at the **WARNING** level and the time consumed for each HTTP/HTTPS request will be printed.
- **WARNING**: Warning level. If this level is set, logs at the **ERROR** level and some critical events will be printed.
- **ERROR**: Error level. If this level is set, only error information will be printed.

NOTE

In the configuration file, **LogFileLevel** is used to specify the log level for log files, and **PrintLogLevel** is used to specify the log level for the console.

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14 FAQs (SDK for Python)

14.1 How Do I Make an Object Accessible to Anonymous Users? (SDK for Python)

To do this, perform the following steps:

1. Set the object ACL to public read by referring to **Configuring an Object ACL (SDK for Python)**.
2. Obtain the URL of the object by referring to **How Do I Obtain an Object URL? (Python SDK)** and provide it to anonymous users.
3. An anonymous user can access the object by entering the URL on a browser.

14.2 How Can I Obtain the AK and SK? (SDK for Python)

OBS employs access keys (AK and SK) for signature verification to ensure that only authorized accounts can access specified OBS resources. Detailed explanations of access keys are as follows:

- AK is short for Access Key ID. One AK maps to only one user but one user can have multiple AKs. OBS authenticates users by their AKs.
- SK is short for Secret Access Key, which is used to access OBS. You can generate authentication information based on SKs and request headers. An SK maps to an AK, and they group into a pair.

To create an AK and SK pair, perform the following steps:

1. Log in to the **management console**.
2. In the upper right corner, hover your cursor over the username and choose **My Credentials**.
3. On the **My Credentials** page, click **Access Keys** in the navigation pane.
4. On the **Access Keys** page, click **Create Access Key**.

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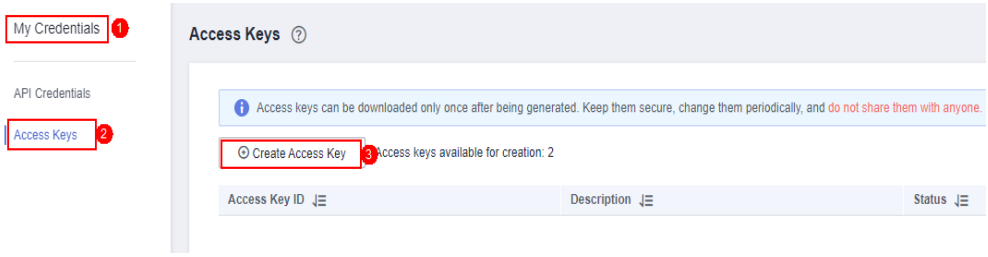

NOTE

Each user can create a maximum of two valid AK/SK pairs.

14.3 How Do I Obtain an Object URL? (Python SDK)

After setting an ACL to grant anonymous users the read permission for an object in a bucket, you can download this object using its URL. Methods to obtain the object URL are as follows:

Method 1: Query by calling the API. After an object is uploaded by calling **ObsClient.putContent** or **ObsClient.putFile**, **PutContentResponse** is returned. You can call **objectUrl** to obtain the URL of the uploaded object. Sample code is as follows:

```
# Import the module.
from obs import ObsClient

# Create an instance of ObsClient.
obsClient = ObsClient(
    access_key_id=os.getenv("AccessKeyID"),
    secret_access_key=os.getenv("SecretAccessKey"),
    server='https://your-endpoint'
)
resp = obsClient.putContent('bucketname', 'objectname', content='Hello OBS')

if resp.status < 300:
    print('requestId:', resp.requestId)
    print('objectUrl:', resp.body.objectUrl)
else:
    print('requestId:', resp.requestId)
    print('errorCode:', resp.errorCode)
```

Method 2: Compose the URL in the format of **https://***Bucket name.Domain name/Directory level/Object name*.

NOTE

- If the object resides in the root directory of a bucket, its URL does not contain a directory level.
- For example, if you want to access the object named **test.txt** in the **test** folder of bucket **testbucket** in the EU-Dublin region, the URL for accessing this object is **https://testbucket.obs.eu-west-101.myhuaweicloud.eu/test/test.txt**.

14.4 How Do I Improve the Uploading Speed of Large Files over the Public Network? (Python SDK)

If a file exceeds 100 MB, you are advised to upload the file using multipart upload.

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Multipart upload refers to splitting an object into multiple parts and uploading them separately. Each part is a contiguous portion of the object's data. You can upload parts in any sequence. A part can be reloaded after an upload failure, without affecting other parts. Uploading multiple parts of an object using multiple threads concurrently can greatly improve the transmission efficiency.

For details about the sample code, see **APIs Related to Multipart Upload (SDK for Python)**.

14.5 Setting an Object Expiration Time (SDK for Python)

This example sets the object expiration time using a header when uploading a file stream.

```
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Read a file stream.
    content = open('localfile', 'rb')
    bucketName = "examplebucket"
    objectKey = "objectname"
    header=PutObjectHeader()
    #Set the expiration time.
    header.expires=10
    # Upload the file stream.
    resp = obsClient.putContent(bucketName, objectkey, content,headers=header)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Put Content Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Put Content Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print(traceback.format_exc())
```

This example sets the object expiration time using a user-defined header when uploading a file stream.

```
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    # Read a file stream.
    content = open('localfile', 'rb')
    bucketName = "examplebucket"
    objectKey = "objectname"
    header=PutObjectHeader()
    # Use a user-defined header to set the expiration time.
    extensionHeaders = {'x-obs-expires': 30}
    # Upload the file stream.
    resp = obsClient.putContent(bucketName, objectkey, content,extensionHeaders=extensionHeaders)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Put Content Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Put Content Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print(traceback.format_exc())
```

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This example sets the expiration time for an uploaded object.

```
obsClient = ObsClient(access_key_id=ak, secret_access_key=sk, server=server)
try:
    bucketName = "examplebucket"
    objectKey = "objectname"
    # Use a user-defined header to set the expiration time.
    extensionHeaders = {'x-obs-expires': 30}
    # Configure metadata for the object.
    resp = obsClient.setObjectMetadata(bucketName, objectkey, extensionHeaders=extensionHeaders)
    # If status code 2xx is returned, the API is called successfully. Otherwise, the API call fails.
    if resp.status < 300:
        print('Set Object Metadata Succeeded')
        print('requestId:', resp.requestId)
    else:
        print('Set Object Metadata Failed')
        print('requestId:', resp.requestId)
        print('errorCode:', resp.errorCode)
        print('errorMessage:', resp.errorMessage)
except:
    print(traceback.format_exc())
```

14.6 What Is Content-Type (MIME)? (Python SDK)

Multipurpose Internet Mail Extensions (MIME) type is a standard way of describing a data type. The MIME type is passed in the Content-Type header.

NOTE

If you do not specify Content-Type when uploading an object, the SDK determines the object type based on the suffix of the specified object name and automatically assigns a value to Content-Type.

Content-Type

Content-Type indicates the type of data to send or receive and determine the form and encoding method browsers will use to display data (mainly custom client files or media files). If no content type is specified, the type will be generated based on the file name extension. If there is no extension, the content type is **application/octet-stream** by default.

Common Content Types

The commonly used content types are given in the table below.

File Name Extension	Content-Type	File Name Extension	Content-Type
.* (binary stream, unknown file type)	application/octet-stream	.7z	application/x-7z-compressed
.001	application/x-001	.301	application/x-301
.323	text/h323	.906	application/x-906
.907	drawing/907	.a11	application/x-a11

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File Name Extension	Content-Type	File Name Extension	Content-Type
.acp	audio/x-mei-aac	.ai	application/postscript
.aif	audio/aiff	.aifc	audio/aiff
.aiff	audio/aiff	.anv	application/x-anv
.asa	text/asa	.asf	video/x-ms-asf
.asp	text/asp	.asx	video/x-ms-asf
.au	audio/basic	.avi	video/avi
.awf	application/vnd.adobe.workflow	.biz	text/xml
.bmp	application/x-bmp	.bot	application/x-bot
.c4t	application/x-c4t	.c90	application/x-c90
.cal	application/x-cals	.cat	application/vnd.ms-pki.seccat
.cdf	application/x-netcdf	.cdr	application/x-cdr
.cel	application/x-cel	.cer	application/x-x509-ca-cert
.cg4	application/x-g4	.cgm	application/x-cgm
.cit	application/x-cit	.class	java/*
.cml	text/xml	.cmp	application/x-cmp
.cmx	application/x-cmx	.cot	application/x-cot
.crl	application/pkix-crl	.crt	application/x-x509-ca-cert
.csi	application/x-csi	.css	text/css
.cut	application/x-cut	.dbf	application/x-dbf
.dbm	application/x-dbm	.dbx	application/x-dbx
.dcd	text/xml	.dcx	application/x-dcx
.der	application/x-x509-ca-cert	.dgn	application/x-dgn
.dib	application/x-dib	.dll	application/x-msdownload

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File Name Extension	Content-Type	File Name Extension	Content-Type
.doc	application/msword	.dot	application/msword
.drw	application/x-drw	.dtd	text/xml
.dwf	Model/vnd.dwf	.dwf	application/x-dwf
.dwg	application/x-dwg	.dxb	application/x-dxb
.dxf	application/x-dxf	.edn	application/vnd.adobe.edn
.emf	application/x-emf	.eml	message/rfc822
.ent	text/xml	.epi	application/x-epi
.eps	application/x-ps	.eps	application/postscript
.etd	application/x-ebx	.exe	application/x-msdownload
.fax	image/fax	.fdf	application/vnd.fdf
.fif	application/fractals	.fo	text/xml
.frm	application/x-frm	.g4	application/x-g4
.gbr	application/x-gbr	.	application/x-
.gif	image/gif	.gl2	application/x-gl2
.gp4	application/x-gp4	.hgl	application/x-hgl
.hmr	application/x-hmr	.hpg	application/x-hpgl
.hpl	application/x-hpl	.hqx	application/mac-binhex40
.hrf	application/x-hrf	.hta	application/hta
.htc	text/x-component	.htm	text/html
.html	text/html	.htt	text/webviewhtml
.htx	text/html	.icb	application/x-icb
.ico	image/x-icon	.ico	application/x-ico
.iff	application/x-iff	.ig4	application/x-g4
.igs	application/x-igs	.iii	application/x-iphone

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File Name Extension	Content-Type	File Name Extension	Content-Type
.img	application/x-img	.ins	application/x-internet-signup
.isp	application/x-internet-signup	.IVF	video/x-ivf
.java	java/*	.jfif	image/jpeg
.jpe	image/jpeg	.jpe	application/x-jpe
.jpeg	image/jpeg	.jpg	image/jpeg
.jpg	application/x-jpg	.js	application/x-javascript
.jsp	text/html	.la1	audio/x-liquid-file
.lar	application/x-laplayer-reg	.latex	application/x-latex
.lavs	audio/x-liquid-secure	.lbm	application/x-lbm
.lmsff	audio/x-la-lms	.ls	application/x-javascript
.ltr	application/x-ltr	.m1v	video/x-mpeg
.m2v	video/x-mpeg	.m3u	audio/mpegurl
.m4e	video/mpeg4	.mac	application/x-mac
.man	application/x-troff-man	.math	text/xml
.mdb	application/msaccess	.mdb	application/x-mdb
.mfp	application/x-shockwave-flash	.mht	message/rfc822
.mhtml	message/rfc822	.mi	application/x-mi
.mid	audio/mid	.midi	audio/mid
.mil	application/x-mil	.mml	text/xml
.mnd	audio/x-musicnet-download	.mns	audio/x-musicnet-stream
.mocha	application/x-javascript	.movie	video/x-sgi-movie
.mp1	audio/mp1	.mp2	audio/mp2
.mp2v	video/mpeg	.mp3	audio/mp3

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File Name Extension	Content-Type	File Name Extension	Content-Type
.mp4	video/mp4	.mpa	video/x-mpg
.mpd	application/vnd.ms-project	.mpe	video/x-mpeg
.mpeg	video/mpg	.mpg	video/mpg
.mpga	audio/rn-mpeg	.mpp	application/vnd.ms-project
.mps	video/x-mpeg	.mpt	application/vnd.ms-project
.mpv	video/mpg	.mpv2	video/mpeg
.mpw	application/vnd.ms-project	.mpx	application/vnd.ms-project
.mtx	text/xml	.mxp	application/x-mmxp
.net	image/pnetvue	.nrf	application/x-nrf
.nws	message/rfc822	.odc	text/x-ms-odc
.out	application/x-out	.p10	application/pkcs10
.p12	application/x-pkcs12	.p7b	application/x-pkcs7-certificates
.p7c	application/pkcs7-mime	.p7m	application/pkcs7-mime
.p7r	application/x-pkcs7-certreqresp	.p7s	application/pkcs7-signature
.pc5	application/x-pc5	.pci	application/x-pci
.pcl	application/x-pcl	.pcx	application/x-pcx
.pdf	application/pdf	.pdf	application/pdf
.pdx	application/vnd.adobe.pdx	.pfx	application/x-pkcs12
.pgl	application/x-pgl	.pic	application/x-pic
.pko	application/vnd.ms-pki.pko	.pl	application/x-perl
.plg	text/html	.pls	audio/scpls
.plt	application/x-plt	.png	image/png

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File Name Extension	Content-Type	File Name Extension	Content-Type
.png	application/x-png	.pot	application/vnd.ms-powerpoint
.ppa	application/vnd.ms-powerpoint	.ppm	application/x-ppm
.pps	application/vnd.ms-powerpoint	.ppt	application/vnd.ms-powerpoint
.ppt	application/x-ppt	.pr	application/x-pr
.prf	application/pics-rules	.prn	application/x-prn
.prt	application/x-prt	.ps	application/x-ps
.ps	application/postscript	.ptn	application/x-ptn
.pwz	application/vnd.ms-powerpoint	.r3t	text/vnd.rn-realtext3d
.ra	audio/vnd.rn-realaudio	.ram	audio/x-pn-realaudio
.ras	application/x-ras	.rat	application/rat-file
.rdf	text/xml	.rec	application/vnd.rn-recording
.red	application/x-red	.rgb	application/x-rgb
.rjs	application/vnd.rn-realsystem-rjs	.rjt	application/vnd.rn-realsystem-rjt
.rlc	application/x-rlc	.rle	application/x-rle
.rm	application/vnd.rn-realmedia	.rmf	application/vnd.adobe.rmf
.rmi	audio/mid	.rmj	application/vnd.rn-realsystem-rmj
.rmm	audio/x-pn-realaudio	.rmp	application/vnd.rn-rn_music_package

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File Name Extension	Content-Type	File Name Extension	Content-Type
.rms	application/vnd.rn-realmedia-secure	.rmvb	application/vnd.rn-realmedia-vbr
.rmx	application/vnd.rn-realsystem-rmx	.rnx	application/vnd.rn-realplayer
.rp	image/vnd.rn-realpix	.rpm	audio/x-pn-realaudio-plugin
.rsml	application/vnd.rn-rsml	.rt	text/vnd.rn-realtext
.rtf	application/msword	.rtf	application/x-rtf
.rv	video/vnd.rn-realvideo	.sam	application/x-sam
.sat	application/x-sat	.sdp	application/sdp
.sdw	application/x-sdw	.sit	application/x-stuffit
.slb	application/x-slb	.sld	application/x-sld
.slk	drawing/x-slk	.smi	application/smil
.smil	application/smil	.smk	application/x-smk
.snd	audio/basic	.sol	text/plain
.sor	text/plain	.spc	application/x-pkcs7-certificates
.spl	application/futuresplash	.spp	text/xml
.ssm	application/streamingmedia	.sst	application/vnd.ms-pki.certstore
.stl	application/vnd.ms-pki.stl	.stm	text/html
.sty	application/x-sty	.svg	text/xml
.swf	application/x-shockwave-flash	.tdf	application/x-tdf
.tg4	application/x-tg4	.tga	application/x-tga
.tif	image/tiff	.tiff	image/tiff
.ttf	font/otf	.tld	text/xml

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File Name Extension	Content-Type	File Name Extension	Content-Type
.top	drawing/x-top	.torrent	application/x-bittorrent
.tsd	text/xml	.txt	text/plain
.uin	application/x-icq	.uls	text/iuls
.vcf	text/x-vcard	.vda	application/x-vda
.vdx	application/vnd.visio	.vml	text/xml
.vpg	application/x-vpeg005	.vsd	application/vnd.visio
.vsd	application/x-vsd	.vss	application/vnd.visio
.vst	application/vnd.visio	.vst	application/x-vst
.vsw	application/vnd.visio	.vsx	application/vnd.visio
.vtx	application/vnd.visio	.vxml	text/xml
.wav	audio/wav	.wax	audio/x-ms-wax
.wb1	application/x-wb1	.wb2	application/x-wb2
.wb3	application/x-wb3	.wbmp	image/vnd.wap.wbmp
.wiz	application/msword	.wk3	application/x-wk3
.wk4	application/x-wk4	.wkq	application/x-wkq
.wks	application/x-wks	.wm	video/x-ms-wm
.wma	audio/x-ms-wma	.wmd	application/x-ms-wmd
.wmf	application/x-wmf	.wml	text/vnd.wap.wml
.wmv	video/x-ms-wmv	.wmx	video/x-ms-wmx
.wmz	application/x-ms-wmz	.wp6	application/x-wp6
.wpd	application/x-wpd	.wpg	application/x-wpg
.wpl	application/vnd.ms-wpl	.wq1	application/x-wq1

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File Name Extension	Content-Type	File Name Extension	Content-Type
.wr1	application/x-wr1	.wri	application/x-wri
.wrk	application/x-wrk	.ws	application/x-ws
.ws2	application/x-ws	.wsc	text/scriptlet
.wsdl	text/xml	.wvx	video/x-ms-wvx
.xdp	application/vnd.adobe.xdp	.xdr	text/xml
.xfd	application/vnd.adobe.xfd	.xfdf	application/vnd.adobe.xfdf
.xhtml	text/html	.xlsx	application/vnd.openxmlformats-officedocument.spreadsheetml.sheet
.xls	application/x-xls	.xlw	application/x-xlw
.xml	text/xml	.xpl	audio/scpls
.xq	text/xml	.xql	text/xml
.xquery	text/xml	.xsd	text/xml
.xsl	text/xml	.xslt	text/xml
.xwd	application/x-xwd	.x_b	application/x-x_b
.sis	application/vnd.symbian.install	.sisx	application/vnd.symbian.install
.x_t	application/x-x_t	.ipa	application/vnd.iphone
.apk	application/vnd.android.package-archive	.xap	application/x-silverlight-app
.zip	application/zip	.rar	application/x-rar-compressed

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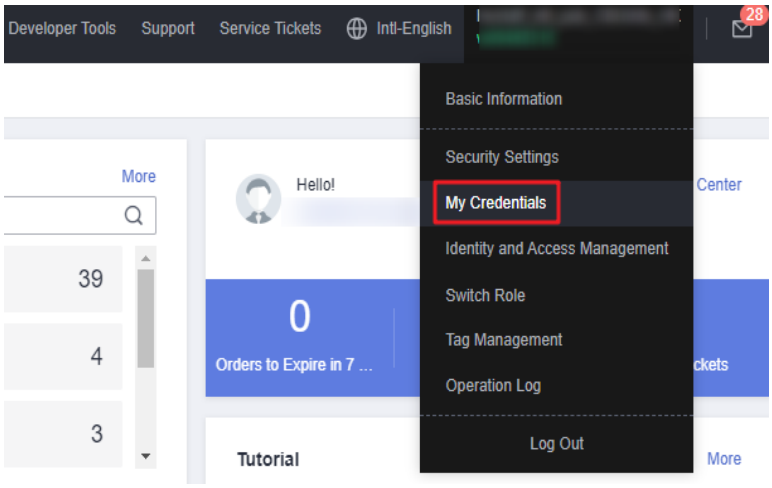
14.7 How Do I Get My Account ID and IAM User ID? (SDK for Python)

Obtaining Account, IAM User, and Project Information

- **Using the console**
  a. On the Huawei Cloud homepage, click **Console** in the upper right corner.
  b. In the upper right corner, hover over the username and choose **My Credentials** from the drop-down list.

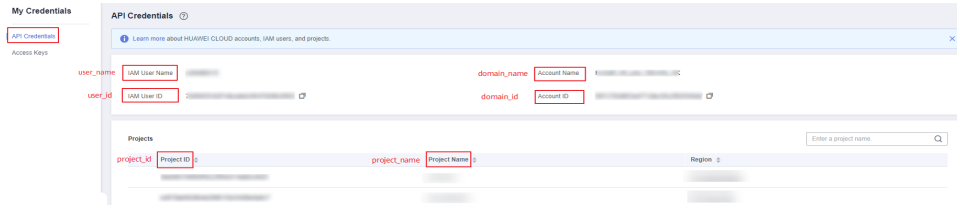
  Figure 14-1 My Credentials



  c. On the **API Credentials** page, view the account name, account ID, IAM user name, IAM user ID, project name, and project ID.

  The project ID varies depending on the region where your service is located.

  Figure 14-2 Viewing the account, user, and project information



- **Calling an API**
  - To obtain a user ID, see **Listing IAM Users**.
  - To obtain a project ID, see **Querying Project Information**.

Obtaining User Group Information

Step 1 Log in to the Huawei Cloud console, access the IAM console, and choose **User Groups** in the navigation pane.

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Step 2 Expand the details of the desired user group and view its name and ID.

----End

Obtaining Region Information

Step 1 Log in to the Huawei Cloud console, access the IAM console, and choose **Projects** in the navigation pane.

Step 2 View the content in the **Project Name** column. The content in this column indicates the ID of the region where the project belongs.

----End

Obtaining Agency Information

Step 1 Log in to the Huawei Cloud console, access the IAM console, and choose **Agencies** in the navigation pane.

Step 2 Hover over the desired agency to view its name (in the first line) and ID (in the second line) in the dark pop-up box.

----End

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