

# Alibaba Cloud Object Storage Service

## API Reference

Issue: 20190815

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# Generic conventions

Table -1: Style conventions

Style	Description	Example
	This warning information indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 <b>Danger:</b> Resetting will result in the loss of user configuration data.
	This warning information indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 <b>Warning:</b> Restarting will cause business interruption. About 10 minutes are required to restore business.
	This indicates warning information, supplementary instructions, and other content that the user must understand.	 <b>Notice:</b> Take the necessary precautions to save exported data containing sensitive information.
	This indicates supplemental instructions, best practices, tips, and other content that is good to know for the user.	 <b>Note:</b> You can use Ctrl + A to select all files.
>	Multi-level menu cascade.	Settings > Network > Set network type
<b>Bold</b>	It is used for buttons, menus, page names, and other UI elements.	Click OK.
Courier font	It is used for commands.	Run the <code>cd / d C :/ windows</code> command to enter the Windows system folder.
<i>Italics</i>	It is used for parameters and variables.	<code>bae log list --instanceid Instance_ID</code>
[ ] or [a b]	It indicates that it is an optional value, and only one item can be selected.	<code>ipconfig [-all -t]</code>

Style	Description	Example
<code>{}</code> or <code>{a b}</code>	It indicates that it is a required value, and only one item can be selected.	<code>switch {stand   slave}</code>



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# 1 Overview

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The Object Storage Service (OSS) is a cloud storage service provided by Alibaba Cloud , featuring a massive capacity, security, a low cost, and high reliability. You can upload and download data anytime, anywhere, and on any Internet device through a simple RESTful interface described herein. With the OSS, you can develop a diverse range of massive data-based services such as multimedia sharing websites, online storage, personal data backups, and corporate data backups.

## Limits

Different OSS resources and functions have different limits. For more information, see [Limits](#).

## Usage

This topic describes the request syntax, request samples and return samples for each interface. If you want to perform additional development, we recommend you use OSS SDKs. For more information about the installation and usage of OSS SDKs, see [OSS SDK introduction](#).

## Pricing

For more information about the price of OSS, see [OSS pricing page](#).

## Terms

Term	Description
Bucket	A bucket is a resource in Alibaba Cloud that operates similar to a container and is used to store objects in OSS . Every object is contained in a bucket.
Object	An object (sometimes referred to as a file) is the fundamental storage resource in Alibaba Cloud OSS. An object is composed of metadata, data, and a key, in which the key is a unique name for the object.
Region	A region indicates the physical location of an Alibaba Cloud data center. You can choose the region in which the buckets you create are stored based on your costs and the geographic area from where requests to your resources are coming from. For more information, see <a href="#">Regions and endpoints</a> .

Term	Description
Endpoint	An endpoint is a domain name used to access OSS. OSS provides external services through HTTP RESTful APIs. You must use different endpoints to access different OSS regions, or access the same OSS region through the intranet and the Internet. For more information, see <a href="#">Regions and endpoints</a> .
AccessKey	An AccessKey (AK) is composed of an AccessKeyId and an AccessKeySecret, and is used to verify the identity of an entity that requests access to resources. OSS verifies the identity of a request sender by using symmetric encryption. The AccessKeyId is used to identify a user, and the AccessKeySecret is used by the user to encrypt the signature, and for OSS to verify the signature. The AccessKeySecret must be kept confidential.

## 2 API overview

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OSS provides the following APIs:

### Service-related operations

API	Description
<a href="#">GetService</a>	Obtains all buckets owned by a specified account.

### Bucket-related operations

API	Description
<a href="#">PutBucket</a>	Creates a bucket.
<a href="#">PutBucketACL</a>	Sets the ACL for a bucket.
<a href="#">PutBucketLogging</a>	Enables the logging function for a bucket .
<a href="#">PutBucketWebsite</a>	Sets a bucket to static website hosting mode.
<a href="#">PutBucketReferer</a>	Configures anti-leech rules for a bucket.
<a href="#">PutBucketLifecycle</a>	Configures lifecycle rules for the objects in a bucket.
<a href="#">GetBucket (ListObject)</a>	Gets the information about all objects in a bucket.
<a href="#">GetBucketAcl</a>	Gets the ACL for a bucket.
<a href="#">GetBucketLocation</a>	Gets the location information about the data center to which a bucket belongs.
<a href="#">GetBucketInfo</a>	Obtains the information about a bucket.
<a href="#">GetBucketLogging</a>	Views the configuration of the logging function for a bucket.
<a href="#">GetBucketWebsite</a>	Views the static website hosting status of a bucket.
<a href="#">GetBucketReferer</a>	Views the anti-leech rules for a bucket.
<a href="#">GetBucketLifecycle</a>	Views the lifecycle rules for the objects in a bucket.
<a href="#">DeleteBucket</a>	Deletes a bucket.

API	Description
<a href="#">DeleteBucketLogging</a>	Disables the logging function for a bucket.
<a href="#">DeleteBucketWebsite</a>	Disables the static website hosting mode for a bucket.
<a href="#">DeleteBucketLifecycle</a>	Deletes the lifecycle rules for the objects in a bucket.

### Object-related operations

API	Description
<a href="#">PutObject</a>	Uploads an object
<a href="#">CopyObject</a>	Copies an object to another object.
<a href="#">GetObject</a>	Gets an object.
<a href="#">AppendObject</a>	Appends the upload data to the end of an object.
<a href="#">DeleteObject</a>	Deletes an object
<a href="#">DeleteMultiple Objects</a>	Deletes multiple objects.
<a href="#">HeadObject</a>	Returns only the metadata of an object but not the object content.
<a href="#">GetObjectMeta</a>	Returns the metadata of an object, including the ETag, Size (object size), and LastModified and does not return the object content.
<a href="#">PostObject</a>	Uploads an object in Post mode.
<a href="#">PutObjectACL</a>	Sets the ACL for an object.
<a href="#">GetObjectACL</a>	Gets the ACL for an object.
<a href="#">Callback</a>	Enables the callback function.
<a href="#">PutSymlink</a>	Creates a symbol link.
<a href="#">GetSymlink</a>	Obtains a symbol link.
<a href="#">RestoreObject</a>	Restores an object.
<a href="#">SelectObject</a>	Queries objects using SQL statements.

## Operations related to multipart upload

API	Description
<a href="#">InitiateMultipartUpload</a>	Initializes a MultipartUpload event.
<a href="#">UploadPart</a>	Uploads an object in multiple parts.
<a href="#">UploadPartCopy</a>	Uploads and copies an object in multiple parts.
<a href="#">CompleteMultipartUpload</a>	Complete the MultipartUpload event for an object.
<a href="#">AbortMultipartUpload</a>	Cancels a MultipartUpload event.
<a href="#">ListMultipartUploads</a>	Lists all ongoing MultipartUpload events.
<a href="#">ListParts</a>	Lists all parts successfully uploaded in a MultipartUpload event with a specified upload ID.

## Cross-Origin Resource Sharing (CORS)

API	Description
<a href="#">PutBucketcors</a>	Sets a CORS rule for a specified bucket.
<a href="#">GetBucketcors</a>	Gets the current CORS rules for a specified bucket.
<a href="#">DeleteBucketcors</a>	Disables the CORS function for a specified bucket and clears all the CORS rules.
<a href="#">OptionObject</a>	Specifies the preflight request for cross-region access.

## Operations related to LiveChannel

API	Description
<a href="#">PutLiveChannelStatus</a>	Switches the status of LiveChannel.
<a href="#">PutLiveChannel</a>	Creates a LiveChannel.
<a href="#">GetVodPlaylist</a>	Gets the specified playlist.
<a href="#">PostVodPlaylist</a>	Generates a playlist.
<a href="#">GetLiveChannelStat</a>	Gets the stream pushing status of a LiveChannel.
<a href="#">GetLiveChannelInfo</a>	Gets the configurations of a LiveChannel.

API	Description
<a href="#">GetLiveChannelHistory</a>	Gets the stream pushing record of a LiveChannel.
<a href="#">ListLiveChannel</a>	Lists LiveChannels.
<a href="#">DeleteLiveChannel</a>	Deletes a LiveChannel.



## 3 Definitions of common HTTP headers

---

### Common request headers

Some common request headers are used in the OSS RESTful interfaces. These request headers can be used by all the OSS requests. The following table lists the specific definitions of the request headers:

Name	Type	Description
Authorization	string	The verification information used to verify the validity of a request.  Default value: none  Usage scenario: non-anonymous requests
Content - Length	string	Content length of an HTTP request, which is defined in <a href="#">RFC2616</a> .  Default value: none  Usage scenario: requests that need to submit data to OSS
Content - Type	string	Content type of an HTTP request, which is defined in <a href="#">RFC2616</a> .  Default value: none  Usage scenario: requests that need to submit data to OSS
date	string	The GMT time stipulated in the HTTP 1.1 protocol, for example, Wed, 05 Sep. 2012 23:00:00 GMT  Default value: none

Name	Type	Description
Host	string	The access host value. Format: < bucketname > . oss - cn - hangzhou . aliyuncs . com .  Default value: none

### Common response headers

Some common response headers are used in the OSS RESTful interfaces. These response headers can be used by all the OSS requests. The following table lists the specific definitions of the response headers:

Name	Type	Description
Content - Length	string	Content length of an HTTP request, which is defined in <a href="#">RFC2616</a> .  Default value: none  Usage scenario: requests that need to submit data to OSS
Connection	enumerative	The connection status between the client and the OSS server.  Valid values: open or close  Default value: none
Date	string	The GMT time stipulated in the HTTP 1.1 protocol, for example, Wed, 05 Sep. 2012 23:00:00 GMT  Default value: none

Name	Type	Description
Etag	string	<p>The ETag (entity tag) is created when an object is generated and is used to indicate the content of the object. For an object created for a Put Object request, the value of ETag is the value of MD5 in the content of the object. For an object created in other approaches, the value of ETag is the UUID in the content of the object. The value of ETag can be used to check whether the content of the object is changed.</p> <p>Default value: none</p>
Server	string	<p>The server that generates the response.</p> <p>Default value: AliyunOSS</p>
x - oss - request - id	string	<p>The UUID of the response. It is created by Alibaba Cloud OSS. In case of any issues when using the OSS service, you can contact OSS support personnel using this field to rapidly locate the issue.</p> <p>Default value: none</p>

## 4 Access control

---

### 4.1 User signature authentication

OSS verifies the identity of a request sender by using the AccessKeyId/AccessKeySecret symmetric encryption method. The AccessKeyId is used to identify a user. The AccessKeySecret is used by the user to encrypt the signature and used by OSS to verify the signature. The AccessKeySecret must be kept confidential. Based on the account types, AccessKeys can be categorized as follows:

- **AccessKey of an Alibaba Cloud account:** The AccessKey of a Alibaba Cloud account has full permissions on its resources.
- **AccessKey of a RAM user:** A RAM user is generated under the authorization of an Alibaba Cloud account. The AccessKey of a RAM user has limited permissions on specified resources.
- **STS temporary access credential:** The STS access credential is a temporary credential generated by an Alibaba Cloud account or a RAM user. The AccessKey of the temporary credential has limited permissions on specified resources for a specified period of time. The permissions of the credential are withdrawn once the credential expires.

For more information, see [Access control](#).

Before sending a request to OSS as an individual user, you must first generate a signature string in the specified format for the request. Then you must encrypt the signature string using your AccessKeySecret to generate a verification code. After receiving the request, OSS finds the AccessKeySecret based on the AccessKeyId, and extracts the signature string and verification code in the same way. If the calculated verification code is the same as the verification code provided, OSS determines that the request is valid. Otherwise, OSS rejects the request and returns an 403 HTTP status code.

### 4.2 Add a signature to the header

You can add an authorization header to carry signature information in an HTTP request to indicate that the message has been authorized.

## SDK signature implementation

OSS SDK has implemented the signature. You do not need to worry about the signature issue when you use the OSS SDK. To learn more about the signature implementations of specific languages, see the OSS SDK code. The following table describes the files used to implement OSS SDK signature.

SDK	Signature implementation
Java SDK	<a href="#">OSSRequestSigner.java</a>
Python SDK	<a href="#">auth.py</a>
Net SDK	<a href="#">OssRequestSigner.cs</a>
PHP SDK	<a href="#">OssClient.php</a>
C SDK	<a href="#">oss_auth.c</a>
JavaScript SDK	<a href="#">client.js</a>
Go SDK	<a href="#">auth.go</a>
Ruby SDK	<a href="#">util.rb</a>
iOS SDK	<a href="#">OSSModel.m</a>
Android SDK	<a href="#">OSSUtils.java</a>

## Calculation of the Authorization field

```

Authorization = " OSS " + AccessKeyId + ":" + Signature
Signature = base64 ( hmac - sha1 ( AccessKeySecret ,
    VERB + "\ n "
    + Content - MD5 + "\ n "
    + Content - Type + "\ n "
    + Date + "\ n "
    + CanonicalizedOSSHeaders
    + CanonicalizedResource ))
  
```

- The `AccessKeySecret` indicates the key required for a signature.
- `VERB` indicates the HTTP request method, including PUT, GET, POST, HEAD, and DELETE.
- `\ n` is a line break.

- `Content - MD5` The Content-MD5 is the MD5 value of requested content data.

The message content (excluding the header) is calculated to obtain an MD5 value, which is a 128-bit number. This number is encoded with Base64 into a Content-MD5 value. The request header can be used to check the message validity, that is, whether the message content is consistent with the sent content, such as

“eB5eJF1ptWaXm4bijSPyxw==” . The request header may be empty. For more information, see [RFC2616 Content-MD5](#).

- `Content - Type` indicates the requested content type, such as “application/octet-stream” . It content type may be empty.
- `Date` indicates the time that the operation takes. It must be in GMT format, such as “Sun, 22 Nov 2015 08:16:38 GMT” .
- The `CanonicalizedOSSHeaders` indicates an assembly of HTTP headers whose prefixes are “x-oss-” .
- The `CanonicalizedResource` indicates the OSS resource that the user wants to access.

Specifically, the values of `Date` and `CanonicalizedResource` cannot be empty. If the difference between the value of `Date` in the request and the time of the OSS server is greater than 15 minutes, the OSS server rejects the request and returns an HTTP 403 error.

### Construct CanonicalizedOSSHeaders

All the HTTP headers whose prefixes are x-oss- are called CanonicalizedOSSHeaders. The method to construct CanonicalizedResource is as follows:

1. Convert the names of all HTTP request headers whose prefixes are x-oss- into lowercase letters. For example, convert `X - OSS - Meta - Name : TaoBao` to `x - oss - meta - name : TaoBao` .
2. If the request is sent with the `AccessKeyID` and `AccessKeySecret` obtained by the STS, you must also add the obtained security-token value to the signature string in the form of `x - oss - security - token : security - token` .
3. Sort all acquired HTTP request headers in a lexicographically ascending order.
4. Delete any space on either side of a separator between the request header and content. For example, convert `x - oss - meta - name : TaoBao` to `x - oss - meta - name : TaoBao` .
5. Separate all the content and headers with the `\ n` separator to form the final CanonicalizedOSSHeaders.



#### Note:

- CanonicalizedOSSHeaders can be empty, and the `\ n` at the end can be removed.

- If only one header must be constructed, it must be `x - oss - meta - a \ n .`. Note the `\ n` at the end.
- If multiple headers must be constructed, it must be `x - oss - meta - a : a \ nx - oss - meta - b : b \ nx - oss - meta - c : c \ n .` Note the `\ n` at the end.

### Construct CanonicalizedResource

The target OSS resource specified in the request sent by the user is called a CanonicalizedResource. The method for constructing CanonicalizedResource is as follows:

1. Set CanonicalizedResource into a null character string "".
2. Add the OSS resource to be accessed in the following format: `/ BucketName / ObjectName`. (If ObjectName does not exist, CanonicalizedResource is `/ BucketName/`. If BucketName does not exist either, CanonicalizedResource is `/`.)
3. If the requested resource includes sub-resources (SubResource), sort all the sub-resources in a lexicographically ascending order and separate the sub-resources using the separator `&` to generate a sub-resource string. Add `"?"` and the sub-resource string to the end of the CanonicalizedResource string. In this case, CanonicalizedResource is like: `/ BucketName / ObjectName ? acl & uploadId = UploadId`



#### Note:

- The sub-resources supported by OSS currently include: `acl`, `uploads`, `location`, `cors`, `logging`, `website`, `referer`, `lifecycle`, `delete`, `append`, `tagging`, `objectMeta`, `uploadId`, `partNumber`, `security-token`, `position`, `img`, `style`, `styleName`, `replication`, `replicationProgress`, `replicationLocation`, `cname`, `bucketInfo`, `comp`, `qos`, `live`, `status`, `vod`, `startTime`, `endTime`, `symlink`, `x-oss-process`, `response-content-type`, `response-content-language`, `response-expires`, `response-cache-control`, `response-content-disposition`, and `response-content-encoding`.

- Three types of sub-resources are available:
  - Resource identifiers, such as `acl`, `append`, `uploadId`, and `symlink` sub-resources. For more information, see [Bucket-related operations](#) and [Object-related operations](#).
  - Specify response header fields such as `response -***`. For more information, see the `Request Parameters` section of [GetObject](#).
  - Object handling methods, such as `x - oss - process`. It is used as the object handling method, such as [Image Processing](#).

#### Rules to calculate a signature header

- A signature string must be in the `UTF - 8` format. Encode a signature string containing Chinese characters with `UTF - 8` first, and then use it with the `AccessKeyS ecret` to calculate the final signature.
- The signing method adopted is the HMAC-SHA1 method defined in [RFC 2104](#), where Key is `AccessKeyS ecret`.
- `Content - Type` and `Content - MD5` are not required in a request. If the request requires signature verification, the null value can be replaced with the line break `\ n`.
- Among all non-HTTP-standard headers, only the headers starting with `x - oss` require signature strings, and other non-HTTP-standard headers are ignored by OSS. (For example, the “x-oss-magic” header in the preceding example must be added with a signature string.)
- Headers starting with `x - oss -` must comply with the following specifications before being used for signature verification:
  - The header name is changed to lower-case letters.
  - The headers are sorted in a lexicographically ascending order.
  - No space exists before and after the colon, which separates the header name and value.
  - Each header is followed by the line break “`\n`”. If no header is used, `CanonicalizedOSSHeaders` is set to null.

#### Example signature

Assume that `AccessKeyID` is `44CF9590006BF252F707` and `AccessKeySecret` is `OtxrxzIsfpFjA7SwPzILwy8Bw21TLhquhboDYROV`.



Request	Signature string calculation formula	Signature string
<b>PUT /nelson HTTP/1.0</b> <b>Content-MD5: eB5eJF1ptW</b> <b>aXm4bijSPyxw== Content-</b> <b>Type: text/html Date: Thu,</b> <b>17 Nov 2005 18:49:58 GMT</b> <b>Host: oss-example.oss-cn-</b> <b>hangzhou.aliyuncs.com</b> <b>X-OSS-Meta-Author: foo</b> <b>@bar.com X-OSS-Magic:</b> <b>abracadabra</b>	<b>Signature = base64(</b> <b>hmac-sha1(AccessKeyS</b> <b>ecret,VERB + “\n” +</b> <b>Content-MD5 + “\n</b> <b>” + Content-Type + “\</b> <b>n” + Date + “\n” +</b> <b>CanonicalizedOSSHeaders</b> <b>+ CanonicalizedResource))</b>	<b>“PUT\n eB5eJF1ptW</b> <b>aXm4bijSPyxw==\n text/</b> <b>html\n Thu, 17 Nov 2005 18</b> <b>:49:58 GMT\n x-oss-magic:</b> <b>abracadabra\n x-oss-meta-</b> <b>author:foo@bar.com\n/oss</b> <b>-example/nels</b>

The signature calculation method is as follows:

Python sample code:

```
import base64
import hmac
import sha
h = hmac.new("0txrzxIsfp FjA7SwPzIL wy8Bw21TLh quhboDYROV ",
             "PUT \n0DBG0ERFM DMzQTczRUY 3NUE3NzA5Q zdfNUYzMDQ\n"
             "text / html \nThu , 17 Nov 2005 18 : 49 : 58 GMT\n"
             "x-oss-magic : abracadabra \n x-oss-meta-author : foo @\n"
             "bar . com \n / oss - example / nelson ", sha)
Signature = base64.b64encode(h.digest())
print("Signature : %s" % Signature)
```

The signature calculation result is 26NBxoKdsyly4EDv6inkoDft/yA=. According to the formula Authorization = “OSS “ + AccessKeyID + “:” + Signature, the value of Authorization is OSS 44CF9590006BF252F707:26NBxoKdsyly4EDv6inkoDft/yA=. The value is added with the authorization header to form the message to be sent:

```
PUT /nelson HTTP / 1 . 0
Authorizat ion : OSS 44CF959000 6BF252F707 : 26NBxoKdsy
ly4EDv6ink oDft / yA =
Content - Md5 : eB5eJF1ptW aXm4bijSPy xw ==
Content - Type : text / html
Date : Thu , 17 Nov 2005 18 : 49 : 58 GMT
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
X - OSS - Meta - Author : foo @ bar . com
X - OSS - Magic : abracadabr a
```

Detail analysis are as follows:

- If the input AccessKeyID does not exist or is inactive, the error 403 Forbidden is returned. Error code: InvalidAccessKeyId.

- If the authorization value format in the user request header is incorrect, the error 400 Bad Request is returned. Error code: InvalidArgument.
- All the requests of OSS must use the GMT time format stipulated by the HTTP 1.1 protocol. Specifically, the date format is: `date1 = 2DIGIT SP month SP 4DIGIT ; day month year ( for example , 02 Jun 1982 )`. In the preceding date format, “day” occupies “2 digits” . Therefore, “Jun 2” , “2 Jun 1982” , and “2-Jun-82” are all invalid date formats.
- If Date is not input into the header or the format is incorrect during signature verification, the error 403 Forbidden is returned. Error code: AccessDenied.
- The request must be entered within 15 minutes based on the current time of the OSS server; otherwise, the error 403 Forbidden is returned. Error code: RequestTimeTooSkewed.
- If the AccessKeyID is active but OSS determines that the signature of the user request is incorrect, the error 403 Forbidden is returned, and the correct signature string for verification and encryption is returned to the user in the response message. The user can check whether or not the signature string is correct based on the response of OSS.

Response example:

```
<? xml version =" 1 . 0 " ? >
< Error >
  < Code >
    SignatureDoesNotMatch
  </ Code >
  < Message >
    The request signature we calculated does not
    match the signature you provided . Check your key
    and signing method .
  </ Message >
  < StringToSignBytes >
    47 45 54 0a 0a 0a 57 65 64 2c 20 31 31
    20 4d 61 79 20 32 30 31 31 20 30 37 3a
    35 39 3a 32 35 20 47 4d 54 0a 2f 75 73 72
    65 61 6c 74 65 73 74 3f 61 63 6c
  </ StringToSignBytes >
  < RequestId >
    1E446260FF 9B10C2
  </ RequestId >
  < HostId >
    oss-cn-hangzhou.aliyuncs.com
  </ HostId >
  < SignatureProvided >
    y5H7yzPsA / tP4 + 0tH1HHvPEw Uv8 =
  </ SignatureProvided >
  < StringToSign >
    GET
    Wed , 11 May 2011 07 : 59 : 25 GMT
    / oss-example ? acl
```

```
</ StringToSign >
< OSSAccessKeyId >
    AKIAIIVAKMS MOY7VOMRWQ
</ OSSAccessKeyId >
</ Error >
```

## Common problem

### Content-MD5 calculation method

```
Content - MD5 calculation
The message content "123456789" is used as an example.
The Content - MD5 value of the string is calculated as follows:
The algorithm defined in related standards can be simplified to the following:
Calculate the MD5 - encrypted 128 - bit binary array.
Encode the binary array (instead of the 32 - bit string code) with Base64.
Python is used as an example.
The correct calculation code is:
>>> import base64, hashlib
>>> hash = hashlib.md5()
>>> hash.update("0123456789")
>>> base64.b64encode(hash.digest())
'eB5eJF1ptW aXm4bijSPy xw =='
Note:
The correct code is: hash.digest(), used to calculate a 128 - bit binary array
>>> hash.digest()
'x \ x1e ^$] i \ xb5f \ x97 \ x9b \ x86 \ xe2 \ x8d #\ xf2 \ xc7 '
The common error is to base 64 the computed 32 - Bit String encoding directly.
An incorrect example: hash.hexdigest(), and a visible 32 - bit string is calculated.
>>> hash.hexdigest()
'781e5e245d 69b566979b 86e28d23f2 c7 '
Result of encoding the incorrect MD5 value with Base64:
>>> base64.b64encode(hash.hexdigest())
'NzgxZTVlMj Q1ZDY5YjU2 Njk3OWI4Nm UyOGQyM2Yy Yzc ='
```

## 4.3 Add a signature to a URL

In addition to using an authorization header, you can also add signature information to a URL so that you can forward the URL to the third party for authorized access.

### Sample code

Python sample code used to add a signature to a URL:

```
import base64
import hmac
import sha
import urllib
h = hmac.new("OtxrzxIsfp FjA7SwPzIL wy8Bw21TLh quhboDYROV ",
             "GET \n \n \n114188912 0 \n / oss - example / oss - api . pdf ",
```

```
sha )
urllib . quote ( base64 . encodestri ng ( h . digest ( ) ) . strip ( ) )
```

OSS SDK provides the method for adding a signature into an URL. For the detailed usage, see [Authorized access in OSS SDK documentation](#).

To add a signature to the OSS SDK URL, see the following table.

SDK	URL signature method	Implementation file
Java SDK	OSSClient.generatePresignedUrl	<a href="#">OSSClient.java</a>
Python SDK	Bucket.sign_url	<a href="#">api.py</a>
Net SDK	OssClient.GeneratePresignedUri	<a href="#">OssClient.cs</a>
PHP SDK	OssClient.signUrl	<a href="#">OssClient.php</a>
JavaScript SDK	signatureUrl	<a href="#">object.js</a>
C SDK	oss_gen_signed_url	<a href="#">oss_object.c</a>

## Implementation

URL signature example:

```
http :// oss - example . oss - cn - hangzhou . aliyuncs . com / oss
- api . pdf ? OSSAccessK eyId = nz2pc56s93 6 ** 9l & Expires =
1141889120 & Signature = vjbyPxybdZ aNmGa % 2ByT272YEA iv4 % 3D
```

The URL signature must include at least the following three parameters: `Signature`, `Expires`, and `OSSAccessK eyId`.

- The `Expires` parameter indicates the timeout period of a URL. The value of this parameter is [UNIX time](#) (which is the number of seconds that have elapsed since 00:00:00 UTC, January 1, 1970). If the time when OSS receives the URL request is later than the value of the `Expires` parameter included in the signature, an error code of request timed-out is returned. For example, if the current time is 1141889060, to create a URL that is scheduled to expire in 60 seconds, you can set the value of `Expires` to 1141889120. The valid period of a URL is 3,600 seconds by default and 64,800 seconds in maximum.
- `OSSAccessK eyId` refers to the AccessKeyID in the key.

- **Signature** indicates the signature information. For all requests and header parameters that OSS supports, the algorithm for adding a signature to a URL is basically the same as that of [Adding a signature to a header](#).

```
Signature = urlencode ( base64 ( hmac - sha1 ( AccessKeyS  ecret
,
    VERB + "\ n "
+ CONTENT - MD5 + "\ n "
+ CONTENT - TYPE + "\ n "
+ EXPIRES + "\ n "
+ Canonicali zedOSSHead ers
+ Canonicali zedResourc e )))
```

The differences are listed as follows:

- When a signature is added to a URL, the Date parameter is replaced by the Expires parameter.
- Signatures cannot be included in a URL and the Header at the same time.
- If the value of Signature, Expires, or AccessKeyId is passed in for multiple times, the value passed for the first time is used.
- Before the signature is verified, the request time is verified to check whether it is later than the value of Expires.
- Before adding the signature string into a URL, perform the UrlEncode for the URL.
- When you add the signature to a URL as a temporary user, the **security - token** must also be included. The format is as follows:

```
http :// oss - example . oss - cn - hangzhou . aliyuncs . com / oss
- api . pdf ? OSSAccessK eyId = nz2pc56s93 6 ** 9l & Expires =
1141889120 & Signature = vjbyPxybdZ aNmGa % 2ByT272YEA iv4 % 3D &
security - token = SecurityTo ken
```


#### Detail analysis


- If you add a signature to a URL, the authorized data is exposed on the Internet before the authorization period expires. We recommend that you assess the risks in advance.
- PUT and GET requests support adding a signature in a URL.
- When a signature is added to a URL, the sequence of Signature, Expires, and AccessKeyId can be swapped. However, if one or more of the Signature, Expires, or AccessKeyId parameter is missing, the 403 Forbidden error message is returned with the error code: AccessDenied.

- If the current access time is later than the value of Expires set in the request or the format of Expires is incorrect, the 403 Forbidden error message is returned with the error code: AccessDenied.
- If the URL includes one or more of the Signature, Expires, or AccessKeyId parameter and the header also includes signature information, the 400 Bad Request error message is returned with the error code: InvalidArgument.
- When the signature string is generated, the Date parameter is replaced by the Expires parameter, but the headers defined in the preceding section, such as content-type and content-md5, are still included. (The Date header is still included in the request, but it does not need to be added into the signature string.)

## 4.4 Bucket access control

OSS provides an Access Control List (ACL) for bucket-level access control. Currently, three ACLs are available for a bucket: public-read-write, public-read, and private.

ACL	Permission	Description
public-read-write	Public read and write	<p>Any user (including anonymous users) can perform read/write operations, and delete operations on objects in the bucket.</p> <div> <b>Warning:</b> We recommend you that do not set the ACL of a bucket to public-read-write to avoid incurring excessive fees or having your account suspended due to malicious or illegal activities of another user.</div>

ACL	Permission	Description
public-read	Public read and private write	<p>Only the owner of the bucket can perform write operations on objects in the bucket. All other users (including anonymous users) can only perform read operations on objects in the bucket.</p> <div> <b>Warning:</b> We recommend that you exercise caution when setting this ACL because it authorizes any user to perform read operations on objects in the bucket through the Internet, which may incur excessive fees.</div>
private	Private read and write	<p>Only the owner of the bucket can perform read/write operations on the objects in the bucket. Other users cannot access the objects.</p>

**Note:**

- If you do not set an ACL for a bucket when you create it, its ACL is set to private automatically.
- If the ACL rule of the bucket is set to private, only authorized users can access and operate on objects in the bucket. For more information about access control, see [Access control](#).
- Only the creator of an existing bucket can modify the ACL for the bucket by using the PutBucketACL API.

## 5 Service operations

### 5.1 GetService (ListBuckets)

Sending a Get request to the server can return all buckets owned by the requester, and “/” represents the root directory.

#### Request syntax

```
GET / HTTP / 1 . 1
Host : oss . example . com
Date : GMT Date
Authorizat ion : SignatureV alue
```

#### Request parameters

When using GetService(ListBuckets), you can prescribe a limit to the list with a prefix, marker, and max-uploads to return partial results.

Table 5-1: Request parameters

Name	Type	Required	Description
prefix	string	No	Indicates that only the buckets whose names match a specified prefix are returned. If this parameter is not specified, prefix information is not used as a filter.  Default value: None
marker	string	No	Indicates that the returned results start with the first entry after the marker in an alphabetical order. If this parameter is not specified, all entries are returned from the start.  Default value: None
max-keys	string	No	Limits the maximum number of buckets returned for one request. If this parameter is not specified, the default value 100 is used. The value cannot exceed 1000.  Default value: 100



## Response elements

Name	Type	Description
ListAllMyBucketsResult	container	Container for saving results of the Get Service request.  Subnode: Owner and Buckets  Parent node: None
Prefix	string	Prefix of the returned bucket names for one request. This node is available only when not all buckets are returned.  Parent node: ListAllMyBucketsResult
Marker	string	Start point of the current GetService(ListBuckets) request. This node is available only when not all buckets are returned.  Parent node: ListAllMyBucketsResult
Maxkeys	string	The maximum number of returned results for one request. This node is available only when not all buckets are returned.  Parent node: ListAllMyBucketsResult
IsTruncated	Enumerated string	Indicates whether all results have been returned. “true” means that not all results are returned this time; “false” means that all results are returned this time. This node is available only when not all buckets are returned.  Valid values: true and false  Parent node: ListAllMyBucketsResult
NextMarker	string	To indicate that this can be counted as a marker for the next GetService(ListBuckets) request to return the unreturned results. This node is available only when not all buckets are returned.  Parent node: ListAllMyBucketsResult

Name	Type	Description
Owner	container	Container used for saving the information about the bucket owner.  Parent node: ListAllMyBucketsResult
ID	String	User ID of the bucket owner.  Parent node: ListAllMyBucketsResult. Owner
DisplayName	string	Name of the bucket owner (the same as the ID currently).  Parent node: ListAllMyBucketsResult. Owner
Buckets	container	Container used for saving the information about multiple Buckets.  Subnode: Bucket  Parent node: ListAllMyBucketsResult
Bucket	container	Container used for saving the bucket information.  Subnodes: Name, CreationDate, and Location  Parent node: ListAllMyBucketsResult. Buckets
Name	string	Bucket name.  Parent node: ListAllMyBucketsResult. Buckets.Bucket
CreateDate	time (format: yyyy-mm-ddThh:mm:ss.timezone, for example, 2011-12-01T12:27:13.000Z)	Bucket creation time.  Parent node: ListAllMyBucketsResult. Buckets.Bucket

Name	Type	Description
Location	string	Indicates the data center in which a bucket is located.  Parent node: ListAllMyBucketsResult. Buckets.Bucket
ExtranetEndpoint	string	Internet domain name accessed by the bucket.  Parent node: ListAllMyBucketsResult. Buckets.Bucket
IntranetEndpoint	string	Intranet domain name accessed by the ECS in the same region.  Parent node: ListAllMyBucketsResult. Buckets.Bucket
StorageClass	string	Indicates the bucket storage type. “Standard” , “IA” , and “Archive” types are available. (The “Archive” type is only available in some regions currently.)  Parent node: ListAllMyBucketsResult. Buckets.Bucket

### Detail analysis

- The API of GetService is valid only for those users who have been authenticated.
- If no information for user authentication is provided in a request (namely an anonymous access), 403 Forbidden is returned. The error code is “AccessDenied” .
- When all buckets are returned, the returned XML does not contain the nodes Prefix , Marker, MaxKeys, IsTruncated, and NextMarker. If some results are not returned yet, the preceding nodes are added, in which NextMarker is used to assign the marker for the successive query.

### Example

#### Request example I

```
GET / HTTP / 1 . 1
Date : Thu , 15 May 2014 11 : 18 : 32 GMT
Host : oss - cn - hangzhou . aliyuncs . com
```

```
Authorization : OSS nxj7dtl ***** hcyl5hpvnh i : COS30QkfQ
***** TEHYv2qUl5 jI =
```

### Return example I

```
HTTP / 1 . 1 200 OK
Date : Thu , 15 May 2014 11 : 18 : 32 GMT
Content - Type : application / xml
Content - Length : 556
Connection : keep - alive
Server : AliyunOSS
x - oss - request - id : 5374A28802 32A65C2300 2D74
<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< ListAllMyBucketsResult >
  < Owner >
    < ID > 51264 </ ID >
    < DisplayName > 51264 </ DisplayName >
  </ Owner >
  < Buckets >
    < Bucket >
      < CreationDate > 2015 - 12 - 17T18 : 12 : 43 . 000Z </
CreationDate >
      < ExtranetEndpoint > oss - cn - shanghai . aliyuncs . com </
ExtranetEndpoint >
      < IntranetEndpoint > oss - cn - shanghai - internal . aliyuncs
. com </ IntranetEndpoint >
      < Location > oss - cn - shanghai </ Location >
      < Name > app - base - oss </ Name >
      < StorageClass > Standard </ StorageClass >
    </ Bucket >
    < Bucket >
      < CreationDate > 2014 - 12 - 25T11 : 21 : 04 . 000Z </
CreationDate >
      < ExtranetEndpoint > oss - cn - hangzhou . aliyuncs . com </
ExtranetEndpoint >
      < IntranetEndpoint > oss - cn - hangzhou - internal . aliyuncs
. com </ IntranetEndpoint >
      < Location > oss - cn - hangzhou </ Location >
      < Name > atestleo23 </ Name >
      < StorageClass > IA </ StorageClass >
    </ Bucket >
  </ Buckets >
</ ListAllMyBucketsResult >
```

### Request example II

```
GET /? prefix = xz02tphky6 fjfiuc & max - keys = 1 HTTP / 1 . 1
Date : Thu , 15 May 2014 11 : 18 : 32 GMT
Host : oss - cn - hangzhou . aliyuncs . com
Authorization : OSS nxj7dtl ***** hcyl5hpvnh i : COS30QkfQ
***** TEHYv2qUl5 jI =
```

### Return example II

```
HTTP / 1 . 1 200 OK
Date : Thu , 15 May 2014 11 : 18 : 32 GMT
Content - Type : application / xml
Content - Length : 545
Connection : keep - alive
Server : AliyunOSS
x - oss - request - id : 5374A28802 32A65C2300 2D75
```

```

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< ListAllMyBucketsResult >
  < Prefix > xz02tphky6 fjfiuc </ Prefix >
  < Marker ></ Marker >
  < MaxKeys > 1 </ MaxKeys >
  < IsTruncated > true </ IsTruncated >
  < NextMarker > xz02tphky6 fjfiuc0 </ NextMarker >
  < Owner >
    < ID > ut_test_put_bucket </ ID >
    < DisplayName > ut_test_put_bucket </ DisplayName >
  </ Owner >
  < Buckets >
    < Bucket >
      < CreationDate > 2014 - 05 - 15T11 : 18 : 32 . 000Z </
CreationDate >
      < ExtranetEndpoint > oss - cn - hangzhou . aliyuncs . com </
ExtranetEndpoint >
      < IntranetEndpoint > oss - cn - hangzhou - internal . aliyuncs
. com </ IntranetEndpoint >
      < Location > oss - cn - hangzhou </ Location >
      < Name > xz02tphky6 fjfiuc0 </ Name >
      < StorageClass > Standard </ StorageClass >
    </ Bucket >
  </ Buckets >
</ ListAllMyBucketsResult >

```

## 6 Bucket operations

### 6.1 PutBucket

Creates a bucket.



#### Note:

- Anonymous access is not supported.
- A user can create a maximum of 30 buckets in a region.
- Each region has an endpoint. For more information, see [Regions and endpoints](#).

#### Request syntax

```
PUT / HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
x - oss - acl : Permission
Authorization : SignatureValue
<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< CreateBucketConfiguration >
  < StorageClass > Standard </ StorageClass >
</ CreateBucketConfiguration >
```

#### Request header

Table 6-1: Request header

Parameter	Type	Required	Description
x - oss - acl	String	No	<p>Specifies the ACL for the bucket.</p> <p><b>Valid values:</b> public - read - write , public - read , and private</p> <div> </div> <p><b>Note:</b> If you do not set an ACL for a bucket when creating it, the ACL for the bucket is set to private by default.</p>

## Request element

Table 6-2: Request element

Element	Type	Description
StorageClass	String	Specifies the storage class of the bucket.  Valid values: Standard , IA , and Archive .

## Examples

### Request example:

```
PUT / HTTP/1.1
Host: oss-example.oss-cn-hangzhou.aliyuncs.com
Date: Fri, 24 Feb 2017 03:15:40 GMT
x-oss-acl: private
Authorization: OSS qn6qrrqxo2 oawuk53otf jbyc:77Dvh5wQgIjWjw0/KyRt8dOPfo8=
<?xml version="1.0" encoding="UTF-8"?>
<CreateBucketConfiguration>
  <StorageClass>Standard</StorageClass>
</CreateBucketConfiguration>
```

### Response example:

```
HTTP/1.1 200 OK
x-oss-request-id: 534B371674 E88A4D8906 008B
Date: Fri, 24 Feb 2017 03:15:40 GMT
Location: /oss-example
Content-Length: 0
Connection: keep-alive
Server: AliyunOSS
```

## SDK

SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)
- [Android](#)
- [iOS](#)

- [Node.js](#)
- [Ruby](#)

#### Error code

Error code	HTTP status code	Description
InvalidBucketName	400	The bucket name does not conform to the naming convention.
AccessDenied	403	<ul style="list-style-type: none"> <li>• Authentication information is not carried in a PutBucket request</li> <li>• You are not authorized to perform operations on the bucket.</li> </ul>
TooManyBuckets	400	More than 30 buckets are created within a region.

## 6.2 DeleteBucket

Deletes a bucket.



#### Note:

- Only the owner of a bucket can delete the bucket.
- To prevent accidental deletion, users are not allowed to delete a bucket that is not empty.

#### Request syntax

```
DELETE / HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorization : SignatureV alue
```

#### Examples

- Delete a bucket normally.

#### Request example:

```
DELETE / HTTP / 1 . 1
Host : test . oss - cn - hangzhou . aliyuncs . com
Accept - Encoding : identity
User - Agent : aliyun - sdk - python / 2 . 6 . 0 ( Windows / 7 /
AMD64 ; 3 . 7 . 0 )
Accept : */*
Connection : keep - alive
date : Tue , 15 Jan 2019 08 : 19 : 04 GMT
```



```

authorizat ion : OSS   qn6qrrqxo2   oawuk53otf   jbyc : ce0EyZavKY
4QcjoUWYSp   YbJ3naA =
Content - Length : 0

```

**Response example:**

```

HTTP / 1 . 1   204   No   Content
Server : AliyunOSS
Date : Tue , 15   Jan   2019   08 : 19 : 04   GMT
Content - Length : 0
Connection : keep - alive
x - oss - request - id : 5C3D9778CC   1C2AEDF85B   D9B7
x - oss - server - time : 190

```

- The bucket to be deleted does not exist.

**Request example:**

```

DELETE / HTTP / 1 . 1
Host : test . oss - cn - hangzhou . aliyuncs . com
Accept - Encoding : identity
User - Agent : aliyun - sdk - python / 2 . 6 . 0 ( Windows / 7 /
AMD64 ; 3 . 7 . 0 )
Accept : */*
Connection : keep - alive
date : Tue , 15   Jan   2019   07 : 53 : 24   GMT
authorizat ion : OSS   qn6qrrqxo2   oawuk53otf   jbyc : ce0EyZavKY
4QcjoUWYSp   YbJ3naA =
Content - Length : 0

```

**Response example:**

```

HTTP / 1 . 1   404   Not   Found
Server : AliyunOSS
Date : Tue , 15   Jan   2019   07 : 53 : 25   GMT
Content - Type : applicatio n / xml
Content - Length : 288
Connection : keep - alive
x - oss - request - id : 5C3D9175B6   FC201293AD   4890

<? xml   version =" 1 . 0 "   encoding =" UTF - 8 "? >
< Error >
  < Code > NoSuchBuck et </ Code >
  < Message > The   specified   bucket   does   not   exist . </
Message >
  < RequestId > 5C3D9175B6   FC201293AD   4890 </ RequestId >
  < HostId > test . oss - cn - hangzhou . aliyuncs . com </ HostId >
  < BucketName > test </ BucketName >
</ Error >

```

- The bucket to be deleted is not empty.

**Request example:**

```

DELETE / HTTP / 1 . 1
Host : test . oss - cn - hangzhou . aliyuncs . com
Accept - Encoding : identity
User - Agent : aliyun - sdk - python / 2 . 6 . 0 ( Windows / 7 /
AMD64 ; 3 . 7 . 0 )
Accept : */*

```

```

Connection : keep - alive
date : Tue , 15 Jan 2019 07 : 35 : 06 GMT
authorizat ion : OSS qn6qrrqxo2 oawuk53otf jbyc : ce0EyZavKY
4QcjoUWYSp YbJ3naA =
Content - Length : 0

```

### Response example:

```

HTTP / 1 . 1 409 Conflict
Server : AliyunOSS
Date : Tue , 15 Jan 2019 07 : 35 : 06 GMT
Content - Type : applicatio n / xml
Content - Length : 296
Connection : keep - alive
x - oss - request - id : 5C3D8D2A0A CA54D87B43 C048
x - oss - server - time : 16

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< Error >
  < Code > BucketNotE mpty </ Code >
  < Message > The bucket you tried to delete is not
empty . </ Message >
  < RequestId > 5C3D8D2A0A CA54D87B43 C048 </ RequestId >
  < HostId > test . oss - cn - hangzhou . aliyuncs . com </ HostId >
  < BucketName > test </ BucketName >
</ Error >

```

### SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)
- [Android](#)
- [iOS](#)
- [Node.js](#)
- [Ruby](#)

### Error codes

Error code	HTTP status code	Description
AccessDenied	403 Forbidden	You do not have the permission to delete the bucket. Only the owner of a bucket can delete the bucket.

## 6.3 PutBucketACL

Modifies the ACL for a bucket. Only the bucket owner can perform this operation.



### Note:

When the bucket owner initiates a PutBucketACL request:

- The ACL is updated if the bucket already exists and has a different ACL.
- A bucket with the requested ACL is created if the requested bucket does not exist.

### Request syntax

```
PUT  /?  acl  HTTP / 1 . 1
x - oss - acl : Permission
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorizat ion : SignatureV alue
```

### Request header

Parameter	Type	Required	Description
x-oss-acl	String	Yes	<p>Specifies the ACL for the bucket.</p> <p>This parameter is included in the PutBucketACL request to set the ACL for the bucket. If this header is not included, the ACL settings do not take effect.</p> <p>Valid values: public-read-write, public-read, and private</p>

### Examples

#### Request example:

```
PUT  /?  acl  HTTP / 1 . 1
x - oss - acl : public - read
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Fri , 24 Feb 2012 03 : 21 : 12 GMT
Authorizat ion : OSS qn6qrrqxo2 oawuk53otf jbyc : KU5h8YMUC7
8M30dXqf3J xrTZHiA =
```

#### Normal response example:

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Fri , 24 Feb 2012 03 : 21 : 12 GMT
Content - Length : 0
```

```
Connection : keep - alive
Server : AliyunOSS
```

Response example that indicates that the ACL settings do not take effect:

```
HTTP / 1 . 1 400 Bad Request
x - oss - request - id : 5659429820 7FB3044385 16F9
Date : Fri , 24 Feb 2012 03 : 55 : 00 GMT
Content - Length : 309
Content - Type : text / xml ; charset = UTF - 8
Connection : keep - alive
Server : AliyunOSS

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< Error >
  < Code > InvalidArgument </ Code >
  < Message > no such bucket access control exists </
  Message >
  < RequestId > 5 *** 9 </ RequestId >
  < HostId >***- test . example . com </ HostId >
  < ArgumentName > x - oss - acl </ ArgumentName >
  < ArgumentValue > error - acl </ ArgumentValue >
</ Error >
```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)
- [Node.js](#)
- [Ruby](#)

## Error code

Error code	HTTP status code	Description
AccessDenied	403	<ul style="list-style-type: none"> <li>• Authentication information about the user is not included in the PutBucketACL request.</li> <li>• You do not have the permission to initiate a PutBucketACL request. Only the bucket owner can perform this operation.</li> </ul>

## 6.4 GetBucketAcl

Obtains the ACL for a bucket. Only the owner of a bucket can obtain the ACL for the bucket.

### Request syntax

```
GET /? acl HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorization : SignatureV alue
```

### Response elements

Elements	Type	Description
Accesscontrollist	Container	Specifies the container used to store the ACL information.  Parent node: AccessControlPolicy
AccessControlPolicy	Container	Specifies the container that stores the result to the GetBucketACL request.  Parent node: None
Displayname	String	Indicates the name of the bucket owner, which is the same as the value of ID.  Parent Node: AccessControlPolicy.Owner
Grant	Enumerated string	Indicates the ACL for the bucket.  Valid values: private , public - read ,and public - read - write  Parent node: AccessControlPolicy.AccessControlList
ID	String	Indicates the user ID of the bucket owner.  Parent node: AccessControlPolicy.Owner
Owner	Container	Indicates the container used to store the information about the bucket owner.  Parent node: AccessControlPolicy

## Examples

### Request example:

```
GET /? acl HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Fri , 24 Feb 2012 04 : 11 : 23 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : CTKuxpLAI4
XZ + WwIfNm0Fmg brQ0 =
```

### Response example:

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Fri , 24 Feb 2012 04 : 11 : 23 GMT
Content - Length : 253
Content - Type : applicatio n / xml
Connection : keep - alive
Server : AliyunOSS

<? xml version =" 1 . 0 " ? >
< AccessCont rolPolicy >
  < Owner >
    < ID > 0022012022 2 </ ID >
    < DisplayNam e > user_examp le </ DisplayNam e >
  </ Owner >
  < AccessCont rolList >
    < Grant > public - read </ Grant >
  </ AccessCont rolList >
</ AccessCont rolPolicy >
```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)
- [Node.js](#)
- [Ruby](#)

## Error codes

Error code	HTTP status code	Description
NoSuchBucket	404	The target bucket does not exist.

Error code	HTTP status code	Description
AccessDenied	403	You do not have the permission to perform this operation. Only the owner of a bucket can obtain the ACL for the bucket.

## 6.5 PutBucketLifecycle

Configures the lifecycle rules for a bucket. After lifecycle rules are configured for a bucket, OSS automatically deletes the objects that conform to the lifecycle rules on a regular basis. Only the owner of a bucket can initiate a PutBucketLifecycle request.



### Note:

- If no lifecycle rules have been configured for a bucket, the PutBucketLifecycle operation creates a new lifecycle rule. If a lifecycle rule is configured for the bucket, this operation overwrites the previous lifecycle rule.
- You can perform the PutBucketLifecycle operation to set the expiration time of objects and parts that are not completely uploaded in multipart upload tasks).

### Request syntax


```
PUT /? lifecycle HTTP / 1 . 1
Date : GMT Date
Content - Length : ContentLength
Content - Type : application/xml
Authorization : SignatureValue
Host : BucketName.oss.aliyuncs.com
<?xml version="1.0" encoding="UTF-8"?>
< LifecycleConfiguration >
  < Rule >
    < ID > RuleID </ ID >
    < Prefix > Prefix </ Prefix >
    < Status > Status </ Status >
    < Expiration >
      < Days > Days </ Days >
    </ Expiration >
    < Transition >
      < Days > Days </ Days >
      < StorageClass > StorageClass </ StorageClass >
    </ Transition >
    < AbortMultipartUpload >
      < Days > Days </ Days >
    </ AbortMultipartUpload >
  </ Rule >
</ LifecycleConfiguration >
```



```
</ LifecycleConfiguration >
```

## Request elements

Element	Type	Required?	Description
CreatedBeforeDate	String	One of Days and CreatedBeforeDate is required.	Specifies the time before which the rules take effect. The date must conform to the ISO8601 format and always be UTC 00:00. For example: 2002-10-11T00:00:00.000Z indicates that objects updated before 2002-10-11T00:00:00.000Z are deleted or converted to another storage class, and objects updated after this time (including this time) are not deleted or converted.  Parent node: Expiration or AbortMultipartUpload
Days	Positive integer	One of Days and CreatedBeforeDate is required.	Specifies how many days after the object is updated for the last time until the rules take effect.  Parent node: Expiration
Expiration	Container	No	Specifies the expiration attribute of the lifecycle rules for the object.  Sub-node: Days or CreatedBeforeDate  Parent node: Rule
AbortMultipartUpload	Container	No	Specifies the expiration attribute of the multipart upload tasks that are not complete.  Sub-node: Days or CreatedBeforeDate  Parent node: Rule



Element	Type	Required?	Description
ID	String	No	<p>Indicates the unique ID of a lifecycle rule. An ID is composed of 255 bytes at most. If the value of ID is not specified or null, OSS automatically generates a unique ID for the rule.</p> <p>Sub-node: None</p> <p>Parent node: Rule</p>
LifecycleConfiguration	Container	Yes	<p>Specifies the container used to store lifecycle configurations, which can store a maximum of 1,000 rules.</p> <p>Sub-node: Rule</p> <p>Parent node: None</p>
Prefix	String	Yes	<p>Specifies the prefix applicable to a rule. Only objects with a matching prefix are affected by the rule. A prefix cannot be overlapped.</p> <p>Sub-node: None</p> <p>Parent node: Rule</p>
Rule	Container	Yes	<p>Expresses a rule.</p> <div>  <b>Note:</b> <ul style="list-style-type: none"> <li>You cannot create a rule to convert the storage class of an Archive bucket.</li> <li>The expiration time of an object must be longer than the time period after which the object is converted into the IA or Archive storage class.</li> </ul> </div> <p>Sub-nodes: ID, Prefix, Status, and Expiration</p> <p>Parent node: LifecycleConfiguration</p>

Element	Type	Required?	Description
Status	String	Yes	<p>If the value of this parameter is <code>Enabled</code>, OSS executes this rule regularly. If this value of this parameter is <code>Disabled</code>, OSS ignores this rule.</p> <p>Parent node: Rule</p> <p>Valid value: <code>Enabled</code>, <code>Disabled</code></p>
StorageClass	String	Required if Transition is configured.	<p>Specifies the storage class that objects that conform to the rule are converted into.</p> <div>  <b>Note:</b>            The storage class of the objects in a bucket of the IA storage class can be converted into Archive but cannot be converted into Standard.         </div> <p>Value: <code>IA</code>, <code>Archive</code></p> <p>Parent node: Transition</p>
Transition	Container	No	<p>Specifies the time when an object is converted to the IA or archive storage class during a valid life cycle.</p> <div>  <b>Note:</b>            An object of the Standard storage class in a bucket of the same storage class can be converted into the IA or Archive storage class. However, the time when the object is converted to the Archive storage class must be longer than that when it is converted to the IA storage class.         </div>
Tag	Container	No	<p>Specifies the object tag applicable to a rule. Multiple tags are supported.</p> <p>Parent node: Rule</p> <p>Sub-nodes: Key and Value</p>

Element	Type	Required?	Description
Key	String	Required is Tag is configured.	Indicates the tag key.  Parent node: Tag
Value	String	Required is Tag is configured.	Indicates the tag value.  Parent node: Tag

## Examples

### Request example:

```
PUT /? lifecycle HTTP / 1 . 1
Host : oss - example . oss . aliyuncs . com
Content - Length : 443
Date : Thu , 8 Jun 2017 13 : 08 : 38 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf ****: PYbzsdWSMr
AIWAlMW8lu We ****
<? xml version =" 1 . 0 " encoding =" UTF - 8 ">
< LifecycleC onfigurati on >
  < Rule >
    < ID > delete objects and parts after one day </ ID >
    < Prefix > logs </ Prefix >
    < Status > Enabled </ Status >
    < Expiration >
      < Days > 1 </ Days >
    </ Expiration >
    < AbortMulti partUpload >
      < Days > 1 </ Days >
    </ AbortMulti partUpload >
  </ Rule >
  < Rule >
    < ID > transit objects to IA after 30 , to Archive
60 , expire after 10 years </ ID >
    < Prefix > data </ Prefix >
    < Status > Enabled </ Status >
    < Transition >
      < Days > 30 </ Days >
      < StorageCla ss > IA </ StorageCla ss >
    </ Transition >
    < Transition >
      < Days > 60 </ Days >
      < StorageCla ss > Archive </ StorageCla ss >
    </ Transition >
    < Expiration >
      < Days > 3600 </ Days >
    </ Expiration >
  </ Rule >
  < Rule >
    < ID > transit objects to Archive after 60 days </ ID
>
    < Prefix > important </ Prefix >
    < Status > Enabled </ Status >
    < Transition >
      < Days > 6 </ Days >
      < StorageCla ss > Archive </ StorageCla ss >
    </ Transition >
```

```

</ Rule >
< Rule >
  < ID > delete    created    before    date </ ID >
  < Prefix > backup </ Prefix >
  < Status > Enabled </ Status >
  < Expiration >
    < CreatedBef oreDate > 2017 - 01 - 01T00 : 00 : 00 . 000Z </
CreatedBef oreDate >
    </ Expiration >
    < AbortMulti partUpload >
      < CreatedBef oreDate > 2017 - 01 - 01T00 : 00 : 00 . 000Z </
CreatedBef oreDate >
    </ AbortMulti partUpload >
  </ Rule >
  < Rule >
    < ID > r1 </ ID >
    < Prefix > rule1 </ Prefix >
    < Tag >< Key > xx </ Key >< Value > 1 </ Value ></ Tag >
    < Tag >< Key > yy </ Key >< Value > 2 </ Value ></ Tag >
    < Status > Enabled </ Status >
    < Expiration >
      < Days > 30 </ Days >
    </ Expiration >
  </ Rule >
  < Rule >
    < ID > r2 </ ID >
    < Prefix > rule2 </ Prefix >
    < Tag >< Key > xx </ Key >< Value > 1 </ Value ></ Tag >
    < Status > Enabled </ Status >
    < Transition >
      < Days > 60 </ Days >
      < StorageCla ss > Archive </ StorageCla ss >
    </ Transition >
  </ Rule >
</ LifecycleC onfigurati on >

```

### Response example:

```

HTTP / 1 . 1    200    OK
x - oss - request - id : 534B371674 E88A4D8906 ****
Date : Thu , 8 Jun 2017 13 : 08 : 38 GMT
Content - Length : 0
Connection : keep - alive
Server : AliyunOSS

```

### SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)

- [Node.js](#)
- [Ruby](#)

### Error codes

Error code	HTTP status code	Description
AccessDenied	403	You do not have the permission to configure the lifecycle rules for a bucket. Only the owner of a bucket can initiate a PutBucketLifecycle request.
InvalidArgument	400	<ul style="list-style-type: none"> <li>· An object of the Standard storage class in a bucket of the same storage class can be converted into the IA or Archive storage class. You can configure individual rules for an object in a bucket of the Standard storage class at the same time to convert the object to the IA and Archive storage classes. However, the time when the object is converted to the Archive storage class must be longer than that when it is converted to the IA storage class.</li> <li>· The expiration time of an object must be longer than the time period after which the object is converted into the IA or Archive storage class.</li> </ul>

## 6.6 GetBucketLifecycle

Views the lifecycle rules for a bucket. Only the owner of a bucket can view the lifecycle rules for the bucket.

### Request syntax

```
GET /? lifecycle HTTP / 1 . 1
Host : BucketName . oss . aliyuncs . com
Date : GMT Date
Authorizat ion : SignatureV alue
```

### Examples

#### Request example:

```
Get /? lifecycle HTTP / 1 . 1
```

```
Host : oss - example . oss . aliyuncs . com
Date : Mon , 14 Apr 2014 01 : 17 : 29 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : ce0EyZavKY
4QcjoUWYSp YbJ3naA =
```

**Response example returned when lifecycle rules are configured for the bucket:**

```
HTTP / 1 . 1 200
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Mon , 14 Apr 2014 01 : 17 : 29 GMT
Connection : keep - alive
Content - Length : 255
Server : AliyunOSS

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< LifecycleC onfigurati on >
  < Rule >
    < ID > delete after one day </ ID >
    < Prefix > logs </ Prefix >
    < Status > Enabled </ Status >
    < Expiration >
      < Days > 1 </ Days >
    </ Expiration >
  </ Rule >
</ LifecycleC onfigurati on >
```

**Response example returned when no bucket lifecycle rules are configured for the bucket:**

```
HTTP / 1 . 1 404
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Mon , 14 Apr 2014 01 : 17 : 29 GMT
Connection : keep - alive
Content - Length : 278
Server : AliyunOSS

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< Error >
  < BucketName > oss - example </ BucketName >
  < Code > NoSuchLife cycle </ Code >
  < Message > No Row found in Lifecycle Table .</ Message >
  < RequestId > 534B372974 E88A4D8906 0099 </ RequestId >
  < HostId > BucketName . oss . example . com </ HostId >
</ Error >
```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)

- [Node.js](#)
- [Ruby](#)

#### Error codes

Error code	HTTP status code	Description
AccessDenied	403 Forbidden	You do not have the permission to view the lifecycle rules for the bucket. Only the owner of a bucket can view the lifecycle rules for the bucket.
NoSuchBucket or NoSuchLifecycle	404 Not Found	The bucket does not exist or no lifecycle rules are configured for the bucket.

## 6.7 DeleteBucketLifecycle

Deletes the lifecycle rules for a specified bucket. After you delete all lifecycle rules for a specified bucket by using this API, the objects stored in the bucket are no longer automatically deleted because of the lifecycle rules. Only the owner of a bucket can delete the lifecycle rules for the bucket.

#### Request syntax

```
DELETE /? lifecycle HTTP / 1 . 1
Host : BucketName . oss . aliyuncs . com
Date : GMT Date
Authorization : SignatureValue
```

#### Examples

##### Request example:

```
DELETE /? lifecycle HTTP / 1 . 1
Host : BucketName . oss . aliyuncs . com
Date : Mon , 14 Apr 2014 01 : 17 : 35 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : 6ZVH0ehYzx
oClyxRydPQ s / CnMZU =
```

##### Response example:

```
HTTP / 1 . 1 204 No Content
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Mon , 14 Apr 2014 01 : 17 : 35 GMT
Connection : keep - alive
Content - Length : 0
```

Server : AliyunOSS

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)
- [Node.js](#)
- [Ruby](#)

## Error codes

Error code	HTTP status code	Description
NoSuchBucket	404	The target bucket does not exist.
AccessDenied	403 Forbidden	You do not have the permission to delete the lifecycle rules for the bucket. Only the owner of a bucket can delete the lifecycle rules for the bucket.

## 6.8 GetBucket (ListObject)

Lists the information about all objects in a bucket.

### Request syntax


```
GET / HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorization : SignatureValue
```

### Request elements

When you initiate a GetBucket (ListObject) request, you can use prefix, marker, delimiter, and max-keys to prescribe a limit to the ListObject operation to return partial results.



Element	Type	Required	Description
delimiter	String	No	Specifies a character used to group object names. All the names of the objects that contain a specified prefix and after which the delimiter occurs for the first time, act as a group of elements, that is, CommonPrefixes.  Default value: None
marker	String	No	Sets the returned results to begin from the first entry after the marker in alphabetical order.  Default value: None
max - keys	String	No	Limits the maximum number of objects returned for one request. The max-keys value cannot exceed 1000.  Default value: 100  If the listing operation cannot be completed at one time because of the limits set by max-keys. A < NextMarker > is included in the response to indicates the marker for the next listing operation.
prefix	String	No	Limits that the returned object key must be prefixed accordingly. Note that the keys returned from queries using a prefix still contain the prefix.  Default value: None

Element	Type	Required	Description
encoding - type	String	No	<p>Encodes the returned results and specifies the encoding type. Parameters delimiter, marker, prefix, NextMarker, and key use UTF-8 characters, but the XML 1.0 Standard does not support parsing certain control characters, such as characters with ASCII values ranging from 0 to 10. If some elements in the returned results contain characters that are not supported by the XML 1.0 Standard, encoding-type can be specified to encode these elements, such as delimiter, marker, prefix, NextMarker, and key.</p> <p>Default value: None</p> <p>Optional value: url</p> <div>  <p><b>Note:</b> XML 1.0 does not support parsing certain control characters, such as characters with ASCII values ranging from 0 to 10. If some elements in the returned results contain characters that are not supported by XML 1.0, you can set the value of encoding-type to encode these elements, such as delimiter, marker, prefix, NextMarker, and key.</p> </div>

### Response elements

Element	Type	Description
Contents	Container	<p>Indicates the container used to store every returned object meta.</p> <p>Parent node: ListBucketResult</p>
CommonPrefixes	String	<p>If the delimiter parameter is specified in the request, the response returned by OSS contains the CommonPrefixes element. This element indicates the set of objects which ends with a delimiter and have a common prefix.</p> <p>Parent node: ListBucketResult</p>

Element	Type	Description
Delimiter	String	<p>Indicates a character used to group object names. All those objects whose names contain the specified prefix and after which the delimiter occurs for the first time, act as a group of elements, that is, CommonPrefixes.</p> <p>Parent node: ListBucketResult</p>
EncodingType	String	<p>Indicates the encoding type for the returned results. If encoding-type is specified in a request, the following elements in the returned results are encoded: delimiter, marker, prefix, NextMarker, and key.</p> <p>Parent node: ListBucketResult</p>
DisplayName	String	<p>Indicates the name of the object owner.</p> <p>Parent node: ListBucketResult.Contents.Owner</p>
ETag	String	<p>The ETag (entity tag) is created when an object is generated and is used to indicate the content of the object.</p> <p>Parent node: ListBucketResult.Contents</p> <p>For an object created by a PutObject request, the value of ETag is the value of MD5 in the content of the object. For an object created in other way, the value of ETag is the UUID in the content of the object . The value of ETag can be used to check whether the content of the object is changed. We recommend that the ETag be used as the MD5 value of the object content to verify data integrity.</p>
ID	String	<p>User ID of the bucket owner.</p> <p>Parent node: ListBucketResult.Contents.Owner</p>

Element	Type	Description
IsTruncated	Enumerated string	<p>Indicates whether all results are returned.</p> <p>Valid values: <code>true</code> and <code>false</code></p> <ul style="list-style-type: none"> <li><code>true</code> indicates that not all results are returned for the request.</li> <li><code>false</code> indicates that all results are returned for the request.</li> </ul> <p>Parent node: ListBucketResult</p>
Key	String	<p>Indicates the key of an object</p> <p>Parent node: ListBucketResult.Contents</p>
LastModified	Time	<p>Indicates the time when the object is last modified.</p> <p>Parent node: ListBucketResult.Contents</p>
ListBucket Result	Container	<p>Indicates the container used to store the results of the GetBucket (ListObject) request.</p> <p>Sub-node: Name, Prefix, Marker, MaxKeys, Delimiter, IsTruncated, Nextmarker, and Contents</p> <p>Parent node: None</p>
Marker	String	<p>Marks the position where the current GetBucket (ListObject) operation starts.</p> <p>Parent node: ListBucketResult</p>
MaxKeys	String	<p>Indicates the maximum number of returned results in the response to the request.</p> <p>Parent node: ListBucketResult</p>
Name	String	<p>Indicates the name of the bucket.</p> <p>Parent node: ListBucketResult</p>
Owner	Container	<p>Indicates the container used to store the information about the bucket owner.</p> <p>Sub-node: DisplayName and ID</p> <p>Parent node: ListBucketResult</p>

Element	Type	Description
Prefix	String	Indicates the prefix of results returned for the request.  Parent node: ListBucketResult
Size	String	Indicates the number of bytes of the object.  Parent node: ListBucketResult.Contents
StorageClass	String	Indicates the storage class of an object. Only the Standard storage class is supported.  Parent node: ListBucketResult.Contents

#### Detail analysis

- The custom meta in the object is not returned during the GetBucket request.
- If the bucket to be accessed does not exist, a 404 Not Found error is returned with the error code NoSuchBucket.
- If you have no permission to access the bucket, OSS returns a 403 Forbidden error with the error code AccessDenied.
- During a conditional query, even if the marker does not exist in the list, the results are printed starting from the letter next to marker in alphabetical order. If the value of max-keys is less than 0 or greater than 1000, a 400 Bad Request error is returned with the error code InvalidArgument.
- If the length of the Prefix, Marker, and Delimiter parameters does not meet the requirement, a 400 Bad Request error is returned with the error code InvalidArgument.
- The Prefix and Marker parameters are used to display the results by pages, and the parameter length must be less than 1024 bytes.
- If you set the value of Prefix to a directory name, you can list all objects with the prefix, that is, all objects and sub-directories in the directory.

If you set the Prefix and set Delimiter to “/”, only the objects in the directory are returned. Sub-directories in the directory are returned in CommonPrefixes. All objects and directories in the sub-directories are not displayed.

For example, the following three objects are stored in a bucket: fun/test.jpg, fun/movie/001.avi, and fun/movie/007.avi. If the Prefix is set to “fun/”, all three

objects are returned. If the delimiter is set to “/” additionally, “fun/test.jpg” and “fun/movie/” are returned.

## Examples

### Simple request example:

```
GET / HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Fri , 24 Feb 2012 08 : 43 : 27 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : BC + oQIXVR2
/ ZgHT7cGa0y kbo04M =
```

### Response example:

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Fri , 24 Feb 2012 08 : 43 : 27 GMT
Content - Type : applicatio n / xml
Content - Length : 1866
Connection : keep - alive
Server : AliyunOSS
<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< ListBucket Result xmlns =" http :// doc . oss - cn - hangzhou .
aliyuncs . com ">
< Name > oss - example </ Name >
< Prefix ></ Prefix >
< Marker ></ Marker >
< MaxKeys > 100 </ MaxKeys >
< Delimiter ></ Delimiter >
  < IsTruncate d > false </ IsTruncate d >
  < Contents >
    < Key > fun / movie / 001 . avi </ Key >
    < LastModifi ed > 2012 - 02 - 24T08 : 43 : 07 . 000Z </
LastModifi ed >
    < ETag >& quot ; 5B3C1A2E05 3D763E1B00 2CC607C5A0 FE & quot
; </ ETag >
    < Type > Normal </ Type >
    < Size > 344606 </ Size >
    < StorageCla ss > Standard </ StorageCla ss >
    < Owner >
      < ID > 0022012022 2 </ ID >
      < DisplayNam e > user - example </ DisplayNam e >
    </ Owner >
  </ Contents >
  < Contents >
    < Key > fun / movie / 007 . avi </ Key >
    < LastModifi ed > 2012 - 02 - 24T08 : 43 : 27 . 000Z </
LastModifi ed >
    < ETag >& quot ; 5B3C1A2E05 3D763E1B00 2CC607C5A0 FE & quot
; </ ETag >
    < Type > Normal </ Type >
    < Size > 344606 </ Size >
    < StorageCla ss > Standard </ StorageCla ss >
    < Owner >
      < ID > 0022012022 2 </ ID >
      < DisplayNam e > user - example </ DisplayNam e >
    </ Owner >
  </ Contents >
< / Contents >
```

```

    < Key > fun / test . jpg </ Key >
    < LastModifi ed > 2012 - 02 - 24T08 : 42 : 32 . 000Z </
LastModifi ed >
    < ETag >&quot ; 5B3C1A2E05 3D763E1B00 2CC607C5A0 FE &quot
;</ ETag >
    < Type > Normal </ Type >
    < Size > 344606 </ Size >
    < StorageCla ss > Standard </ StorageCla ss >
    < Owner >
        < ID > 0022012022 2 </ ID >
        < DisplayNam e > user - example </ DisplayNam e >
    </ Owner >
</ Contents >
< Contents >
    < Key > oss . jpg </ Key >
    < LastModifi ed > 2012 - 02 - 24T06 : 07 : 48 . 000Z </
LastModifi ed >
    < ETag >&quot ; 5B3C1A2E05 3D763E1B00 2CC607C5A0 FE &quot
;</ ETag >
    < Type > Normal </ Type >
    < Size > 344606 </ Size >
    < StorageCla ss > Standard </ StorageCla ss >
    < Owner >
        < ID > 0022012022 2 </ ID >
        < DisplayNam e > user - example </ DisplayNam e >
    </ Owner >
</ Contents >
</ ListBucket Result >

```

### Example of a request including the prefix parameter:

```

GET /? prefix = fun HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Fri , 24 Feb 2012 08 : 43 : 27 GMT
Authorizat ion : OSS qn6qrrqxo2 oawuk53otf jbyc : BC + oQIXVR2
/ ZghT7cGa0y kbo04M =

```

### Response example:

```

HTTP / 1 . 1 200 OK
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Fri , 24 Feb 2012 08 : 43 : 27 GMT
Content - Type : applicatio n / xml
Content - Length : 1464
Connection : keep - alive
Server : AliyunOSS
<? xml version =" 1 . 0 " encoding =" UTF - 8 " ? >
< ListBucket Result xmlns =" http :// doc . oss - cn - hangzhou .
aliyuncs . com ">
< Name > oss - example </ Name >
< Prefix > fun </ Prefix >
< Marker ></ Marker >
< MaxKeys > 100 </ MaxKeys >
< Delimiter ></ Delimiter >
    < IsTruncate d > false </ IsTruncate d >
    < Contents >
        < Key > fun / movie / 001 . avi </ Key >
        < LastModifi ed > 2012 - 02 - 24T08 : 43 : 07 . 000Z </
LastModifi ed >
        < ETag >&quot ; 5B3C1A2E05 3D763E1B00 2CC607C5A0 FE &quot
;</ ETag >
        < Type > Normal </ Type >

```

```

    < Size > 344606 </ Size >
    < StorageClass > Standard </ StorageClass >
    < Owner >
      < ID > 0022012022_2 </ ID >
      < DisplayName > user_example </ DisplayName >
    </ Owner >
  </ Contents >
  < Contents >
    < Key > fun / movie / 007 . avi </ Key >
    < LastModified > 2012 - 02 - 24T08 : 43 : 27 . 000Z </
LastModified >
    < ETag > " 5B3C1A2E05_3D763E1B00_2CC607C5A0_FE " </ ETag >
    < Type > Normal </ Type >
    < Size > 344606 </ Size >
    < StorageClass > Standard </ StorageClass >
    < Owner >
      < ID > 0022012022_2 </ ID >
      < DisplayName > user_example </ DisplayName >
    </ Owner >
  </ Contents >
  < Contents >
    < Key > fun / test . jpg </ Key >
    < LastModified > 2012 - 02 - 24T08 : 42 : 32 . 000Z </
LastModified >
    < ETag > " 5B3C1A2E05_3D763E1B00_2CC607C5A0_FE " </ ETag >
    < Type > Normal </ Type >
    < Size > 344606 </ Size >
    < StorageClass > Standard </ StorageClass >
    < Owner >
      < ID > 0022012022_2 </ ID >
      < DisplayName > user_example </ DisplayName >
    </ Owner >
  </ Contents >
</ ListBucketResult >

```

**Example of a request including the prefix and delimiter parameters:**

```

GET /? prefix = fun /& delimiter =/ HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Fri , 24 Feb 2012 08 : 43 : 27 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : DNrnX7xHk3
sgysx7I8U9 I9IY1vY =

```

**Response example:**

```

HTTP / 1 . 1 200 OK
x - oss - request - id : 534B371674_E88A4D8906_008B
Date : Fri , 24 Feb 2012 08 : 43 : 27 GMT
Content - Type : application / xml
Content - Length : 712
Connection : keep - alive
Server : AliyunOSS
<? xml version =" 1 . 0 " encoding =" UTF - 8 " ? >
< ListBucketResult xmlns =" http :// doc . oss - cn - hangzhou .
aliyuncs . com ">
  < Name > oss - example </ Name >
  < Prefix > fun /</ Prefix >
  < Marker ></ Marker >
  < MaxKeys > 100 </ MaxKeys >
  < Delimiter ></ Delimiter >

```



```

    < IsTruncate d > false </ IsTruncate d >
    < Contents >
      < Key > fun / test . jpg </ Key >
      < LastModifi ed > 2012 - 02 - 24T08 : 42 : 32 . 000Z </
LastModifi ed >
      < ETag >& quot ; 5B3C1A2E05 3D763E1B00 2CC607C5A0 FE & quot
; </ ETag >
      < Type > Normal </ Type >
      < Size > 344606 </ Size >
      < StorageCla ss > Standard </ StorageCla ss >
      < Owner >
        < ID > 0022012022 2 </ ID >
        < DisplayNam e > user_examp le </ DisplayNam e >
      </ Owner >
    </ Contents >
    < CommonPref ixes >
      < Prefix > fun / movie </ Prefix >
    </ CommonPref ixes >
  </ ListBucket Result >

```

## 6.9 PutBucketLogging

Enables the access logging function for a bucket. When this function is enabled, OSS automatically records the details about the requests to this bucket, and follows the user-specified rules to write the access logs as an object into a user-specified bucket on an hourly basis.



### Note:

- When the source bucket is deleted, the corresponding logging rules are also deleted.
- OSS generates a bucket access log file every hour. However, all requests during the hour may not be recorded in the log file, but may get recorded in the previous or next log file.
- Each time OSS generates a bucket access log file, this is considered a PUT operation and the occupied space is recorded, but the generated traffic is not recorded. After log files are generated, you can operate these log files as common objects.
- OSS ignores all query-string parameters prefixed by “x- “ but such query-string parameters are recorded in access logs. If you want to mark a special request from massive access logs, you can add a query-string parameter prefixed by “x- “ to the URL. For example, you can add mark `http :// oss - example . regionid . example . com / aliyun - logo . png` by adding a parameter prefixed by "x-" as follows: `http :// oss - example . regionid . example . com /`

`aliyun - logo . png ? x - user = admin` . The added parameter is ignored.

However, you can locate the request by searching "x-user=admin".

### Request syntax

```
PUT /? logging HTTP / 1 . 1
Date : GMT Date
Content - Length : ContentLength
Content - Type : application / xml
Authorization : SignatureValue
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< BucketLoggingStatus >
  < LoggingEnabled >
    < TargetBucket > TargetBucket </ TargetBucket >
    < TargetPrefix > TargetPrefix </ TargetPrefix >
  </ LoggingEnabled >
</ BucketLoggingStatus >
```

### Request elements



#### Note:

All PutBucketLogging requests must be signed because the anonymous access is not supported.

Element	Type	Required	Description
BucketLoggingStatus	Container	Yes	Specifies the container for storing access log status information  Sub-node: LoggingEnabled  Parent node: None
LoggingEnabled	Container	No	Specifies the container for storing access log information. This element is required only when server access logging is enabled.  Sub-node: TargetBucket, TargetPrefix  Parent node: BucketLoggingStatus

Element	Type	Required	Description
TargetBucket	String	This element is required when server access logging is enabled	Specifies the bucket for storing access logs. The source bucket and target bucket can be the same or different buckets. You can save logs from multiple source buckets to the same target bucket (in this case, we recommend that you assign different values to TargetPrefix).  Sub-node: None  Parent node: BucketLoggingStatus. LoggingEnabled
TargetPrefix	String	No	Specifies the prefix of the names of saved access log files, which can be null.  Sub-node: None  Parent node: BucketLoggingStatus. LoggingEnabled

### Naming rules for the objects storing access logs

The format of an object name is as follows:

```
< TargetPrefix >< SourceBucket >- YYYY - mm - DD - HH - MM - SS - UniqueString
```

The following table describes the parameters in an object name:

Parameter	Description
TargetPrefix	Specifies the prefix of the object name.
YYYY-mm-DD-HH-MM-SS	Indicates the time when the object is created. YYYY, mm, DD, HH, MM, and SS indicate the year, month, day, hour, minutes, and seconds individually. For example: 2012 - 09 - 10 - 04 - 00 - 00 .
UniqueString	Indicates the unique UUID generated by OSS to identify a log.

An example object name is as follows:

```
MyLog - oss - example - 2012 - 09 - 10 - 04 - 00 - 00 - 0000
```

In the preceding example, `MyLog -` is the prefix specified by the user, `oss - example` is the name of the source bucket, `2012 - 09 - 10 - 04 - 00 - 00` is the time when the object is created, and `0000` is the UUID string generated by OSS.

### Log file format



#### Note:

- You may see “-” in any field of OSS logs. It indicates that data is unknown or the field is invalid for the current request.
- Certain fields are added to the end of OSS log files in future based on the requirements. We recommend that developers consider compatibility issues when developing log processing tools.

Field	Example	Description
Remote IP	119.140.142.11	IP address from which the request is initiated (the proxy or user firewall may block this field)
Reserved	-	Reserved field
Reserved	-	Reserved field
Time	[02/May/2012:00:00:04 + 0800]	Time when OSS receives the request
Request-URL	“GET /aliyun-logo.png HTTP/1.1 “	User-Requested URL (including query-string)
HTTP Status	200	HTTP status code returned by OSS
SentBytes	5576	Traffic that the user downloads from OSS
RequestTime (ms)	71	Time utilized in completing this request (in ms)
Referer	http://www.aliyun.com/product/oss	HTTP Referer in the request
User-Agent	curl/7.15.5	HTTP User-Agent header

Field	Example	Description
HostName	oss-example.regionid. example.com	Domain name for access request
Request ID	505B01695037C2AF0325 93A4	UUID used to uniquely identify this request
LoggingFlag	true	Whether the access logging function is enabled
Requester Aliyun ID	16571*****83691	Alibaba Cloud ID of the requester, “-” for an anonymous access
Operation	GetObject	Request type
Bucket	oss-example	Name of the bucket requested for access
Key	/aliyun-logo.png	Key of user request
ObjectSize	5576	Object size
Server Cost Time (ms)	17	Time utilized by OSS server to process this request (in ms)
Error Code	NoSuchBucket	Error code returned by OSS
Request Length	302	Length of user request (byte)
UserID	16571*****83691	ID of the bucket owner
Delta DataSize	280	Bucket size variation, “-” for no change
Sync Request	-	Whether this is an origin retrieval request from CDN, “-” for no
Reserved	-	Reserved field

## Examples

Example of a request for enabling bucket access logging:

```
PUT /? logging HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Content - Length : 186
Date : Fri , 04 May 2012 03 : 21 : 12 GMT
Authorizat ion : OSS qn6qrrqxo2 oawuk53otf jbyc : KU5h8YMUC7
8M30dXqf3J xrTzHiA =
<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< BucketLogg ingStatus >
< LoggingEna bled >
< TargetBuck et > doc - log </ TargetBuck et >
< TargetPref ix > MyLog -</ TargetPref ix >
</ LoggingEna bled >
```

```
</ BucketLogg ingStatus >
```

### Response example:

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Fri , 04 May 2012 03 : 21 : 12 GMT
Content - Length : 0
Connection : keep - alive
Server : AliyunOSS
```

### Example of a request for disabling bucket access logging:

```
PUT /? logging HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Content - Type : applicatio n / xml
Content - Length : 86
Date : Fri , 04 May 2012 04 : 21 : 12 GMT
Authorizat ion : OSS qn6qrrqxo2 oawuk53otf jbyc : KU5h8YMUC7
8M30dXqf3J xrTzHiA =
<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< BucketLogg ingStatus >
</ BucketLogg ingStatus >
```

### Response example:

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Fri , 04 May 2012 04 : 21 : 12 GMT
Content - Length : 0
Connection : keep - alive
Server : AliyunOSS
```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)
- [Node.js](#)
- [Ruby](#)

## Error codes

Error code	HTTP status code	Description
NoSuchBucket	404	The source bucket does not exist. The source bucket and the target bucket must be owned by the same user.
InvalidTargetBucketForLogging	400	The source bucket and the target bucket are in different regions.
InvalidDigest	400	If you include the Content-MD5 header in the request, OSS calculates the Content-MD5 of the request body and checks if the two are the same. If the two values are different, this error is returned.
MalformedXML	400	The XML file in the request is invalid.
InvalidTargetBucketForLogging	403	The user who initiates the request is not the owner of the target bucket.
AccessDenied	403	The user who initiates the request is not the owner of the source bucket,

## 6.10 GetBucketLogging


Views the access logging configuration of a bucket. Only the owner of a bucket can view the access logging configuration of the bucket.

## Request syntax

```
GET /? logging HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
```

Authorization : SignatureV alue

## Response elements

Name	Type	Description
BucketLoggingStatus	Container	<p>Indicates the container used to store access logging configuration of a bucket.</p> <p>Sub-node: LoggingEnabled</p> <p>Parent node: None</p> <div>  <b>Note:</b>            If no logging rules are set for the source bucket, OSS returns an XML message body in which the value of BucketLoggingStatus is null.         </div>
LoggingEnabled	Container	<p>Indicates the container used to store access logging information. This element is returned if it is enabled and is not returned if it is disabled.</p> <p>Sub-node: TargetBucket and TargetPrefix</p> <p>Parent node: BucketLoggingStatus</p>
TargetBucket	Character	<p>Indicates the bucket that stores access logs.</p> <p>Sub-node: None</p> <p>Parent node: BucketLoggingStatus. LoggingEnabled</p>
TargetPrefix	Character	<p>Indicates the prefix of the names of stored access log files.</p> <p>Sub-node: None</p> <p>Parent node: BucketLoggingStatus. LoggingEnabled</p>

## Examples

### Request example:

```
Get /? logging HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
```



```
Date : Fri , 04 May 2012 05 : 31 : 04 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : ce0EyZavKY
4QcjoUWYSp YbJ3naA =
```

**Response example returned when logging rules are set for the bucket:**

```
HTTP / 1 . 1 200
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Fri , 04 May 2012 05 : 31 : 04 GMT
Connection : keep - alive
Content - Length : 210
Server : AliyunOSS

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< BucketLogg ingStatus xmlns =" http :// doc . oss - cn - hangzhou
. aliyuncs . com ">
  < LoggingEna bled >
    < TargetBuck et > mybucketlo gs </ TargetBuck et >
    < TargetPref ix > mybucket - access_log </ TargetPref ix >
  </ LoggingEna bled >
</ BucketLogg ingStatus >
```

**Response example returned when no logging rules are set for the bucket:**

```
HTTP / 1 . 1 200
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Fri , 04 May 2012 05 : 31 : 04 GMT
Connection : keep - alive
Content - Length : 110
Server : AliyunOSS

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< BucketLogg ingStatus xmlns =" http :// doc . oss - cn - hangzhou
. aliyuncs . com ">
</ BucketLogg ingStatus >
```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)
- [Node.js](#)
- [Ruby](#)

## Error codes

Error code	HTTP status code	Description
NoSuchBucket	404	The target bucket does not exist.
AccessDenied	403	You do not have the permission to view the access logging configuration of a bucket. Only the owner of a bucket can view the access logging configuration of the bucket.

## 6.11 DeleteBucketLogging

Disables the access logging function of a bucket. Only the owner of a bucket can disable the access logging function of the bucket.

## Request syntax

```
DELETE /? logging HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorization : SignatureValue
```

## Examples

## Request example:

```
DELETE /? logging HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Fri , 24 Feb 2012 05 : 35 : 24 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : 6ZVH0ehYzx
oClyxRydPQ s / CnMZU =
```

## Response example:

```
HTTP / 1 . 1 204 No Content
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Fri , 24 Feb 2012 05 : 35 : 24 GMT
Connection : keep - alive
Content - Length : 0
Server : AliyunOSS
```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)

- [Go](#)
- [C](#)
- [.NET](#)
- [Node.js](#)
- [Ruby](#)

#### Error codes

Error code	HTTP status code	Description
NoSuchBucket	404	The target bucket does not exist.
AccessDenied	403	You do not have the permission to disable the access logging function of the bucket . Only the owner of a bucket can disable the access logging function of the bucket.

## 6.12 PutBucketWebsite

Sets a bucket to static website hosting mode and sets routing rules.

#### Website

The Website interface provides the following two features:

- Sets the default home page and the default 404 page.
- Sets the RoutingRule. The RoutingRule is used to specify the 3xx routing rules and mirroring back-to-origin rules.



**Note:**

Mirroring back-to-origin is supported in Alibaba Cloud and Finance Cloud.

The following example shows the fields of website:

```
< WebsiteCon figuration >
  < IndexDocum ent >
    < Suffix > index . html </ Suffix >
  </ IndexDocum ent >
  < ErrorDocum ent >
    < Key > error . html </ Key >
  </ ErrorDocum ent >
  < RoutingRul es >
    < RoutingRul e >
      < RuleNumber > 1 </ RuleNumber >
      < Condition >
        < KeyPrefixE quals > abc </ KeyPrefixE quals >
        < HttpErrorC odeReturne dEquals > 404 </ HttpErrorC
odeReturne dEquals >
      </ Condition >
```

```

    < Redirect >
    < RedirectType > Mirror </ RedirectType >
    < PassQueryString > true </ PassQueryString >
    < MirrorURL > http://www.test.com </ MirrorURL >
    < MirrorPassQueryString > true </ MirrorPassQueryString >
  g >
    < MirrorFollowRedirect > true </ MirrorFollowRedirect >
    < MirrorCheckMD5 > false </ MirrorCheckMD5 >
    < MirrorHeaders >
      < PassAll > true </ PassAll >
      < Pass > myheader - key1 </ Pass >
      < Pass > myheader - key2 </ Pass >
      < Remove > myheader - key3 </ Remove >
      < Remove > myheader - key4 </ Remove >
      < Set >
        < Key > myheader - key5 </ Key >
        < Value > myheader - value5 </ Value >
      </ Set >
    </ MirrorHeaders >
  </ Redirect >
</ RoutingRule >
< RoutingRule >
  < RuleNumber > 2 </ RuleNumber >
  < Condition >
    < KeyPrefixEquals > abc </ KeyPrefixEquals >
    < HttpStatusCodeReturnedEquals > 404 </ HttpStatusCodeReturnedEquals >
  </ Condition >
  < IncludeHeader >
    < Key > host </ Key >
    < Equals > test.oss-cn-beijing-internal.aliyuncs.com </ Equals >
  </ IncludeHeader >
  </ Condition >
  < Redirect >
    < RedirectType > AliCDN </ RedirectType >
    < Protocol > http </ Protocol >
    < HostName > www.test.com </ HostName >
    < PassQueryString > false </ PassQueryString >
    < ReplaceKeyWith > prefix/${key}.suffix </ ReplaceKeyWith >
  </ Redirect >
  < HttpRedirectCode > 301 </ HttpRedirectCode >
</ RoutingRule >
</ RoutingRules >
</ WebsiteConfiguration >

```

## Request syntax

```

PUT /? website HTTP/1.1
Date: GMT Date
Content-Length: ContentLength
Content-Type: application/xml
Host: BucketName.oss-cn-hangzhou.aliyuncs.com
Authorization: SignatureValue

<?xml version="1.0" encoding="UTF-8"?>
< WebsiteConfiguration >
  < IndexDocument >
    < Suffix > index.html </ Suffix >
  </ IndexDocument >
  < ErrorDocument >
    < Key > errorDocument.html </ Key >
  </ ErrorDocument >

```

```
</ WebsiteCon  figuration >
```

## Request elements

Element	Type	Description	Required
WebsiteCon figuration	Container	Root node  Parent element: None	Yes
IndexDocum ent	Container	Specifies the container for the default home page.  Parent element: WebsiteCon figuration	Conditionally required. You must specify at least one of the following containers: IndexDocument , ErrorDocument , and RoutingRul es.
Suffix	String	Specifies the default home page.  If this element is configured, access to an object with a slash (/) at the end of its name is redirected to the default home page.  Parent element: IndexDocument	Conditionally required. This element must be specified when its parent element IndexDocument is specified.
ErrorDocum ent	Container	Specifies the container for the 404 page.  Parent element: WebsiteCon figuration	Conditionally required. You must specify at least one of the following containers: IndexDocument , ErrorDocument , and RoutingRul es.

Key	Container	<p>404 page</p> <p>If this element is specified, access to an object that does not exist is redirected to the 404 page.</p> <p>Parent element: ErrorDocument</p>	Conditionally required. This element must be specified when its parent element ErrorDocument is specified.
RoutingRules	Container	<p>Specifies the container for the RoutingRule.</p> <p>Parent element: WebsiteConfiguration</p>	Conditionally required. You must specify at least one of the following containers: IndexDocument, ErrorDocument, and RoutingRules.
RoutingRule	Container	<p>Specifies routing rules or mirroring back-to-origin rules. You can specify a maximum of five RoutingRules.</p> <p>Parent element: RoutingRules</p>	No
RuleNumber	Positive integer	<p>Specifies the sequence number used to match and execute routing rules. Routing rules are matched according to the sequence numbers. If a routing rule matches the number, the rule is executed and the following rules are not executed.</p> <p>Parent element: RoutingRule</p>	Conditionally required. This element must be specified when its parent element RoutingRule is specified.

Condition	Container	<p>Specifies the matching conditions.</p> <p>If a routing rule meets all the conditions, it is executed. The elements in the bucket are in the AND relationship, that is, a routing rule must meet all the conditions before it can be considered matched.</p> <p>Parent element: RoutingRule</p>	Conditionally required. This element must be specified when its parent element RoutingRule is specified.
KeyPrefixEquals	String	<p>Indicates that only objects that match the prefix can match the rule.</p> <p>Parent element: Condition</p>	No
HttpErrorCodeReturnedEquals	HTTP status code	<p>Indicates that the rule can be matched only when the object returns the specified status code when being accessed. If the routing rule is a mirroring back-to-source rule, this status code must be 404.</p> <p>Parent element: Condition</p>	No
IncludeHeader	Container	<p>Indicates that the routing rule can be matched only when the specified header is included in the request and the header value equals the specified value. You can specify a maximum five of the same container.</p> <p>Parent element: Condition</p>	No

Key	String	Indicates that the rule is matched only when this header is included in the request and the header value equals the value specified by Equals.  Parent element: IncludeHeader	Conditionally required. This element must be specified when its parent element IncludeHeader is specified.
Equals	String	Indicates that the rule can be matched only when the header specified by Key is included in the request and the header value equals to the specified value.  Parent element: IncludeHeader	Conditionally required. This element must be specified when its parent element IncludeHeader is specified.
Redirect	Container	Specifies the actions to perform after the rule is matched.  Parent element: RoutingRule	Conditionally required. This element must be specified when its parent element RoutingRule is specified.



RedirectType	String	<p>Specifies the redirecting type, which has the following available values:</p> <ul style="list-style-type: none"><li>· Mirror (mirroring back-to-origin)</li><li>· External (external redirection, that is, OSS returns a 3xx request which redirects the access to another IP address.)</li><li>· Internal (internal redirection, that is, OSS redirects the access from object1 to object2 based on the rule. In this case, the user accesses object2 but not object1.)</li><li>· AliCDN (AliCDN redirection, which is used for AliCDN. Unlike the External type, OSS adds an additional header to the request . After identifying the header, AliCDN redirects the access to the specified IP address and returns the obtained data but not the 3xx redirecting request to the user.)</li></ul> <p>Parent element: Redirect</p>	<p>Conditionally required. This element must be specified when its parent element Redirect is specified.</p>
--------------	--------	--	--

PassQueryString	Bool	<p>Indicates whether the request parameter is carried when the redirection or mirroring back-to-origin is performed. The available value of the element is true or false.</p> <p>For example, if the parameter "?a=b&amp;c=d" is carried in a request to OSS and this element is set to true, this parameter is added to the Location header when the rule is 302 redirection. For example, if the request is "Location:www.test.com?a=b&amp;c=d" and the redirecting type is mirroring back-to-origin, the parameter is also carried in the back-to-origin request.</p> <p>Default value: false</p> <p>Parent element: Redirect</p>	No
-----------------	------	--	----

MirrorURL	String	<p>Indicates the IP address of the origin site in the mirroring back-to-origin. This element takes effect only when the value of RedirectType is Mirror.</p> <p>If the MirrorURL starts with http:// or s://, it must be ended with a slash (/). OSS constructs the back-to-origin URL by adding the target object to the MirrorURL. For example, if MirrorURL is set to <code>http://www.test.com</code> /and the object to be accessed is "myobject", the back-to-origin URL is <code>http://www.test.com/dir1/myobject</code>. If MirrorURL is set to <code>http://www.test.com/dir1/</code>, the back-to-origin URL is <code>http://www.test.com/dir1/myobject</code>.</p> <p>Parent element: Redirect</p>	Conditionally required. This element must be specified if the RedirectType is Mirror.
MirrorPassQueryString	Bool	<p>This element plays the same role as PassQueryString and has a higher priority than PassQueryString. However, this element take effects only when the RedirectType is Mirror.</p> <p>Default value: false</p> <p>Parent element: Redirect</p>	No

MirrorFollowRedirect	Bool	<p>Indicates whether the access is redirected to the specified Location if the origin site returns a 3xx status code when receiving a back-to-origin request.</p> <p>For example, the origin site returns a 302 status code and specifies the Location when receiving a mirroring back-to-origin request. In this case, if the value of MirrorFollowRedirect is true, OSS continues to send requests to the IP address specified by the Location. (A request can be redirected for a maximum of 10 times. If the request is redirected for more than 10 times, a mirroring back-to-origin failure message is returned.) If the value of MirrorFollowRedirect is false, OSS returns a 302 status code and passes through the Location. This element takes effect only when the value of RedirectType is Mirror.</p> <p>Default value: true</p> <p>Parent element: Redirect</p>	No
----------------------	------	---	----

MirrorCheckMd5	Bool	<p>Indicates whether OSS performs an MD5 check on the body of the response returned by the origin site.</p> <p>When the value of this element is true and the response returned by the origin site includes a Content-Md5 header, OSS checks whether the MD5 checksum of the obtained data matches the header. If not, OSS does not store the data. This element takes effect only when the value of RedirectType is Mirror.</p> <p>Default value: false</p> <p>Parent element: Redirect</p>	No
MirrorHeaders	Container	<p>Specifies the header carried in the response returned by the origin site. This element takes effect only when the value of RedirectType is Mirror.</p> <p>Parent element: Redirect</p>	No
PassAll	Bool	<p>Indicates whether OSS passes through all headers (except for reserved headers and the headers starting with oss-/x-oss-/x-drs-) to the origin site. This element takes effect only when the value of RedirectType is Mirror.</p> <p>Default value: false</p> <p>Parent element: MirrorHeaders</p>	No

Pass	String	<p>Specifies the headers that are passed through to the origin site. A maximum of 10 headers can be specified. The maximum length of a header is 1,024 bytes. The character set of this element is: 0-9, A-Z, a-z, and dash. This element takes effect only when the value of RedirectType is Mirror.</p> <p>Parent element: MirrorHeaders</p>	No
Remove	String	<p>Specifies the headers that cannot be passed to the origin site. A maximum of 10 headers can be specified (including repeated headers). This element is used together with PassAll. The maximum length of a header is 1,024 bytes. The character set of this element is the same as that of Pass. This element takes effect only when the value of RedirectType is Mirror.</p> <p>Parent element: MirrorHeaders</p>	No

Set	Container	<p>Specifies headers that are sent to the origin site. The specified headers are configured in the data returned by the origin site no matter whether they are carried in the request. A maximum of 10 groups of headers can be configured (including repeated headers). This element takes effect only when the value of RedirectType is Mirror.</p> <p>Parent element: MirrorHeaders</p>	No
Key	String	<p>Specifies the key of the header. The maximum length of a key is 1,024 bytes. The character set of this element is the same as that of Pass. This element takes effect only when the value of RedirectType is Mirror.</p> <p>Parent element: Set</p>	Conditionally required. This element must be specified when its parent element Set is specified.
Value	String	<p>Specifies the value of the header. The maximum length of the value is 1,024 bytes. The character "\r\n" is not allowed in the element. This element takes effect only when the value of RedirectType is Mirror.</p> <p>Parent element: Set</p>	Conditionally required. This element must be specified when its parent element Set is specified.

Protocol	String	<p>Indicates the protocol used for redirections. The available value of this element is http or https. For example, the Location header is <code>https :// www . test . com / test</code> if the requested object is test, the request is redirected to <code>www . test . com</code> , and the value of Protocol is https. This element takes effect only when the value of RedirectType is External or AliCDN.</p> <p>Parent element: Redirect</p>	Conditionally required. This element must be specified when the value of RedirectType is External or AliCDN.
HostName	String	<p>Indicates the domain name used for redirections, which must comply with the specifications for domain names. For example, the Location header is <code>https :// www . test . com / test</code> if the requested object is test, the value of Protocol is https, and the Hostname is specified to <code>www . test . com</code> . This element takes effect only when the value of RedirectType is External or AliCDN.</p> <p>Parent element: Redirect</p>	Conditionally required. This element must be specified when the value of RedirectType is External or AliCDN.
HttpRedirectCode	HTTP status code	<p>Indicates the returned status code in redirections. The available value of this element is 301, 302, or 307. This element takes effect only when the value of RedirectType is External or AliCDN.</p> <p>Parent element: Redirect</p>	Conditionally required. This element must be specified when the value of RedirectType is External or AliCDN.



ReplaceKey PrefixWith	String	<p>Indicates the string used to replace the prefix of the requested object name in redirections. If the prefix of the object name is empty, this string is added before the object name. The ReplaceKeyWith and ReplaceKeyPrefixWith elements cannot be set simultaneously.</p> <p>For example, if KeyPrefixEquals is set to abc/ and ReplaceKeyPrefixWith is set to def/, the Location header for an object named abc/test.txt is <code>http :// www . test . com / def / test . txt</code>. This element takes effect only when the value of RedirectType is External or AliCDN.</p> <p>Parent element: Redirect</p>	Conditionally required. This element must be specified when the value of RedirectType is Internal, External, or AliCDN.
--------------------------	--------	--	---

ReplaceKey With	String	<p>Indicates the string used to replace the requested object name in redirections. This element can be a variable. (The <code>\${key}</code> variable indicating the object name in the request is supported.) The <code>ReplaceKeyWith</code> and <code>ReplaceKeyPrefixWith</code> elements cannot be set simultaneously.</p> <p>For example, if <code>ReplaceKeyWith</code> is set to <code>prefix/\${key}.suffix</code>, the <code>Location</code> header for an object named <code>test</code> is <code>http://www.test.com/prefix/test.suffix</code>.</p> <p>This element takes effect only when the value of <code>RedirectType</code> is <code>External</code> or <code>AliCDN</code>.</p> <p>Parent element: <code>Redirect</code></p>	Conditionally required. This element must be specified when the value of <code>RedirectType</code> is <code>Internal</code> , <code>External</code> , or <code>AliCDN</code> .
--------------------	--------	---	--

### Detail Analysis

- Static websites are the websites where all Web pages are composed of static content, including scripts such as JavaScript executed on the client. OSS does not support content that needs to be processed by the server, such as PHP, JSP, and APS.NET.
- To use your own domain name to access bucket-based static websites, you can use the CNAME. For more information about the configuration method, see [Bind custom domain names \(CNAME\)](#).
- To set a bucket to static website hosting mode, you must specify the index page, and the error page is optional.
- To set a bucket to static website hosting mode, the specified index page and error page are objects in the bucket.
- After a bucket is set to static website hosting mode, OSS returns the index page for anonymous access to the root domain name of the static website, and returns the results of `Get Bucket` for signed access to the root domain name of the static website.

- If you upload the Content-MD5 request header, OSS calculates the body's Content-MD5 and checks whether the two values are the same. If the two values are different, an InvalidDigest error code is returned.

## Example

### Request example:

```
PUT /? website HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Content - Length : 209
Date : Fri , 04 May 2012 03 : 21 : 12 GMT
Authorizat ion : OSS qn6qrrqx ***** k53otfjbyc : KU5h8YM *****
0dXqf3JxrT ZHiA =

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< WebsiteCon figuration >
< IndexDocum ent >
< Suffix > index . html </ Suffix >
</ IndexDocum ent >
< ErrorDocum ent >
< Key > error . html </ Key >
</ ErrorDocum ent >
</ WebsiteCon figuration >
```

### Response example:

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Fri , 04 May 2012 03 : 21 : 12 GMT
Content - Length : 0
Connection : keep - alive
Server : AliyunOSS
```

### Complete code:

```
PUT /? website HTTP / 1 . 1
Date : Fri , 27 Jul 2018 09 : 03 : 18 GMT
Content - Length : 2064
Host : test . oss - cn - hangzhou - internal . aliyuncs . com
Authorizat ion : OSS alnBN ***** QMf8u : sNKIHT6ci / z231yIT5vY
netDLu4 =
User - Agent : aliyun - sdk - python - test / 0 . 4 . 0

< WebsiteCon figuration >
< IndexDocum ent >
< Suffix > index . html </ Suffix >
</ IndexDocum ent >
< ErrorDocum ent >
< Key > error . html </ Key >
</ ErrorDocum ent >
< RoutingRul es >
< RoutingRul e >
< RuleNumber > 1 </ RuleNumber >
< Condition >
< KeyPrefixE quals > abc </ KeyPrefixE quals >
< HttpErrorC odeReturne dEquals > 404 </ HttpErrorC odeReturne
dEquals >
</ Condition >
```

```

< Redirect >
< RedirectType > Mirror </ RedirectType >
< PassQueryString > true </ PassQueryString >
< MirrorURL > http://www.test.com </ MirrorURL >
< MirrorPassQueryString > true </ MirrorPassQueryString >
< MirrorFollowRedirect > true </ MirrorFollowRedirect >
< MirrorCheckMd5 > false </ MirrorCheckMd5 >
< MirrorHeaders >
< PassAll > true </ PassAll >
< Pass > myheader - key1 </ Pass >
< Pass > myheader - key2 </ Pass >
< Remove > myheader - key3 </ Remove >
< Remove > myheader - key4 </ Remove >
< Set >
< Key > myheader - key5 </ Key >
< Value > myheader - value5 </ Value >
</ Set >
</ MirrorHeaders >
</ Redirect >
</ RoutingRule >
< RoutingRule >
< RuleNumber > 2 </ RuleNumber >
< Condition >
< KeyPrefixEquals > abc </ KeyPrefixEquals >
< HttpStatusCodeReturnedEquals > 404 </ HttpStatusCodeReturnedEquals >
< IncludeHeader >
< Key > host </ Key >
< Equals > test.oss-cn-beijing-internal.aliyuncs.com </ Equals >
</ IncludeHeader >
</ Condition >
< Redirect >
< RedirectType > AliCDN </ RedirectType >
< Protocol > http </ Protocol >
< HostName > www.test.com </ HostName >
< PassQueryString > false </ PassQueryString >
< ReplaceKeyWith > prefix/{key}.suffix </ ReplaceKeyWith >
< HttpRedirectCode > 301 </ HttpRedirectCode >
</ Redirect >
</ RoutingRule >
</ RoutingRules >
</ WebsiteConfiguration >

HTTP / 1.1 200 OK
Server: AliyunOSS
Date: Fri, 27 Jul 2018 09:03:18 GMT
Content-Length: 0
Connection: keep-alive
x-oss-request-id: 5B5ADFD6ED 3CC49176CB E29D
x-oss-server-time: 47

```

## 6.13 GetBucketWebsite

Queries the static website hosting status and routing rules for a bucket.

### Request syntax

```

GET /? website HTTP / 1.1
Host: BucketName.oss-cn-hangzhou.aliyuncs.com
Date: GMT Date

```

Authorization : SignatureV alue

## Response elements

Element	Type	Description
WebsiteConfiguration	Container	Root node Parent node: None
IndexDocument	Container	Specifies the container for the default home page. Parent node: WebsiteConfiguration
Suffix	String	Specifies the default home page. Parent node: IndexDocument
ErrorDocument	Container	Specifies the container for the 404 page. Parent node: WebsiteConfiguration
Key	Container	404 page Parent node: ErrorDocument
RoutingRules	Container	Specifies the container for the RoutingRule. Parent node: WebsiteConfiguration
RoutingRule	Container	Specifies routing rules or mirroring back-to-origin rules. Parent node: RoutingRules
RuleNumber	Positive integer	Specifies the sequence number used to match and execute routing rules. Routing rules are matched according to the sequence numbers . A routing rule that matches the number is executed and the following rules are not executed. Parent node: RoutingRule

Condition	Container	<p>Specifies the matching conditions.</p> <p>If a routing rule meets all the conditions, it is executed. The elements in the bucket are in the AND relationship, that is, a routing rule must meet all the conditions before it can be considered matched.</p> <p>Parent node: RoutingRule</p>
KeyPrefixEquals	String	<p>Indicates that only objects that match the prefix can match the rule.</p> <p>Parent node: Condition</p>
HttpErrorC odeReturne dEquals	HTTP status code	<p>Indicates that the rule can be matched only when the object returns the specified status code when being accessed. If the routing rule is a mirroring back-to-source rule, this status code must be 404.</p> <p>Parent node: Condition</p>
IncludeHeader	Container	<p>Indicates that the routing rule can be matched only when the specified header is included in the request and the header equals the specified value. You can specify a maximum 5 of the same container.</p> <p>Parent node: Condition</p>
Key	String	<p>Indicates that the rule is matched only when this header is included in the request and the header value equals the value specified by Equals.</p> <p>Parent node: IncludeHeader</p>

Equals	String	<p>Indicates that the rule can be matched only when the header specified by Key is included in the request and the header value equals the specified value.</p> <p>Parent node: IncludeHeader</p>
Redirect	Container	<p>Specifies the actions to perform after the rule is matched.</p> <p>Parent node: RoutingRule</p>
RedirectType	String	<p>Specifies the redirecting type, which has the following available values:</p> <ul style="list-style-type: none"> <li>· Mirror (mirroring back-to-origin)</li> <li>· External (external redirection, that is, OSS returns a 3xx request which redirects the access to another IP address.)</li> <li>· Internal (internal redirection, that is, OSS redirects the access from object1 to object2 based on the rule. In this case, the user accesses object2 but not object1.)</li> <li>· AliCDN (AliCDN redirection, which is used for AliCDN. Unlike the External type, OSS adds an additional header to the request . After identifying the header, AliCDN redirects the access to the specified IP address and returns the obtained data but not the 3xx redirecting request to the user.)</li> </ul> <p>Parent node: Redirect</p>

PassQueryS tring	Bool	<p>Indicates whether the request parameter is carried when the redirection or mirroring back-to-origin is performed.</p> <p>For example, if the parameter "<code>?a=b&amp;c=d</code>" is carried in a request to OSS and this element is set to true, this parameter is added to the Location header when the rule is 302 redirection. For example, if the request includes "<code>Location:www.test.com ?a=b&amp;c=d</code>" and the redirecting type is mirroring back-to-origin, the parameter "<code>a=b&amp;c=d</code>" is also carried in the back-to-origin request.</p> <p>Default value: false</p> <p>Parent node: Redirect</p>
MirrorURL	String	<p>Indicates the IP address of the origin site in the mirroring back-to-origin. This element takes effect only when the value of RedirectType is Mirror.</p> <p>If the MirrorURL starts with <code>http://</code> or <code>https://</code>, it must be ended with a slash (/). OSS constructs the back-to-origin URL by adding the target object to the MirrorURL. For example, if MirrorURL is set to <code>http://www.test.com/</code> and the object to be accessed is "myobject", the back-to-origin URL is <code>http://www.test.com/dir1/myobject</code>. If MirrorURL is set to <code>http://www.test.com/dir1/</code>, the back-to-origin URL is <code>http://www.test.com/dir1/myobject</code>.</p> <p>Parent node: Redirect</p>



MirrorPass QueryString	Bool	<p>This element plays the same role as PassQueryString and has a higher priority than PassQueryString. However, this element take effects only when the RedirectType is Mirror.</p> <p>Default value: false</p> <p>Parent node: Redirect</p>
MirrorFollowRedirect	Bool	<p>Indicates whether the access is redirected to the specified Location if the origin site returns a 3xx status code when receiving a back-to-origin request.</p> <p>For example, the origin site returns a 302 status code and specifies the Location when receiving a mirroring back-to-origin request. In this case, if the value of MirrorFollowRedirect is true, OSS continues to send requests to the IP address specified by the Location. (A request can be redirected for a maximum of 10 times . If the request is redirected for more than 10 times, a mirroring back-to-origin failure message is returned.) If the value of MirrorFollowRedirect is false, OSS returns a 302 status code and passes through the Location. This element takes effect only when the value of RedirectType is Mirror.</p> <p>Default value: true</p> <p>Parent node: Redirect</p>

MirrorCheckMd5	Bool	<p>Indicates whether OSS performs an MD5 check on the body of the response returned by the origin site.</p> <p>When the value of this element is true and the response returned by the origin site includes a Content-Md5 header, OSS checks whether the MD5 checksum of the obtained data matches the header. If not, OSS does not store the data. This element takes effect only when the value of RedirectType is Mirror.</p> <p>Default value: false</p> <p>Parent node: Redirect</p>
MirrorHeaders	Container	<p>Specifies the header carried in the response returned by the origin site. This element takes effect only when the value of RedirectType is Mirror.</p> <p>Parent node: Redirect</p>
PassAll	Bool	<p>Indicates whether OSS passes through all headers (except for reserved headers and the headers starting with oss-/x-oss-/x-drs-) to the origin site. This element takes effect only when the value of RedirectType is Mirror.</p> <p>Default value: false</p> <p>Parent node: MirrorHeaders</p>

Pass	String	<p>Specifies the headers that are passed through to the origin site. A maximum of 10 headers can be specified. The maximum length of a header is 1,024 bytes. The character set of this element is: 0-9, A-Z, a-z, and dash. This element takes effect only when the value of RedirectType is Mirror.</p> <p>Parent node: MirrorHeaders</p>
Remove	String	<p>Specifies the headers that cannot to be passed through to the origin site. A maximum of 10 headers can be specified (including repeated headers). This element is used together with PassAll. The maximum length of a header is 1,024 bytes. The character set of this element is the same as that of Pass. This element takes effect only when the value of RedirectType is Mirror.</p> <p>Parent node: MirrorHeaders</p>
Set	Container	<p>Specifies headers that are sent to the origin site. The specified headers are configured in the data returned by the origin site no matter whether they are carried in the request. A maximum of 10 groups of headers can be configured (including repeated headers). This element takes effect only when the value of RedirectType is Mirror.</p> <p>Parent node: MirrorHeaders</p>

Key	String	<p>Specifies the key of the header. The maximum length of a key is 1,024 bytes. The character set of this element is the same as that of Pass. This element takes effect only when the value of RedirectType is Mirror.</p> <p>Parent node: Set</p>
Value	String	<p>Specifies the value of the header. The maximum length of the value is 1,024 bytes. The character "\r\n" is not allowed in the element. This element takes effect only when the value of RedirectType is Mirror.</p> <p>Parent node: Set</p>
Protocol	String	<p>Specifies the protocol used for redirections. For example, the Location header is <code>https://www.test.com/test</code> if the requested object is test, the request is redirected to <code>www.test.com</code>, and the value of Protocol is https.</p> <p>This element takes effect only when the value of RedirectType is External or AliCDN.</p> <p>Values: http, https</p> <p>Parent node: Redirect</p>

HostName	String	<p>Specifies the domain name used in redirections, which must comply with the specifications for domain names. For example, the Location header is <code>https://www.test.com/test</code> if the requested object is test, the value of Protocol is https, and the Hostname is specified to <code>www.test.com</code>. This element takes effect only when the value of RedirectType is External or AliCDN.</p> <p>Parent node: Redirect</p>
HttpRedirectCode	HTTP status code	<p>Specifies the returned status code in redirections. This element takes effect only when the value of RedirectType is External or AliCDN.</p> <p>Values: 301, 302, 307</p> <p>Parent node: Redirect</p>
ReplaceKeyPrefixWith	String	<p>Indicates the string used to replace the prefix of the requested object name in redirections. If the prefix of the object name is empty, this string is added before the object name. The ReplaceKeyWith and ReplaceKeyPrefixWith elements cannot be set simultaneously.</p> <p>For example, if KeyPrefixEquals is set to abc/ and ReplaceKeyPrefixWith is set to def/, the Location header for an object named abc/test.txt is <code>http://www.test.com/def/test.txt</code>.</p> <p>This element takes effect only when the value of RedirectType is Internal, External, or AliCDN.</p> <p>Parent node: Redirect</p>

ReplaceKey With	String	<p>Indicates the string used to replace the requested object name in redirections. This element can be a variable. (The <code>\${key}</code> variable indicating the object name in the request is supported.) The <code>ReplaceKeyWith</code> and <code>ReplaceKeyPrefixWith</code> elements cannot be set simultaneously.</p> <p>For example, if <code>ReplaceKeyWith</code> is set to <code>prefix/\${key}.suffix</code>, the Location header for an object named <code>test</code> is <code>http://www.test.com/prefix/test.suffix</code>.</p> <p>This element takes effect only when the value of <code>RedirectType</code> is <code>Internal</code>, <code>External</code>, or <code>AliCDN</code>.</p> <p>Parent node: <code>Redirect</code></p>
-----------------	--------	---

## Examples

### Request example

```
Get /? website HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Thu , 13 Sep 2012 07 : 51 : 28 GMT
Authorization : OSS qn6qrrqx ***** k53otfjbyc : BuG4rRK +
zNh ***** 1NNHD39zXw =
```

### Response example with logging rules configured

```
HTTP / 1 . 1 200
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Thu , 13 Sep 2012 07 : 51 : 28 GMT
Connection : keep - alive
Content - Length : 218
Server : AliyunOSS

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< WebsiteCon figuration xmlns =" http :// doc . oss - cn - hangzhou . aliyuncs . com ">
< IndexDocum ent >
< Suffix > index . html </ Suffix >
</ IndexDocum ent >
< ErrorDocum ent >
< Key > error . html </ Key >
</ ErrorDocum ent >
```

```
</ WebsiteCon  figuration >
```

### Return example with logging rules not set

```
HTTP / 1 . 1 404
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Thu , 13 Sep 2012 07 : 56 : 46 GMT
Connection : keep - alive
Content - Length : 308
Server : AliyunOSS

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< Error xmlns =" http :// doc . oss - cn - hangzhou . aliyuncs . com
">
    < Code > NoSuchWebs iteConfigu ration </ Code >
    < Message > The specified bucket does not have a
website configurat ion . </ Message >
    < BucketName > oss - example </ BucketName >
    < RequestId > 505191BEC4 689A033D00 236F </ RequestId >
    < HostId > oss - example . oss - cn - hangzhou . aliyuncs . com </
HostId >
</ Error >
```

### Complete code

```
GET /? website HTTP / 1 . 1
Date : Fri , 27 Jul 2018 09 : 07 : 41 GMT
Host : test . oss - cn - hangzhou - internal . aliyuncs . com
Authorizat ion : OSS alnBN ***** QMf8u : 0Jzamofmy *****
sU9HUWomxs us =
User - Agent : aliyun - sdk - python - test / 0 . 4 . 0

HTTP / 1 . 1 200 OK
Server : AliyunOSS
Date : Fri , 27 Jul 2018 09 : 07 : 41 GMT
Content - Type : applicatio n / xml
Content - Length : 2102
Connection : keep - alive
x - oss - request - id : 5B5AE0DD2F 7938C45FCE D4BA
x - oss - server - time : 47

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< WebsiteCon figuration >
< IndexDocum ent >
< Suffix > index . html </ Suffix >
</ IndexDocum ent >
< ErrorDocum ent >
< Key > error . html </ Key >
</ ErrorDocum ent >
< RoutingRul es >
< RoutingRul e >
< RuleNumber > 1 </ RuleNumber >
< Condition >
< KeyPrefixE quals > abc </ KeyPrefixE quals >
< HttpErrorC odeReturne dEquals > 404 </ HttpErrorC odeReturne
dEquals >
</ Condition >
< Redirect >
< RedirectTy pe > Mirror </ RedirectTy pe >
< PassQueryS tring > true </ PassQueryS tring >
< MirrorURL > http :// www . test . com </ MirrorURL >
< MirrorPass QueryStrin g > true </ MirrorPass QueryStrin g >
```

```

< MirrorFollowRedirect > true </ MirrorFollowRedirect >
< MirrorChecksumMd5 > false </ MirrorChecksumMd5 >
< MirrorHeaders >
< PassAll > true </ PassAll >
< Pass > myheader - key1 </ Pass >
< Pass > myheader - key2 </ Pass >
< Remove > myheader - key3 </ Remove >
< Remove > myheader - key4 </ Remove >
< Set >
< Key > myheader - key5 </ Key >
< Value > myheader - value5 </ Value >
</ Set >
</ MirrorHeaders >
</ Redirect >
</ RoutingRule >
< RoutingRule >
< RuleNumber > 2 </ RuleNumber >
< Condition >
< IncludeHeader >
< Key > host </ Key >
< Equals > test . oss - cn - beijing - internal . aliyuncs . com </
  Equals >
</ IncludeHeader >
< KeyPrefixEquals > abc </ KeyPrefixEquals >
< HttpStatusCodeReturnedEquals > 404 </ HttpStatusCodeReturnedEquals >
</ Condition >
< Redirect >
< RedirectType > AliCDN </ RedirectType >
< Protocol > http </ Protocol >
< HostName > www . test . com </ HostName >
< PassQueryString > false </ PassQueryString >
< ReplaceKeyWith > prefix /${ key }. suffix </ ReplaceKeyWith >
< HttpRedirectCode > 301 </ HttpRedirectCode >
</ Redirect >
</ RoutingRule >
</ RoutingRules >
</ WebsiteConfiguration >

```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C++](#)
- [C](#)
- [.NET](#)
- [Node.js](#)
- [Ruby](#)



## Error codes

Error code	HTTP status code	Description
NoSuchBucket	404	The target bucket does not exist.
AccessDenied	403	You do not have the permission to view the static website hosting status of the bucket. Only the owner of a bucket can view the static website hosting status of the bucket.
NoSuchWebsiteConfiguration	404	Static website hosting is not configured for the target bucket.

## 6.14 DeleteBucketWebsite

Disables the static website hosting mode and clears the redirection rules for a bucket.

Only the owner of a bucket can disable the static website hosting mode for the bucket.

## Request syntax

```
DELETE /? website HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorization : SignatureValue
```

## Examples

## Request example

```
DELETE /? website HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : Fri , 24 Feb 2012 05 : 45 : 34 GMT
Authorization : OSS qn6q ***** tfjbyc : LnM4AZ10eI
duZF5vGFWi cOMekVg =
```

## Response example

```
HTTP / 1 . 1 204 No Content
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Fri , 24 Feb 2012 05 : 45 : 34 GMT
Connection : keep - alive
Content - Length : 0
Server : AliyunOSS
```

## Complete code

```
DELETE /? website HTTP / 1 . 1
Date : Fri , 27 Jul 2018 09 : 10 : 52 GMT
Host : test . oss - cn - hangzhou - internal . aliyuncs . com
```

```

Authorizat ion : OSS  a1nB ***** cQMf8u : qPrKwuMaar  A4Tfk1pqTC
ylFs1jY =
User - Agent :  aliyun - sdk - python - test / 0 . 4 . 0

HTTP / 1 . 1  204  No  Content
Server :  AliyunOSS
Date :  Fri ,  27  Jul  2018  09 : 10 : 52  GMT
Content - Length :  0
Connection :  keep - alive
x - oss - request - id :  5B5AE19C18  8DC1CE81DA  D7C8

```

## Error codes

Error code	HTTP status code	Description
NoSuchBucket	404 Not Found	The bucket that you want to disable the static website hosting mode for does not exist.
AccessDenied	403 Forbidden	You do not have the permission to disable the static website hosting mode for the bucket. Only the owner of a bucket can disable the static website hosting mode for a bucket.

## 6.15 PutBucketReferer

Sets the referer access whitelist of a bucket and configures whether a request in which the referer field is null is allowed.

### Request syntax

```


PUT  /? referer  HTTP / 1 . 1
Date :  GMT  Date
Content - Length :  ContentLen gth
Content - Type :  applicatio n / xml
Host :  BucketName . oss . aliyuncs . com
Authorizat ion :  SignatureV alue

<? xml  version =" 1 . 0 "  encoding =" UTF - 8 "? >
< RefererCon figuration >
< AllowEmpty Referer > true </ AllowEmpty Referer >
  < RefererLis t >
    < Referer > http :// www . aliyun . com </ Referer >
    < Referer > https :// www . aliyun . com </ Referer >
    < Referer > http :// www . *. com </ Referer >
    < Referer > https :// www . ?. aliyuncs . com </ Referer >
  </ RefererLis t >

```

```
</ RefererCon  figuration >
```

### Request elements

Element	Type	Required	Description
RefererCon figuration	Container	Yes	Specifies the container that stores the referer settings.  Sub-nodes: AllowEmptyReferer and RefererList  Parent node: None
AllowEmpty Referer	Enumerated string	Yes	Specifies whether a request in which the referer field is null is allowed. The specified value replaces the previous AllowEmptyReferer setting .  Valid value: true or false  Default value: true  Parent node: RefererConfiguration
RefererLis t	Container	Yes	Specifies the container that stores the referer access whitelist.   <b>Note:</b> The PutBucketReferer operation replaces the configured whitelist with the whitelist specified in RefererList. If the value of ReferList is null (that is, Referer is not included) in the request, this operation replaces the configured whitelist with a null value, that is, deletes the configured RefererList.  Parent node: RefererConfiguration  Sub-node: Referer
Referer	String	No	Specifies a referer access whitelist.  Parent node: RefererList

### Detail analysis

- Only the bucket owner can initiate a Put Bucket Referer request. Otherwise, the message of 403 Forbidden is returned. Error code: AccessDenied.

- The configuration specified in `AllowEmptyReferer` replaces the previous `AllowEmptyReferer` configuration. This field is required. By default, `AllowEmptyReferer` in the system is configured as `true`.
- This operation overwrites the previously configured whitelist with the whitelist in the `RefererList`. When the user-uploaded `RefererList` is empty (containing no referer request element), this operation overwrites the configured whitelist, that is, the previously configured `RefererList` is deleted.
- If you have uploaded the `Content-MD5` request header, OSS calculates the body's `Content-MD5` and checks if the two are the same. If the two are different, the error code: `InvalidDigest` is returned.

## Examples

### Example of a request with no referer contained:

```
PUT /? referer HTTP / 1 . 1
Host : BucketName . oss . example . com
Content - Length : 247
Date : Fri , 04 May 2012 03 : 21 : 12 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : KU5h8YMUC7
8M30dXqf3J xrTzHiA =

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< RefererCon figuration >
< AllowEmpty Referer > true </ AllowEmpty Referer >
< RefererLis t />
</ RefererCon figuration >
```

### Example of a request with referer contained:

```
PUT /? referer HTTP / 1 . 1
Host : BucketName . oss . example . com
Content - Length : 247
Date : Fri , 04 May 2012 03 : 21 : 12 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : KU5h8YMUC7
8M30dXqf3J xrTzHiA =

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< RefererCon figuration >
< AllowEmpty Referer > true </ AllowEmpty Referer >
< RefererLis t >
< Referer > http :// www . aliyun . com </ Referer >
< Referer > https :// www . aliyun . com </ Referer >
< Referer > http :// www . *. com </ Referer >
< Referer > https :// www . ?. aliyuncs . com </ Referer >
</ RefererLis t >
</ RefererCon figuration >
```

### Response example:

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Fri , 04 May 2012 03 : 21 : 12 GMT
```

```
Content - Length : 0
Connection : keep - alive
Server : AliyunOSS
```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)
- [Node.js](#)
- [Ruby](#)

## Error codes

Error code	HTTP status code	Description
AccessDenied	403	You do not have the permission to perform this operation. Only the bucket owner can initiate a PutBucketReferer request.
InvalidDigest	400	If you include the Content-MD5 header in the request, OSS calculates the Content-MD5 of the request body and checks if the two are the same. If the two values are different, this error is returned.

## 6.16 GetBucketReferer

Views the referer configuration of a bucket. Only the owner of a bucket can view the referer configuration of the bucket.

### Request syntax

```
GET /? referer HTTP / 1 . 1
Host : BucketName . oss . aliyuncs . com
Date : GMT Date
```

Authorization : SignatureV alue

### Response elements

Element	Type	Description
RefererCon figuration	Container	Indicates the container that stores the referer configuration of the bucket.  Sub-node: AllowEmptyReferer and RefererList  Parent node: None
AllowEmpty Referer	Enumerated string	Specifies whether the access request in which the referer field is null is allowed.  Valid value: true or false  Default value: true  Parent node: RefererConfiguration
RefererLis t	Container	Indicates the container that stores the referer access whitelist for the bucket.  Sub-node: Referer  Parent node: RefererConfiguration
Referer	String	Specifies a referer access whitelist.  Parent node: RefererList

### Detail analysis

- If the bucket does not exist, error 404 is returned. Error code: NoSuchBucket.
- Only the owner of a bucket can view the referer configuration of the bucket. If other users attempt to access the configuration, the error 403 Forbidden with the error code: AccessDenied is returned.
- If no referer configuration has been conducted for the bucket, OSS returns the default AllowEmptyReferer value and an empty RefererList.

### Examples

#### Request example:

```
Get /? referer HTTP / 1 . 1
Host : oss - example . oss . aliyuncs . com
```

```
Date : Thu , 13 Sep 2012 07 : 51 : 28 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : BuG4rRK +
zNhH1AcF51 NNHD39zXw =
```

**Response example returned when a referer rule is configured for the bucket:**

```
HTTP / 1 . 1 200
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Thu , 13 Sep 2012 07 : 51 : 28 GMT
Connection : keep - alive
Content - Length : 218
Server : AliyunOSS

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< RefererCon figuration >
< Allowempty referer > true </ allowempty referer >
  < RefererLis t >
    < Referer > http :// www . aliyun . com </ Referer >
    < Referer > https :// www . aliyun . com </ Referer >
    < Referer > http :// www . *. com </ Referer >
    < Referer > https :// www .?. aliyuncs . com </ Referer >
  </ RefererLis t >
</ RefererCon figuration >
```

**Response example returned when no referer rule is configured for the bucket:**

```
HTTP / 1 . 1 200
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Thu , 13 Sep 2012 07 : 56 : 46 GMT
Connection : keep - alive
Content - Length : 308
Server : AliyunOSS

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< RefererCon figuration >
< AllowEmpty Referer > true </ AllowEmpty Referer >
< RefererLis t />
</ RefererCon figuration >
```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)
- [Node.js](#)
- [Ruby](#)

## Error codes

Error code	HTTP status code	Description
NoSuchBucket	404	The target bucket does not exist.
AccessDenied	403	You do not have the permission to view the referer configuration of a bucket. Only the owner of a bucket can view the referer configuration of the bucket.

## 6.17 GetBucketLocation

Views the location information about the data center (region) to which a bucket belongs. Only the owner of a bucket can view the region of the bucket.

## Request syntax

```
GET /? Location HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorization : SignatureValue
```

## Response elements

Element	Type	Description
Locationconstraint	String	Indicates the region where a bucket is located.  Valid values: oss - cn - hangzhou , oss - cn - qingdao , oss - cn - beijing , oss - cn - hongkong , oss - cn - shenzhen , oss - cn - shanghai , oss - us - west - 1 , oss - us - east - 1 , and oss - ap - southeast - 1

**Note:**

For more information about the regions and the locations where the Alibaba Cloud data centers are located, see [Regions and endpoints](#).

## Examples

## Request example:

```
Get /? location HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Fri , 04 May 2012 05 : 31 : 04 GMT
```



```
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : ce0EyZavKY
4QcjoUWYSp YbJ3naA =
```

### Response example:

```
HTTP / 1 . 1 200
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Fri , 15 Mar 2013 05 : 31 : 04 GMT
Connection : keep - alive
Content - Length : 90
Server : AliyunOSS

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< LocationConstraint xmlns =" http :// doc . oss - cn - hangzhou .
aliyuncs . com "> oss - cn - hangzhou </ LocationConstraint >
```

### SDK

The SDKs of this API are as follows:

- [Java](#)
- [PHP](#)
- [Go](#)
- [C](#)

### Error codes

Error code	HTTP status code	Description
AccessDenied	403	You do not have the permission to view the region of a bucket. Only the owner of a bucket can view the region of the bucket.

## 6.18 GetBucketInfo

Views the information about a bucket. Only the owner of a bucket can view the information about the bucket.



#### Note:

A GetBucketInfo request can be initiated from any OSS endpoint.

### Request syntax

```
GET /? bucketInfo HTTP / 1 . 1
Host : BucketName . oss . aliyuncs . com
Date : GMT Date
```

Authorization : SignatureV alue

### Response elements

Element	Type	Description
BucketInfo	Container	Indicates the container that stores the bucket information.  Sub-node: Bucket  Parent node: None
Bucket	Container	Indicates the container that stores specific bucket information.  Parent node: BucketInfo
CreationDate	Time	Indicates the time when the bucket is created.  Parent node: BucketInfo.Bucket
ExtranetEndpoint	String	Indicates the domain name used to access the bucket through the Internet.  Parent node: BucketInfo.Bucket
IntranetEndpoint	String	Indicates the domain name used by the ECS instances in the same region to access the bucket through the intranet.  Parent node: BucketInfo.Bucket
Location	String	Indicates the region where the bucket is located.  Parent node: BucketInfo.Bucket
Name	String	Indicates the bucket name.  Parent node: BucketInfo.Bucket
Owner	Container	Indicates the container used to store the information about the bucket owner.  Parent node: BucketInfo.Bucket
ID	String	Indicates the user ID of the bucket owner.  Parent node: BucketInfo.Bucket.Owner

Element	Type	Description
DisplayName	String	Indicates the name of the bucket owner, which is the same as the value ID.  Parent node: BucketInfo.Bucket.Owner
AccessControlList	Container	Indicates the container used to store the ACL information.  Parent node: BucketInfo.Bucket
Grant	Enumerated string	Indicates the ACL for the bucket.  Valid values: private , public - read , and public - read - write  Parent node: BucketInfo.Bucket.AccessControlList
DataRedundancyType	Enumerated string	Indicates the data redundancy type of the bucket.  Valid values: LRS and ZRS  Parent node: BucketInfo.Bucket
StorageClass	String	Indicates the storage class of the bucket.  Valid value: Standard , IA , and Archive

## Examples

### Request example:

```
Get /? bucketInfo HTTP / 1 . 1
Host : oss - example . oss . aliyuncs . com
Date : Sat , 12 Sep 2015 07 : 51 : 28 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : BuG4rRK + zNhH1AcF51 NNHD39zXw =
```

### Response example returned when the bucket information is obtained successfully:

```
HTTP / 1 . 1 200
x - oss - request - id : 534B371674 E88A4D8906 008B
Date : Sat , 12 Sep 2015 07 : 51 : 28 GMT
Connection : keep - alive
Content - Length : 531
Server : AliyunOSS

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< BucketInfo >
  < Bucket >
```

```

    < CreationDate > 2013 - 07 - 31T10 : 56 : 21 . 000Z </
CreationDate >
    < ExtranetEndpoint > oss - cn - hangzhou . aliyuncs . com </
ExtranetEndpoint >
    < IntranetEndpoint > oss - cn - hangzhou - internal . aliyuncs .
com </ IntranetEndpoint >
    < Location > oss - cn - hangzhou </ Location >
    < Name > oss - example </ Name >
    < Owner >
      < DisplayName > username </ DisplayName >
      < ID > 2718347391 43143 </ ID >
    </ Owner >
    < AccessControlList >
      < Grant > private </ Grant >
    </ AccessControlList >
  </ Bucket >
</ BucketInfo >

```

**Response example returned when the requested bucket does not exist:**

```

HTTP / 1 . 1 404
x - oss - request - id : 534B371674 E88A4D8906 009B
Date : Sat , 12 Sep 2015 07 : 51 : 28 GMT
Connection : keep - alive
Content - Length : 308
Server : AliyunOSS

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< Error >
  < Code > NoSuchBucket </ Code >
  < Message > The specified bucket does not exist .</
Message >
  < RequestId > 568D547F31 243C673BA1 4274 </ RequestId >
  < HostId > nosuchbucket . oss . aliyuncs . com </ HostId >
  < BucketName > nosuchbucket </ BucketName >
</ Error >

```

**Response example returned when the requester has no access permission to the bucket:**

```

HTTP / 1 . 1 403
x - oss - request - id : 534B371674 E88A4D8906 008C
Date : Sat , 12 Sep 2015 07 : 51 : 28 GMT
Connection : keep - alive
Content - Length : 209
Server : AliyunOSS

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< Error >
  < Code > AccessDenied </ Code >
  < Message > AccessDenied </ Message >
  < RequestId > 568D5566F2 D0F89F5C0E B66E </ RequestId >
  < Hostid > test . oss . aliyuncs . com </ hostid >
</ Error >

```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)

#### Error codes

Error code	HTTP status code	Description
NoSuchBucket	404	The target bucket does not exist.
AccessDenied	403	You do not have the permission to view the bucket information. Only the owner of a bucket can view the information about the bucket.

## 7 Object operations

---

### 7.1 PutObject

Uploads objects.



**Note:**

- The size of the object to be uploaded cannot exceed 5 GB.
- If an object with the same name as an existing object, and you have access to it, the existing object is overwritten by the uploaded object, and the status code 200 OK is returned.
- OSS does not have a folder. All the data is stored as objects. You can create an empty object as a folder.

#### Request syntax

```
PUT / ObjectName HTTP / 1 . 1
Content - Length : ContentLength
Content - Type : ContentType
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorization : SignatureValue
```

#### Request header




**Note:**

OSS supports the following five header fields defined in HTTP: Cache-Control, Expires, Content-Encoding, Content-Disposition, and Content-Type. If these headers are set when you upload an object, the header values are automatically set to the corresponding values when the object is downloaded.


Header	Type	Required ?	Description
Authorization	String	No	<p>Indicates that the request is authorized. For more information, see <a href="#">RFC2616</a>.</p> <p>Generally, the Authorization request header is required. This header is optional if the URL you use contains a signature. For more information, see <a href="#">Add a signature to a URL</a>.</p> <p>Default value: None</p>
Cache-control	String	No	<p>Specifies the Web page caching behavior when the object is downloaded. For more information, see <a href="#">RFC2616</a>.</p> <p>Default value: None</p>
Content-Disposition	String	No	<p>Specifies the name of the object when the object is downloaded. For more information, see <a href="#">RFC2616</a>.</p> <p>Default value: None</p>
Content-Encoding	String	No	<p>Specifies the content encoding format when the object is downloaded. For more information, see <a href="#">RFC2616</a>.</p> <p>Default value: None</p>
Content-MD5	String	No	<p>Checks whether the message content is consistent with the sent content. The value of Content-MD5 is calculated based on the MD5 algorithm. After the Content-MD5 request header is uploaded, OSS calculates Content-MD5 and checks the consistency.</p> <p>Default value: None</p>

Header	Type	Required ?	Description
Content - Length	String	No	<p>Specifies the data length in the HTTP request body.</p> <p>If the value of Content - Length in the request header is smaller than the data length in the request body, OSS can still create the object successfully. However, the object size is the value of Content - Length , and the data that exceeds the value is discarded.</p>
ETag	String	No	<p>An entity tag (ETag) is created to identify the content of an object when the object is created. For an object created with the PutObject request, its ETag is the MD5 value of the object content. For an object created by using other methods, its ETag is the UUID of the object content. The ETag value of an object can be used to check whether the object content has changed. However, we recommend that you not use the ETag of an object as the MD5 value of the object to verify data integrity.</p> <p>Default value: None</p>
Expires	String	No	<p>Specifies the expiration time. For more information, see <a href="#">RFC2616</a>.</p> <p>Default value: None</p>



Header	Type	Required ?	Description
x - oss - server - side - encryption	String	No	<p>Specifies the server-side encryption algorithm when OSS creates an object.</p> <p>Valid values: AES256 and KMS</p> <div>  <b>Note:</b>            You must enable Key Management Service (KMS) in the console before you can use the KMS encryption algorithm. Otherwise, a KmsServiceNotEnabled error code is reported.         </div> <p>After this header is specified, it will be returned in the response header, and OSS will encrypt and store the uploaded object. When the object is downloaded, the response header will contain x-oss-server-side-encryption and the value will be set to the encryption algorithm of the object.</p>
x - oss - server - side - encryption - key - id	String	No	<p>Specifies the primary key managed by KMS.</p> <p>This parameter is valid when the value of x - oss - server - side - encryption is set to KMS.</p>
x - oss - object - acl	String	No	<p>Specifies the access permission when OSS creates an object.</p> <p>Valid values: public - read , private , and public - read - write</p>

Header	Type	Required ?	Description
x - oss - storage - class	String	No	<p>Specifies the storage class of the object.</p> <p>If you specify the value of x - oss - storage - class when uploading an object to a bucket, the storage class of the uploaded object is the specified value. For example, if you specify the value of x - oss - storage - class to Standard when uploading an object to a bucket of the IA storage class, the storage class of the object is Standard.</p> <p>Valid values: Standard , IA , and Archive</p> <p>Supported APIs: PutObject, InitMultipartUpload, AppendObject, PutObjectSymlink, and CopyObject</p>
x - oss - meta - *	String	No	<p>When you use the PutObject API, if you configure a parameter prefixed with x-oss-meta-*, this parameter then works as the metadata, such as x-oss-meta-location. An object can have multiple similar parameters. However, the total size of all metadata cannot exceed 8 KB. The metadata can be numbers, hyphens (-), and lowercase letters. Other characters such as underscores (_) are not supported. Uppercase letters are converted to lowercase letters automatically.</p>

Header	Type	Required ?	Description
x-oss-tagging	String	No	<p>Specifies the tag of the object. You can set multiple tags at the same time, for example, TagA=A&amp;TagB=B.</p> <div>  <b>Note:</b>            You must perform URL encoding for the tag key and value in advance. If a tag does not contain an equal sign (=), this string does not have a value.         </div>

### Example

#### Request example in a simple upload:

```
PUT / test . txt HTTP / 1 . 1
Host : test . oss - cn - zhangjiako u . aliyuncs . com
User - Agent : aliyun - sdk - python / 2 . 6 . 0 ( Windows / 7 /
AMD64 ; 3 . 7 . 0 )
Accept : */*
Connection : keep - alive
Content - Type : text / plain
date : Tue , 04 Dec 2018 15 : 56 : 37 GMT
authorizat ion : OSS qn6qrrqxo2 oawuk53otf ****: kZoYNv66bs
mc10 + dcGKw5x2P ****
Transfer - Encoding : chunked
```

#### Response example

```
HTTP / 1 . 1 200 OK
Server : AliyunOSS
Date : Tue , 04 Dec 2018 15 : 56 : 38 GMT
Content - Length : 0
Connection : keep - alive
x - oss - request - id : 5C06A3B67B 8B5A3DA422 ****
ETag : " D41D8CD98F 00B204E980 0998ECF842 7E "
x - oss - hash - crc64ecma : 0
Content - MD5 : 1B2M2Y8Asg TpgAmY7PhC fg ==
x - oss - server - time : 7
```

#### Request example in which the storage class is Archive:

```
PUT / oss . jpg HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com Cache
- control : no - cache
Expires : Fri , 28 Feb 2012 05 : 38 : 42 GMT
Content - Encoding : utf - 8
Content - Dispositio n : attachment ; filename = oss_downlo ad .
jpg
Date : Fri , 24 Feb 2012 06 : 03 : 28 GMT
```

```
Content - Type : image / jpg
Content - Length : 344606
x - oss - storage - class : Archive
Authorization : OSS qn6qrrqxo2 oawuk53otf ****: kZoYNv66bs
mc10 + dcGKw5x2P ****
[ 344606 bytes of object data ]
```

### Response example

```
HTTP / 1 . 1 200 OK
Server : AliyunOSS
Date : Sat , 21 Nov 2015 18 : 52 : 34 GMT
Content - Type : image / jpg
Content - Length : 0
Connection : keep - alive
x - oss - request - id : 5650BD7220 7FB3044396 ****
x - oss - bucket - version : 1418321259
ETag : " A797938C31 D59EDD08D8 6188F6D5B8 72 "
```

### SDK

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)
- [iOS](#)
- [Node.js](#)
- [Browser.js](#)
- [Ruby](#)

### FAQ

#### How do I calculate Content-MD5?

Calculate the 128bit binary array encrypted by using MD5, and then encode the calculated value by using Base64. For example, you can calculate Content-MD5 of

0123456789 by using the following code in Python:

```
>>> import base64 , hashlib
>>> hash = hashlib . md5 ()
>>> hash . update (" 0123456789 ")
>>> base64 . b64encode ( hash . digest ())
' eB5eJF1ptW aXm4bijSPy xw =='
```



**Note:**

**Correct calculation method: use the `hash . digest ()` method to calculate the 128-bit data array**

```
>>> hash . digest () ' x \ x1e ^$] i \ xb5f \ x97 \
x9b \ x86 \ xe2 \ x8d #\ xf2 \ xc7 '.
```

**Wrong calculation method: perform Base64 encoding for the calculated 32-bit string. For example, you use the `hash . hexdigest ()` method to calculate the 32-bit string code**

```
>>> hash . hexdigest () ' 781e5e245d 69b566979b
86e28d23f2 c7 '.
```

**The wrong MD5 value after Base64 encoding is**

```
>>> base64 .
b64encode ( hash . hexdigest ()) ' NzgxZTVlMj Q1ZDY5YjU2 Njk3OWI4Nm
UyOGQyM2Yy Yzc ='.
```

### Error codes

Error code	HTTP status code	Description
MissingContentLength	411	The request header is not encoded according to <a href="#">chunked encoding</a> and does not contain the <code>Content - Length</code> parameter.
InvalidEncryptionAlgorithmError	400	The value of <code>x-oss-server-side-encryption</code> is invalid. The valid value is AES256 or KMS.
AccessDenied	403	You do not have the permission to access the bucket to which you want to add an object.
NoSuchBucket	404	The bucket to which you want to add an object does not exist.
InvalidObjectName	400	The length of the uploaded object key exceeds 1,023 bytes.
InvalidArgument	400	<ul style="list-style-type: none"> <li>The uploaded object exceeds 5 GB.</li> <li>Values of the parameters such as <code>x - oss - storage - class</code> are invalid.</li> </ul>
RequestTimeout	400	The <code>Content - Length</code> parameter is specified, but the message body is not sent. Or the sent message body is smaller than the specified size. In this case, the sever keeps waiting until times out.

Error code	HTTP status code	Description
KmsServiceNotEnabled	403	The x-oss-server-side-encryption is specified to KMS. However, you do not enable KMS in advance.

## 7.2 CopyObject

Copies objects within a bucket or between buckets in the same region. By calling CopyObject, you can send a PUT request to OSS. OSS automatically recognizes the request as a copy operation and perform it on the server.

### Limits

- CopyObject only supports objects smaller than 1 GB. To copy objects larger than 1 GB, you must use [UploadPartCopy](#).
- You can call CopyObject to modify the metadata of an object that equals to or smaller than 48.8 TB (by setting the source object and target object to the same object).
- To use CopyObject, you must have the read permission on the source object.
- The source object and the target object must be in the same region.
- You cannot copy objects created by AppendObject.
- If the source object is a symbolic link, only the symbolic link (instead of the content that the link directs to) is copied.

### Billing items

- A GET request is billed according to the bucket where the source object is stored.
- A PUT request is billed according to the bucket where the target object is stored.
- The used storage capacity is billed according to the bucket where the target object is stored.
- If you change the storage class of an object by calling CopyObject, the object is considered as overwritten and will incur charges. An object of the IA or Archive storage class will be charged if it is overwritten within 30 and 60 days respectively after it is created. For example, if you change the storage class of an object from IA to Archive or Standard 10 days after the object is created, early deletion fees for 20 days will be charged.

## Request syntax

```
PUT / DestObject Name HTTP / 1 . 1
Host : DestBucket Name . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorization : SignatureV alue
x - oss - copy - source : / SourceBucketName / SourceObjectName
```


## Request header




## Note:

The request headers used in copy operations start with `x - oss -`. Therefore, these headers must be added into the signature string.


Header	Type	Required	Description
<code>x - oss - copy - source</code>	String	Yes	Specifies the address of the source object.  Default value: None.
<code>x - oss - copy - source - if - match</code>	String	No	If the ETag of the source object is the same as the ETag provided by the user, the copy operation is performed and a 200 OK message is returned. Otherwise, a 412 Precondition Failed error code (preprocessing failed) is returned.  Default value: None.
<code>x - oss - copy - source - if - none - match</code>	String	No	If the ETag of the source object is different from the ETag provided by the user, the copy operation is performed and a 200 OK message is returned. Otherwise, a 304 Not Modified error code (preprocessing failed) is returned.  Default value: None.
<code>x - oss - copy - source - if - unmodified - since</code>	String	No	If the specified time is the same as or later than the modification time of the object, the object is copied normally and a 200 OK message is returned. Otherwise, a 412 Precondition Failed error code (preprocessing failed) is returned.  Default value: None.


Header	Type	Required	Description
<code>x - oss - copy - source - if - modified - since</code>	String	No	<p>If the source object is modified after the time specified by the user, the copy operation is performed. Otherwise, a 304 Not Modified error code (preprocessing failed) is returned.</p> <p>Default value: None.</p>
<code>x - oss - metadata - directive</code>	String	No	<p>Specifies how to set the metadata of the target object. The valid values are COPY and REPLACE.</p> <ul style="list-style-type: none"> <li><b>COPY (default):</b> The metadata of the source object is copied to the target object. The <code>x - oss - server - side - encryption</code> of the source object is not copied. That is, server-side encryption is performed on the target object only if the <code>x - oss - server - side - encryption</code> header is specified in the COPY request.</li> <li><b>REPLACE :</b> The metadata of the target object is set to the metadata specified in the user's request instead of the metadata of the source object.</li> </ul> <div>  <b>Note:</b>            If the source object and the target object have the same address, the metadata of the target object is replaced with the metadata of the source object regardless of the value of <code>x - oss - metadata - directive</code> .         </div>



Header	Type	Required	Description
<code>x - oss - server - side - encryption</code>	String	No	<p>Specifies the server-side entropy encoding encryption algorithm when OSS creates the target object.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>AES256</li> <li>KMS (You must enable KMS in the console before you can use the KMS encryption algorithm. Otherwise, a <code>KmsServiceNotEnabled</code> error code is returned.)</li> </ul> <div>  <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>If the <code>x - oss - server - side - encryption</code> header is not specified in the copy operation, the target object is not encrypted on the server side no matter whether server-side encryption has been performed on the source object.</li> <li>If you specify the <code>x - oss - server - side - encryption</code> header, server-side encryption is performed on the target object no matter whether the encryption has been performed on the source object. In addition, the response header for the copy request includes the <code>x - oss - server - side - encryption</code> header, and the value of the header is the encryption algorithm of the target object. When the target object is downloaded, the response header also includes the <code>x - oss - server - side - encryption</code> header, and the value of the header is the encryption</li> </ul> </div>

Header	Type	Required	Description
<code>x - oss - server - side - encryption - key - id</code>	String	No	<p>Indicates the primary key managed by KMS.</p> <p>This parameter is valid when the value of <code>x - oss - server - side - encryption</code> is KMS.</p>
<code>x - oss - object - acl</code>	String	No	<p>Specifies the ACL for the target object when it is created.</p> <p>Valid values:</p> <ul style="list-style-type: none"><li>• <code>public - read</code></li><li>• <code>private</code></li><li>• <code>public - read - write</code></li><li>• <code>default</code></li></ul>

Header	Type	Required	Description
x - oss - storage - class	String	No	<p>Specifies the storage class of the object.</p> <p><b>Valid values:</b></p> <ul style="list-style-type: none"> <li>Standard</li> <li>IA</li> <li>Archive</li> </ul> <p><b>Supported interfaces:</b> PutObject, InitMultipartUpload, AppendObject, PutObjectSymlink, and CopyObject</p> <div>  <b>Note:</b> <ul style="list-style-type: none"> <li>If the value of StorageClass is invalid , a 400 error message is returned with an error code: InvalidArgument.</li> <li>We recommend that you do not set the storage class to IA or Archive when calling CopyObject because an IA or Archive object smaller than 64 KB is billed at 64 KB.</li> <li>If you specify the value of x-oss-storage-class when uploading an object to a bucket, the storage class of the uploaded object is the specified value of x-oss-storage-class. For example, if you specify the value of x-oss-storage-class to Standard when uploading an object to a bucket of the IA storage class , the storage class of the object is Standard.</li> <li>If you change the storage class of an object, the object is considered as overwritten and will incur charges. An object of the IA or Archive class will be charged if it is overwritten within 30 and 60 days respectively after it is created.</li> </ul> </div>

Header	Type	Required	Description
x - oss - tagging	String	No	<p>Specifies the tag of the object. You can set multiple tags at the same time, for example, TagA=A&amp;TagB=B.</p> <div>  <b>Note:</b>            You must perform URL encoding for the tag key and value in advance. If a tag does not contain an equal sign (=), this string does not have a value.         </div>
x - oss - tagging - directive	String	No	<p>Specifies how to set the tag of the target object. The valid values are Copy and Replace.</p> <ul style="list-style-type: none"> <li>Copy (default): The tag of the source object is copied to the target object.</li> <li>Replace : The tag of the target object is set to the tag specified in the request instead of the tag of the source object.</li> </ul>

## Response elements

Table 7-1: Response elements

Name	Type	Description
CopyObjectResult	String	<p>Indicates the result of CopyObject.</p> <p>Default value: None.</p>
ETag	String	<p>Indicates the ETag of the target object.</p> <p>Parent node: CopyObjectResult</p>
LastModified	String	<p>Indicates the time when the target object is last modified.</p> <p>Parent node: CopyObjectResult</p>

## Examples

### • Example 1

#### Request example:

```
PUT / copy_oss . jpg HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Fri , 24 Feb 2012 07 : 18 : 48 GMT
x - oss - storage - class : Archive
x - oss - copy - source : / oss - example / oss . jpg
Authorization : OSS qn6qrrqx02 oawuk53otf jbyc : gmnwPKuu20
LQejd + iPkL259A + n0 =
```

#### Response example:

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 559CC9BDC7 55F95A6448 5981
Content - Type : applicatio n / xml
Content - Length : 193
Connection : keep - alive
Date : Fri , 24 Feb 2012 07 : 18 : 48 GMT
Server : AliyunOSS
<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< CopyObject Result xmlns =" http :// doc . oss - cn - hangzhou .
aliyuncs . com ">
< LastModifi ed > Fri , 24 Feb 2012 07 : 18 : 48 GMT </
LastModifi ed >
< ETag > " 5B3C1A2E05 3D763E1B00 2CC607C5A0 FE "</ ETag >
</ CopyObject Result >
```

### • Example 2

#### Request example:

```
PUT / test % 2FAK . txt HTTP / 1 . 1
Host : tesx . oss - cn - zhangjiako u . aliyuncs . com
Accept - Encoding : identity
User - Agent : aliyun - sdk - python / 2 . 6 . 0 ( Windows / 7 /
AMD64 ; 3 . 7 . 0 )
Accept : */*
Connection : keep - alive
x - oss - copy - source : / test / AK . txt
date : Fri , 28 Dec 2018 09 : 41 : 55 GMT
authorization : OSS qn6qrrqx02 oawuk53otf jbyc : gmnwPKuu20
LQejd + iPkL259A + n0 =
Content - Length : 0
```

#### Response example:

```
HTTP / 1 . 1 200 OK
Server : AliyunOSS
Date : Fri , 28 Dec 2018 09 : 41 : 56 GMT
Content - Type : applicatio n / xml
Content - Length : 184
Connection : keep - alive
x - oss - request - id : 5C25EFE446 2CE00EC6D8 7156
ETag : " F2064A169E E92E9775EE 5324D0B168 2E "
x - oss - hash - crc64ecma : 1275300285 9196105360
```

```

x - oss - server - time : 150
<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< CopyObject Result >
  < ETag >" F2064A169E E92E9775EE 5324D0B168 2E "</ ETag >
  < LastModifi ed > 2018 - 12 - 28T09 : 41 : 56 . 000Z </
LastModifi ed >
</ CopyObject Result >

```

**Note:**

**x-oss-hash-crc64ecma** indicates the 64-bit CRC value of the object. This value is calculated based on the [ECMA-182](#) standard. An object generated in a COPY operation may not have this value.

**SDK**

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)
- [iOS](#)
- [Node.js](#)
- [Ruby](#)

**Error codes**

Error code	HTTP status code	Description
InvalidArgument	400	The values of parameters (such as <code>x - oss - storage - class</code> are invalid.
Precondition Failed	412	<ul style="list-style-type: none"> <li>• The <code>x - oss - copy - source - if - match</code> header is specified in the request, but the provided ETag is different from the ETag of the source object.</li> <li>• The <code>x - oss - copy - source - if - unmodified - since</code> header is specified in the request, but the time specified in the request is earlier than the modification time of the object.</li> </ul>

Error code	HTTP status code	Description
Not Modified	304	<ul style="list-style-type: none"> <li>The <code>x-oss-copy-source-if-none-match</code> header is specified in the request, and the provided ETag is the same as the ETag of the source object.</li> <li>The <code>x-oss-copy-source-if-modified-since</code> header is specified in the request, but the source object has not been modified after the time specified in the request.</li> </ul>
KmsServiceNotEnabled	403	The <code>x-oss-server-side-encryption</code> header is set to KMS, but the KMS service is not enabled.

## 7.3 GetObject

Obtains an object. To perform GetObject operations, you must have the read permission on the object.



**Note:**

If the storage class of the request object is Archive, you must send a RestoreObject request first and ensure that the request is successfully responded without timeout.

### Request syntax

```
GET / ObjectName HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorization : SignatureValue
Range : bytes = ByteRange ( optional )
```

### Request header



**Note:**

- You can customize some headers in the response to a GET request by setting headers in the GET request. However, the headers in the response are set to the values specified in the GET request headers only when the request is successful ( the 200 OK code is returned).


- You cannot customize response headers by setting headers in the GET request as an anonymous user.
- You must sign the GET request before sending it.

Header	Type	Required?	Description
response - content - type	String	No	Specifies the content-type header in the request returned by OSS.  Default value: None
response - content - language	String	No	Specifies the content-language header in the response returned by OSS.  Default value: None
response - expires	String	No	Specifies the expires header in the response returned by OSS.  Default value: None
response - cache - control	String	No	Specifies the cache-control header in the response returned by OSS.  Default value: None
response - content - dispositio n	String	No	Specifies the content-disposition header in the response returned by OSS.  Default value: None
response - content - encoding	String	No	Specifies the content-encoding header in the response returned by OSS.  Default value: None



Header	Type	Required?	Description
Range	String	No	<p>Specifies the range of object that is transmitted.</p> <p>Default value: None</p> <ul style="list-style-type: none"> <li>· If the value of <code>Range</code> is valid, the total size of the object and the range of the returned object are included in the response. For example, "Content-Range: bytes 0-9/44" indicates that the total size of the object is 44, and the data in the range of 0-9 is returned.</li> <li>· If the value of <code>Range</code> is invalid, the entire object is transmitted, and Content-Range is not included in the response.</li> </ul>
If - Modified - Since	String	No	<p>If the time specified in the parameter is earlier than the object modification time or does not conform to the standards, OSS returns the object and the 200 OK message. Otherwise, the 304 Not Modified message is returned.</p> <p>Default value: None</p> <p>Time format: GMT, for example, <code>Fri, 13 Nov 2015 14:47:53 GMT</code>.</p>

Header	Type	Required?	Description
If - Unmodified - Since	String	No	<p>If the time specified in the parameter is the same as or later than the object modification time, OSS returns the object and the 200 OK message. Otherwise, the 412 Precondition Failed message is returned.</p> <p>Default value: None</p> <p>Time format: GMT, for example, <code>Fri, 13 Nov 2015 14:47:53 GMT</code></p> <p>You can specify the <code>If - Modified - Since</code> and <code>If - Unmodified - Since</code> parameters in a request at the same time.</p>
If - Match	String	No	<p>If the introduced ETag matches the ETag of the object, OSS transmits the object normally and returns the 200 OK message. Otherwise, the 412 Precondition Failed message is returned.</p> <p>Default value: None</p>
If - None - Match	String	No	<p>If the introduced ETag does not match the ETag of the object, OSS transmits the object normally and returns the 200 OK message. Otherwise, the 304 Not Modified message is returned.</p> <p>Default value: None</p> <p>You can specify the <code>If - Match</code> and <code>If - None - Match</code></p>

Header	Type	Required?	Description
Accept - Encoding	String	No	<p>Specifies the encoding type at the client-side.</p> <p>If you want an object to be returned in the GZIP format, explicitly add Accept-Encoding: gzip in the request header. OSS determines whether to return the object compressed in the GZIP format based on the Content-Type and size of the object (larger than or equal to 1 KB).</p> <div>  <b>Note:</b> <ul style="list-style-type: none"> <li>· If an object is compressed in the GZIP format, the ETag of the object is not included in the returned result.</li> <li>· Currently, OSS supports GZIP compression for the following Content-Types: HTML, Javascript, CSS, XML, RSS, and JSON.</li> </ul> </div>

#### Response header



##### Note:

If the type of the requested object is symbol link, the content of the object is returned. In the response header, `Content - Length` , `ETag` , and `Content - Md5` are the metadata of the requested object, `Last - Modified` is the maximum value of the requested object and symbol link (that is, the later modification time), and other parameters are the metadata of the symbol link.

Header	Type	Description
x - oss - server - side - encryption	String	If the requested object is encrypted with the entropy coding algorithm on the server, OSS decrypts the object and includes this header in the response to indicate the encryption algorithm used to encrypt the object on the server.
x - oss - tagging - count	String	Specifies the number of tags associated with the object. The value of this parameter returns only if the user has permission to read tags.

## Examples

### GET request example:

```
GET / oss . jpg HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Fri , 24 Feb 2012 06 : 38 : 30 GMT
Authorizat ion : OSS qn6qrrqxo2 oawuk53otf ****: UNQDb7GapE
gJCZkcde60 hZ9J ****
```

### Response example:

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 3a89276f - 2e2d - 7965 - 3ff9 - 51c875b9
****
x - oss - object - type : Normal
Date : Fri , 24 Feb 2012 06 : 38 : 30 GMT
Last - Modified : Fri , 24 Feb 2012 06 : 07 : 48 GMT
ETag : " 5B3C1A2E05 3D763E1B00 2CC607C5A0 FE "
Content - Type : image / jpg
Content - Length : 344606
Server : AliyunOSS
[ 344606 bytes of object data ]
```

### Request example with Range specified:

```
GET // oss . jpg HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Fri , 28 Feb 2012 05 : 38 : 42 GMT
Range : bytes = 100 - 900
```

```
Authorization : OSS qn6qrrqxo2 oawuk53otf ****: qZzjF3DUtd +
yK16BdhGtF cCV ****
```

### Response example

```
HTTP / 1 . 1 206 Partial Content
x - oss - request - id : 28f6508f - 15ea - 8224 - 234e - c0ce4073
****
x - oss - object - type : Normal
Date : Fri , 28 Feb 2012 05 : 38 : 42 GMT
Last - Modified : Fri , 24 Feb 2012 06 : 07 : 48 GMT
ETag : " 5B3C1A2E05 3D763E1B00 2CC607C5A0 FE "
Accept - Ranges : bytes
Content - Range : bytes 100 - 900 / 344606
Content - Type : image / jpg
Content - Length : 801
Server : AliyunOSS
[ 801 bytes of object data ]
```

### Request example with returned message headers customized:

```
GET / oss . jpg ? response - expires = Thu % 2C % 2001 % 20Feb %
202012 % 2017 % 3A00 % 3A00 % 20GMT & response - content - type =
text & response - cache - control = No - cache & response - content -
dispositio n = attachment % 253B % 2520filena me % 253Dtestin g .
txt & response - content - encoding = utf - 8 & response - content -
language =% E4 % B8 % AD % E6 % 96 % 87 HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com :
Date : Fri , 24 Feb 2012 06 : 09 : 48 GMT
```

### Response example:

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 559CC9BDC7 55F95A6448 ****
x - oss - object - type : Normal
Date : Fri , 24 Feb 2012 06 : 09 : 48 GMT
Last - Modified : Fri , 24 Feb 2012 06 : 07 : 48 GMT
ETag : " 5B3C1A2E05 3D763E1B00 2CC607C5A0 FE "
Content - Length : 344606
Connection : keep - alive
Content - dispositio n : attachment ; filename : testing . txt
Content - language : Chinese
Content - encoding : utf - 8
Content - type : text
Cache - control : no - cache
Expires : Fri , 24 Feb 2012 17 : 00 : 00 GMT
Server : AliyunOSS
[ 344606 bytes of object data ]
```

### Request example with the object type specified as symbol link:

```
GET / link - to - oss . jpg HTTP / 1 . 1
Accept - Encoding : identity
Date : Tue , 08 Nov 2016 03 : 17 : 58 GMT
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
```

```
Authorization : OSS qn6qrrqxo2 oawuk53otf ****: qZzjF3DUtd +
yK16BdhGtF cCV ****
```

### Response example

```
HTTP / 1 . 1 200 OK
Server : AliyunOSS
Date : Tue , 08 Nov 2016 03 : 17 : 58 GMT
Content - Type : application / octet - stream
Content - Length : 20
Connection : keep - alive
x - oss - request - id : 582143E6D3 436A212ADC ****
Accept - Ranges : bytes
ETag : " 8086265EFC 0211ED1F9A 2F09BF4622 27 "
Last - Modified : Tue , 08 Nov 2016 03 : 17 : 58 GMT
x - oss - object - type : Symlink
Content - MD5 : gIYmXvwCEe 0fmi8Jv0Yi Jw ==
```

### Request example for an Archive object that is restored:

```
GET / oss . jpg HTTP / 1 . 1
Host : oss - archive - example . oss - cn - hangzhou . aliyuncs .
com
Date : Sat , 15 Apr 2017 09 : 38 : 30 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf ****: zUglwRPGkb
ByZxm1 + y4eyu + N ****
```

### Response example:

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 58F7238945 29F18D7F00 ****
x - oss - object - type : Normal
x - oss - restore : ongoing - request =" false ", expiry - date ="
Sun , 16 Apr 2017 08 : 12 : 33 GMT "
Date : Sat , 15 Apr 2017 09 : 38 : 30 GMT
Last - Modified : Sat , 15 Apr 2017 06 : 07 : 48 GMT
ETag : " 5B3C1A2E05 3D763E1B00 2CC607C5A0 FE "
Content - Type : image / jpg
Content - Length : 344606
Server : AliyunOSS
[ 354606 bytes of object data ]
```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)
- [Node.js](#)

- [Browser.js](#)
- [Ruby](#)

## Error codes

Error code	HTTP status code	Description
NoSuchKey	404	The requested object does not exist.
SymlinkTargetNotExist	404	The requested object is a symbol link and does not exist.
InvalidTargetType	400	The requested object is a symbol link.
InvalidObjectState	403	<p>The storage class of the requested object is Archive and:</p> <ul style="list-style-type: none"> <li>· The RestoreObject request for the object is not initiated or timed out.</li> <li>· The RestoreObject request for the object has been initiated but the object is not restored yet.</li> </ul>
Not Modified	304	<ul style="list-style-type: none"> <li>· The If - Modified - Since header is specified in the request, but the source object has not been modified after the time specified in the request.</li> <li>· The If - None - Match header is specified in the request, and the ETag provided in the request is the same as the ETag of the source object.</li> </ul>
Precondition Failed	412	<ul style="list-style-type: none"> <li>· The If - Unmodified - Since header is specified, but the time specified in the request is earlier than the object modification time.</li> <li>· The If - Match header is specified, but the provided ETag is different from the ETag of the source object.</li> </ul>

## 7.4 AppendObject

AppendObject is used to upload a file by appending the file to an existing object.

An object created with the AppendObject operation is an appendable object, and an object uploaded with the PutObject operation is a normal object.



Note:

- You cannot use AppendObject to upload a file to an object protected by the WORM policy.
- You cannot use KMS to encrypt appendable objects on the server by specifying CMK IDs for them.

### Association with other operations

Operations	Relationship
<a href="#">PutObject</a>	If you perform a PutObject operation on an existing appendable object, the appendable object is overwritten by a new normal object.
<a href="#">HeadObject</a>	If you perform a HeadObject operation on an existing appendable object, then x-oss-next-append-position, x-oss-hash-crc64ecma, and x-oss-object-type are returned. The x-oss-object-type of the appendable object is Appendable.
<a href="#">GetBucket</a>	In the response to a GetBucket request, the x-oss-object-type of the appendable object is set to Appendable.
<a href="#">CopyObject</a>	You can neither use CopyObject to copy an appendable object, nor change the server-side encryption method of this object. However, you can use CopyObject to modify the custom metadata of an object.

### Request syntax

```
POST / ObjectName ? append & position = Position HTTP / 1 . 1
Content - Length : ContentLength
Content - Type : ContentType
Host : BucketName . oss . aliyuncs . com
Date : GMT Date
Authorization : SignatureValue
```

### Parameters in an AppendObject request

An AppendObject request must include the append and position parameters, which are both CanonicalizedResource and must be included in the signature.



- `append`

This parameter indicates that the request is sent to perform an `AppendObject` operation.

- `position`


This parameter specifies the position from where the append operation starts. The value of `position` in the first `AppendObject` operation must be 0, and the value of `position` in the subsequent operation is the current object length. For example, if the value of `position` specified in the first `AppendObject` request is 0, and the value of `content-length` is 65536, the value of `position` specified in the second `AppendObject` request must be set to 65536.


Each time after an `AppendObject` operation succeeds, `x-oss-next-append-position` in the response header specifies the position of the next `AppendObject` request.

Note the following when setting `position`:

- If the value of `position` is 0 and an object with the same name does not exist, you can set headers (such as `x-oss-server-side-encryption`) in the `AppendObject` request in the same way as you do in a `PutObject` request. If you add a correct `x-oss-server-side-encryption` header in an `AppendObject` request in which the value of `position` is 0, the `x-oss-server-side-encryption` header is also included in the response header. You can initiate a `CopyObject` request to modify the metadata of the object in subsequent operations.
- If the value of `position` is 0 and an appendable object with the same name does not exist, or if the length of an appendable object with the same name is 0, the `AppendObject` operation is successful. Otherwise, the system determines that the `position` and object length do not match and returns a `PositionNotEqualToLength` error code.
- The length limit of an object generated by an `AppendObject` operation is the same as that of an object generated by a `PutObject` operation. Each time after an `AppendObject` operation is performed, the last modification time of this object is updated.
- If the `position` value is correct and content with a length of 0 is appended to an existing appendable object, the status of the object does not change.

## Request headers

Header	Type	Description
Cache - Control	String	Specifies the Web page caching behavior for the object. For more information, see <a href="#">RFC2616</a> .  Default value: none
Content - Disposition	String	Specifies the name of the object when the object is downloaded. For more information, see <a href="#">RFC2616</a> .  Default value: none
Content - Encoding	String	Specifies the content encoding format of the object. For more information, see <a href="#">RFC2616</a> .  Default value: none
Content - MD5	String	Content-MD5 is a string calculated by the MD5 algorithm. This header is used to check whether the message content is consistent with the sent content.  The value of Content-MD5 can be obtained as follows : Calculate a 128-bit number based on the message content, rather than the header, and then base64-encode the number.  Default value: none  Restriction: none
Expires	Integer	Specifies the expiration time. For more information, see <a href="#">RFC2616</a> .  Default value: none
x - oss - server - side - encryption	String	Specifies the server-side encryption algorithm.  Valid values: AES256 or KMS   <b>Note:</b> You must enable KMS (Key Management Service) in the console before you can use the KMS encryption algorithm. Otherwise, a KmsServiceNotEnabled error is returned.

Header	Type	Description
x - oss - object - acl	String	<p>Specifies the ACL for the object.</p> <p>Valid values: public - read , private , and public - read - write</p>
x - oss - storage - class	String	<p>Specifies the storage class of the object.</p> <p>Values:</p> <ul style="list-style-type: none"> <li>Standard</li> <li>IA</li> <li>Archive</li> </ul> <p>Supported interfaces: PutObject, InitMultiPartUpload, AppendObject, PutObjectSymlink, and CopyObject</p> <div>  <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>The status code 400 Bad Request is returned if the value of StorageClass is invalid. Error description: InvalidArgument.</li> <li>If you specify the value of x-oss-storage-class when uploading an object to a bucket, the storage class of the uploaded object is the specified value of x-oss-storage-class regardless of the storage class of the bucket. For example, if you specify the value of x-oss-storage-class to Standard when uploading an object to a bucket of the IA storage class, the storage class of the object is Standard.</li> <li>This header takes effect only if you specify it when you perform the AppendObject operation for the first time.</li> </ul> </div>

## Response headers

Header	Type	Description
x-oss-next-append-position	64-bit integer	Specifies the position that must be provided in the next request, that is, the current object length. This header is returned when a successful message is returned for an AppendObject request, or when a 409 error occurs because the position and the object length do not match.
x-oss-hash-crc64ecma	64-bit integer	Specifies the 64-bit CRC value of the object. This value is calculated according to the <a href="#">ECMA-182</a> .

## CRC64 calculation method

The CRC value of an appendable object is calculated according to [ECMA-182](#). You can calculate the CRC64 in the following methods:

- Calculate using boost CRC module:

```
typedef boost::crc_optimal l < 64, 0x42F0E1EB A9EA3693UL L
, 0xffffffff ffffffffUL L, 0xffffffff ffffffffUL L, true
, true > boost_ecma;

uint64_t do_boost_crc ( const char * buffer , int length
)
{
    boost_ecma crc ;
    crc . process_bytes ( buffer , length );
    return crc . checksum ();
}
```

- Calculate using the Python crcmod:

```
do_crc64 = crcmod.mkCrcFun ( 0x142F0E1E BA9EA3693L , initCrc
= 0L , xorOut = 0xffffffff ffffffffL , rev = True )

print do_crc64 ( " 123456789 ")
```

## Example

## Request example:

```
POST / oss . jpg ? append & position = 0 HTTP / 1 . 1
Host : oss - example . oss . aliyuncs . com
Cache - control : no - cache
Expires : Wed , 08 Jul 2015 16 : 57 : 01 GMT
Content - Encoding : utf - 8
x - oss - storage - class : Archive
Content - Disposition : attachment ; filename = oss_download .
jpg
Date : Wed , 08 Jul 2015 06 : 57 : 01 GMT
```

```

Content - Type : image / jpg
Content - Length : 1717
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : kZoYNv66bs
mc10 + dcGKw5x2PR rk =
[ 1717 bytes of object data ]

```


### Response example:

```

HTTP / 1.1 200 OK
Date : Wed, 08 Jul 2015 06:57:01 GMT
ETag : "0F7230CAA4 BE94CCBDC9 9C55000000 00"
Connection : keep-alive
Content - Length : 0
Server : AliyunOSS
x-oss-hash-crc64ecma : 1474161709 5266562575
x-oss-next-append-position : 1717
x-oss-request-id : 559CC9BDC7 55F95A6448 5981

```

### Error messages

Error message	HTTP status code	Description
ObjectNotAppendable	409	You cannot perform AppendObject operations on a non-appendable object.
PositionNotEqualToLength	409	<p>The value of position does not match the current object length. You can obtain the position for the next operation from the response header x-oss-next-append-position and initiate a request again.</p> <div>  <b>Note:</b> <ul style="list-style-type: none"> <li>Although multiple requests may be sent concurrently, even if you set the value of x-oss-next-append-position in one request, the request may still fail because the value is not updated immediately.</li> <li>The PositionNotEqualToLength error message is returned if the value of position is 0 and the length of an appendable object with the same name is not 0.</li> </ul> </div>

## 7.5 DeleteObject

Deletes an object. To perform the DeleteObject operation on an object, you must have the write permission on the object.



**Note:**

If the type of the requested object is symbol link, the DeleteObject operation only deletes the symbol link but not the content that the link directs to.

### Request syntax

```
DELETE / ObjectName HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorizat ion : SignatureV alue
```

### Examples

#### Request example:

```
DELETE / AK . txt HTTP / 1 . 1
Host : test . oss - cn - zhangjiako u . aliyuncs . com
Accept - Encoding : identity
User - Agent : aliyun - sdk - python / 2 . 6 . 0 ( Windows / 7 /
AMD64 ; 3 . 7 . 0 )
Accept : */*
Connection : keep - alive
date : Wed , 02 Jan 2019 13 : 28 : 38 GMT
authorizat ion : OSS qn6qrrqxo2 oawuk53otf jbyc : zUglwRPGkb
ByZxm1 + y4eyu + NIUs = zV0vhg =
Content - Length : 0
```

#### Response example:

```
HTTP / 1 . 1 204 No Content
Server : AliyunOSS
Date : Wed , 02 Jan 2019 13 : 28 : 38 GMT
Content - Length : 0
Connection : keep - alive
x - oss - request - id : 5C2CBC8653 718B5511EF 4535
x - oss - server - time : 134
```

### SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)
- [iOS](#)
- [Node.js](#)
- [Browser.js](#)

- [Ruby](#)

## Error codes

Error code	HTTP status code	Description
Not Found	404	The bucket in which the requested object is stored does not exist.
No Content	204	The requested object does not exist.

## 7.6 DeleteMultipleObjects

Deletes multiple objects from the same bucket.

You can perform the `DeleteMultipleObjects` operation to delete up to 1,000 objects with one request. Two response modes are available: the Verbose mode and the Quiet mode.

- **Verbose mode:** The message body returned by OSS contains the result of each deleted object.
- **Quiet mode:** The message body returned by OSS only contains the results for objects which encountered an error in the DELETE process. If all objects are successfully deleted, no message body is returned.

## Request syntax

```
POST /? delete HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Content - Length : ContentLen gth
Content - MD5 : MD5Value
Authorizat ion : SignatureV alue
<? xml version =" 1 . 0 " encoding =" UTF - 8 ">
< Delete >
  < Quiet > true </ Quiet >
  < Object >
    < Key > key </ Key >
  </ Object >
...
</ Delete >
```


## Request headers

OSS verifies the received message body based on the following headers, and deletes the object only when the attributes of the message body conform to the headers.

Name	Description
encoding - type	<p>Specify the encoding type of the Key in the returned result. Currently, the URL encoding is supported. The Key adopts UTF-8 encoding, but the XML 1.0 Standard does not support parsing certain control characters, such as the characters with ASCII values from 0 to 10. In case that the Key contains control characters not supported by the XML 1.0 Standard, you can specify the encoding-type to encode the returned Key.</p> <p>Data type: String</p> <p>Default: None</p> <p>Optional value: url</p>

Header	Type	Required	Description
Encoding - type	String	No	<p>The Key parameter is UTF-8 encoded. If the Key parameter includes control characters which are not supported by the XML 1.0 standard, you can specify this header to encode the Key parameter in the returned result.</p> <p>Default value: None</p> <p>Valid value: url</p>
Content - Length	String	Yes	<p>Indicates the length of the HTTP message body.</p> <p>OSS verifies the received message body based on this header, and deletes the object only when the length of the message body is the same as this header.</p>



Header	Type	Required	Description
Content - MD5	String	Yes	<p>Content-MD5 is a string calculated with the MD5 algorithm. This header is used to check whether the content of the received message is consistent with that of the sent message. If this header is included in the request, OSS calculates the Content-MD5 of the received message body and compares it with the value of this header.</p> <div>  <b>Note:</b>            To obtain the value of this header, encrypt the message body of the DeleteMultipleObjects request using the MD5 algorithm to get a 128-bit byte array, and then base64-encode the byte array.         </div>

## Request elements

Element	Type	Required	Description
Delete	Container	Yes	<p>Specifies the container that stores the DeleteMultipleObjects request.</p> <p>Sub-node: One or more Objects, Quite</p> <p>Parent node: None</p>
Key	String	Yes	<p>Specifies the name of the object to be deleted.</p> <p>Parent node: Object</p>

Element	Type	Required	Description
Object	Container	Yes	<p>Specifies the container that stores the information about the object.</p> <p>Sub-node: Key</p> <p>Parent node: Delete</p>

Element	Type	Required	Description
Quiet	Enumerated string	Yes	<p>Enables the Quiet response mode.</p> <p>DeleteMultipleObjects provides the following two response modes:</p> <ul style="list-style-type: none"> <li>· Quiet: The message body of the response returned by OSS only includes objects that fail to be deleted . If all objects are deleted successfully, the response does not include a message body.</li> <li>· Verbose: The message body of the response returned by OSS includes the results of all deleted objects . This mode is used by default.</li> </ul> <p>Valid value: true (enables Quiet mode), false (enables Verbose mode)</p> <p>Default value: false</p> <p>Parent node: Delete</p>

## Response elements

Elements	Type	Description
Deleted	Container	Specifies the container that stores the successfully deleted objects.  Sub-node: Key  Parent node: DeleteResult
DeleteResult	Container	Specifies the container that stores the returned results of the DeleteMultipleObjects request.  Sub-node: Deleted  Parent node: None
Key	String	Specifies the name of the deleted object.  Parent node: Deleted
EncodingType	String	Specifies the encoding type for the returned results. If encoding-type is specified in the request, the Key is encoded in the returned result.  Parent node: Container

## Example

## Request example with Quite mode disabled:

```

POST /? delete HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Wed , 29 Feb 2012 12 : 26 : 16 GMT
Content - Length : 151
Content - MD5 : ohhnqLBJFi KkPSB01eNa UA ==
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc :+ z3gBfnFAXB
cBDgx27Y / jEfbfu8 =
<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< Delete >
  < Quiet > false </ Quiet >
  < Object >
    < Key > multipart . data </ Key >

```

```

</ Object >
< Object >
  < Key > test . jpg </ Key >
</ Object >
< Object >
  < Key > demo . jpg </ Key >
</ Object >
</ Delete >

```

**Response example:**

```

HTTP / 1 . 1 200 OK
x - oss - request - id : 78320852 - 7eee - b697 - 75e1 - b6db0f4849
e7
Date : Wed , 29 Feb 2012 12 : 26 : 16 GMT
Content - Length : 244
Content - Type : application / xml
Connection : keep - alive
Server : AliyunOSS
<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< DeleteResult xmlns =" http :// doc . oss - cn - hangzhou .
aliyuncs . com ">
  < Deleted >
    < Key > multipart . data </ Key >
  </ Deleted >
  < Deleted >
    < Key > test . jpg </ Key >
  </ Deleted >
  < Deleted >
    < Key > demo . jpg </ Key >
  </ Deleted >
</ DeleteResult >

```

**Request example with Quite mode enabled:**

```

POST /? delete HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Wed , 29 Feb 2012 12 : 33 : 45 GMT
Content - Length : 151
Content - MD5 : ohhnqLBJFi KkPSB01eNa UA ==
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : WuV0Jks8Ry
GSNQRbca64 kEExJDs =
<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< Delete >
  < Quiet > true </ Quiet >
  < Object >
    < Key > multipart . data </ Key >
  </ Object >
  < Object >
    < Key > test . jpg </ Key >
  </ Object >
  < Object >
    < Key > demo . jpg </ Key >
  </ Object >
</ Delete >

```

**Response example:**

```

HTTP / 1 . 1 200 OK
x - oss - request - id : 559CC9BDC7 55F95A6448 5981
Date : Wed , 29 Feb 2012 12 : 33 : 45 GMT

```

```
Content - Length : 0
Connection : keep - alive
Server : AliyunOSS
```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)
- [iOS](#)
- [Node.js](#)
- [Browser.js](#)
- [Ruby](#)

## Error codes

Error code	HTTP status code	Description
InvalidDigest	400	If you specify the Content-MD5 header in the request, OSS calculates the Content-MD5 of the message body and compares it with this header. If the two values are different, this error code is returned.
MalformedXML	400	<ul style="list-style-type: none"><li>• A DeleteMultipleObjects request can contain a message body of up to 2 MB. If the size of the message body exceeds 2 MB, this error code is returned.</li><li>• A Delete Multiple Objects request can be used to delete up to 1,000 objects at a time. If the number of objects to be deleted at a time exceeds 1,000, this error code is returned.</li></ul>

## 7.7 HeadObject

Obtains the meta information of an object without returning the object content.



### Note:

If you upload the user meta information prefixed with x-oss-meta- when sending a PutObject request, for example, x-oss-meta-location, the user meta information is returned.

### Request syntax

```
HEAD / ObjectName HTTP / 1 . 1
Host : BucketName / oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorizat ion : SignatureV alue
```

### Request header

Header	Type	Required?	Description
If - Modified - Since	String	No	If the time specified in the parameter is earlier than the modification time, OSS returns the 200 OK message and the object meta information. Otherwise, the 304 Not Modified message is returned.  Default value: None
If - Unmodified - Since	String	No	If the time specified in the parameter is the same as or later than the object modification time, OSS returns the 200 OK message and the object meta information. Otherwise, the 412 Precondition Failed message is returned.  Default value: None
If - Match	String	No	If the introduced ETag matches the ETag of the object, OSS returns the 200 OK message and the object meta information. Otherwise, the 412 Precondition Failed message is returned.  Default value: None

Header	Type	Required?	Description
If - None - Match	String	No	If the introduced ETag does not match the ETag of the object, OSS returns the 200 OK message and the object meta information. Otherwise, the 304 Not Modified message is returned.  Default value: None

## Response header



## Note:

If the type of the requested object is symbol link, the content of the object is returned. In the response header, `Content - Length` , `ETag` , and `Content - Md5` are the meta information of the requested object, `Last - Modified` is the maximum value of the requested object and symbol link (that is, the later modification time), and other parameters are the meta information of the symbol link.

Header	Type	Description
x - oss - meta -*	String	Indicates a custom meta header. If you upload the user meta information prefixed with x-oss-meta- when sending a PutObject request, the user meta information is returned.
Custom header with a prefix excluding x-oss-meta-	String	Indicates a custom header with a prefix excluding x-oss-meta-. If you upload the user meta information with a prefix (excluding x-oss-meta-), for example, x-oss-persistent-headers key1:base64_encode(value1),key2:base64_encode(value2).... when sending a PutObject request, the user meta information prefixed with the corresponding custom headers is returned.
x - oss - server - side - encryption	String	If the requested object is encrypted with the entropy coding algorithm on the server, OSS decrypts the object and includes this header in the response to indicate the encryption algorithm used to encrypt the object on the server.



Header	Type	Description
x - oss - server - side - encryption - key - id	String	Indicates the Key Management Service (KMS) key ID of a user. This header is returned if you use KMS to encrypt an object when creating the object.
x - oss - storage - class	String	Indicates the storage class of an object. The storage class includes Standard, Infrequent Access, and Archive. <ul style="list-style-type: none"> <li>Standard storage provides highly reliable, highly available, and high-performance object storage services that support frequent data access.</li> <li>Infrequent Access storage is applicable to the scenario where data needs to be stored for a long time and is not frequently accessed. (The monthly access frequency is 1 to 2 times on average.)</li> <li>Archive storage is applicable to the scenario where data needs to be stored for more than six months and is rarely accessed during the storage period. The stored data takes about one minute to become readable.</li> </ul>
x - oss - object - type	String	Indicates the object type. <ul style="list-style-type: none"> <li>The type of objects that are uploaded through PutObject is Normal.</li> <li>The type of objects that are uploaded through AppendObject is Appendable.</li> <li>The type of objects that are uploaded through MultipartUpload is Multipart.</li> </ul>
x - oss - next - append - position	String	Specifies the position to be provided for the next request. This header is returned for Appendable objects. <ul style="list-style-type: none"> <li></li> </ul>
x - oss - hash - crc64ecma	String	Indicates the 64-bit CRC value of the object. This value is calculated based on the ECMA-182 standard. An existing object may not have this value.

Header	Type	Description
x - oss - expiration	String	If the lifecycle rule is configured for the object, the x-oss-expiration header is returned. In the returned header, the value of expiry-date is the expiration date of the object, and the value of rule-id is the corresponding rule ID.
x - oss - restore	String	<p>If the bucket type is Archive and the Restore request is submitted, the Restore state of the object is indicated by x-oss-restore in the response header.</p> <ul style="list-style-type: none"> <li>• If the Restore request is not submitted or times out, the field is not returned.</li> <li>• If the Restore request is submitted and does not time out, the value of x-oss-restore returned is ongoing-request=" true" .</li> <li>• If the Restore request is submitted and completed , the value of x-oss-restore returned is ongoing-request=" false" , expiry-date=" Sun, 16 Apr 2017 08:12:33 GMT" . In the returned value, the value of expiry-date is the expiration date of the readable state of the restored file.</li> </ul>
x - oss - process - status	String	After you create an OSS event notification through MNS and send a request to perform OSS operations, if a matching event notification rule is detected, this header is returned. In this case, the value is the event notification result in the Base64 encoded JSON format.
x - oss - request - charged	String	If fees of the bucket to which the object belongs is paid by the requester, not the bucket owner, this header is returned with the value of requester .
Content - Md5	String	The message content (excluding headers) of Normal objects is calculated based on the RFC 1864 standard , and a 128-bit number is obtained. The Content-Md5 value of a message is obtained after the 128-bit number is encoded based on Base64. This header is not returned in Multipart and Appendable objects.
Last - Modified	String	Indicates the latest time when the object is modified. The time is in the GMT format specified in HTTP 1.1.
Access - Control - Allow - Origin	String	When the CORS rule is configured for the bucket to which the object belongs, if the requested origin meets the specified CORS rule, the origin is returned.

Header	Type	Description
Access - Control - Allow - Methods	String	When the CORS rule is configured for the bucket to which the object belongs, if the requested Access-Control-Request-Method meets the specified CORS rule, the corresponding methods are returned.
Access - Control - Max - Age	String	When the CORS rule is configured for the bucket to which the object belongs, if a request meets the specified CORS rule, the value of MaxAgeSeconds is returned.
Access - Control - Allow - Headers	String	When the CORS rule is configured for the bucket to which the object belongs, if a request meets the specified CORS rule, the headers are returned.
Access - Control - Expose - Headers	String	Indicates the list of headers that can access the client JavaScript. When the CORS rule is configured for the bucket to which the object belongs, if a request meets the specified CORS rule, the ExposeHeader is returned.
x - oss - tagging - count	String	Specifies the number of tags associated with the object. The value of this parameter returns only if the user has permission to read tags.

## Examples

### Request example

```
HEAD / oss . jpg HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Fri , 24 Feb 2012 07 : 32 : 52 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf ****: JbzF2LxZUt
anlJ5dLA09 2wpD ****
```

### Response example

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 559CC9BDC7 55F95A6448 ****
x - oss - object - type : Normal
x - oss - storage - class : Archive
Date : Fri , 24 Feb 2012 07 : 32 : 52 GMT
Last - Modified : Fri , 24 Feb 2012 06 : 07 : 48 GMT
ETag : " fba9dede5f 27731c9771 645a398633 28 "
Content - Length : 344606
Content - Type : image / jpg
Connection : keep - alive
```

Server : AliyunOSS

### Example of a request when the Restore request has been submitted but not completed

```
HEAD / oss . jpg HTTP / 1 . 1
Host : oss - archive - example . oss - cn - hangzhou . aliyuncs .
com
Date : Sat , 15 Apr 2017 07 : 32 : 52 GMT
Authorizat ion : OSS e1Unnbm1rg ****: KKxkdNrUBu 2t1kqlDh0M
LbDb ****
```

### Response example

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 58F71A1645 29F18D7F00 ****
x - oss - object - type : Normal
x - oss - storage - class : Archive
x - oss - restore : ongoing - request =" true "
Date : Sat , 15 Apr 2017 07 : 32 : 52 GMT
Last - Modified : Sat , 15 Apr 2017 06 : 07 : 48 GMT
ETag : " fba9dede5f 27731c9771 645a398633 28 "
Content - Length : 344606
Content - Type : image / jpg
Connection : keep - alive
Server : AliyunOSS
```

### Example of a request when the Restore request has been submitted and completed

```
HEAD / oss . jpg HTTP / 1 . 1
Host : oss - archive - example . oss - cn - hangzhou . aliyuncs .
com
Date : Sat , 15 Apr 2017 09 : 35 : 51 GMT
Authorizat ion : OSS e1Unnbm1rg ****: 2lqtGJ + ykDVmdu606 FMJnn
+ W ****
```

### Response example

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 58F7253445 29F18D7F00 ****
x - oss - object - type : Normal
x - oss - storage - class : Archive
x - oss - restore : ongoing - request =" false ", expiry - date ="
Sun , 16 Apr 2017 08 : 12 : 33 GMT "
Date : Sat , 15 Apr 2017 09 : 35 : 51 GMT
Last - Modified : Sat , 15 Apr 2017 06 : 07 : 48 GMT
ETag : " fba9dede5f 27731c9771 645a398633 28 "
Content - Length : 344606
```

### Error codes

Error code	HTTP status code	Description
NoSuchKey	404	The request object does not exist.
SymlinkTar getNotExist	404	The requested object is a symbol link.

Error code	HTTP status code	Description
InvalidTar getType	400	The requested and the target objects are a symbol link is a symbol link and the target.
Not Modified	304	<ul style="list-style-type: none"> <li>• The If - Modified - Since header is specified in the request, but the source object has not been modified after the time specified in the request.</li> <li>• The If - None - Match header is specified in the request, and the ETag provided in the request is the same as the ETag of the source object.</li> </ul>
Precondition Failed	412	<ul style="list-style-type: none"> <li>• The If - Unmodified - Since header is specified, but the time specified in the request is earlier than the object modification time.</li> <li>• The If - Match header is specified, but the provided ETag is different from the ETag of the source object.</li> </ul>

## 7.8 GetObjectMeta

Obtains the metadata of an object in a bucket, including the ETag, Size, and LastModified. The content of the object is not returned.



### Note:

- If the requested object is a symbol link, the information of the symbol link is returned.
- The response to a GetObjectMeta request does not include a message body whether the request is successful.

### Request syntax

```
HEAD / ObjectName ? objectMeta HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
```

Authorization : SignatureV alue

## Response headers

Header	Type	Description
Content-Length	String	Indicates the size of the object.
ETag	String	<p>Indicates the ETag of the object, which is generated when an object is created to identify the content of the object.</p> <p>For an object created by a PutObject request, its ETag is the MD5 value of its content. For an object created in other methods, its ETag is the UUID of its content. The ETag of an object can be used to check whether the content of the object changes. We recommend you do not use ETag as the MD5 value of an object to verify data integrity.</p> <p>Default value: None</p>

## Examples

### Request example:

```
HEAD / oss . jpg ? objectMeta HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Wed , 29 Apr 2015 05 : 21 : 12 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : CTkuxpLAI4
XZ + WwIfNm0Fmg brQ0 =
```

### Response example:

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 559CC9BDC7 55F95A6448 5981
Date : Wed , 29 Apr 2015 05 : 21 : 12 GMT
ETag : " 5B3C1A2E05 3D763E1B00 2CC607C5A0 FE "
Last - Modified : Fri , 24 Feb 2012 06 : 07 : 48 GMT
Content - Length : 344606
Connection : keep - alive
Server : AliyunOSS
```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)
- [iOS](#)

#### Error codes

Error code	HTTP status code	Description
Not Found	404	The requested object does not exist.

## 7.9 PutObjectACL

Modifies the ACL for an object. Only the bucket owner who has the write permission on the requested object can perform PutObjectACL operations.



#### Note:

- The object ACL takes precedence over the bucket ACL. For example, if the bucket ACL is private and the object ACL is public-read-write, OSS first checks the ACL for the object when a user accesses the object. As a result, all users can access this object even if the ACL for the bucket is a private. If the ACL for an object has never been set, the ACL for this object is same as that for the bucket where the object is located.
- Read operations to an object include: the read operations to the source object in GetObject, HeadObject, CopyObject, and UploadPartCopy. Write operations to an object include: the write operations on a new object in PutObject, PostObject, AppendObject, DeleteObject, DeleteMultipleObjects, CompleteMultipartUpload, and CopyObject.
- You can also include the x-oss-object-acl header in the request to set the ACL for an object when performing write operations on the object. For example, if you include the x-oss-object-acl header in the PutObject request, you can set the ACL for the object while uploading it.

## ACL overview

You can specify the `x-oss-object-acl` header in the `PutObjectACL` request to set the ACL for an object. The following table describes the four ACLs that can be set for an object.

ACL	Description
private	This ACL indicates that an object is a private resource. Only the owner of this object has the permission to read or write this object.
public - read	This ACL indicates that an object is a resource that can be read by the public. Only the owner of this object has the permission to read and write this object. Other users only have the permission to read this object.
public - read - write	This ACL indicates that an object is a resource that can be read and written by the public. All users have the permission to read and write this object.
default	This ACL indicates an object is a resource inheriting the read-write permissions of the bucket. That is, the bucket and the object have the same permissions.

## Request syntax

```
PUT / ObjectName ? acl HTTP / 1 . 1
x - oss - object - acl : Permission
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorizat ion : SignatureV alue
```

## Examples

### Request example:

```
PUT / test - object ? acl HTTP / 1 . 1
x - oss - object - acl : public - read
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Wed , 29 Apr 2015 05 : 21 : 12 GMT
```



```
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : KU5h8YMUC7
8M30dXqf3J xrTzHiA =
```

### Response example:

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 559CC9BDC7 55F95A6448 5981
Date : Wed , 29 Apr 2015 05 : 21 : 12 GMT
Content - Length : 0
Connection : keep - alive
Server : AliyunOSS
```

### SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)
- [Node.js](#)
- [Browser.js](#)
- [Ruby](#)

### Error codes

Error code	HTTP status code	Description
AccessDenied	403	The user is not the bucket owner or does not have the read and write permissions on the object.
InvalidArgument	400	The value of <code>x - oss - object - acl</code> is invalid.

## 7.10 GetObjectACL

Obtains the ACL for an object in a bucket.



#### Note:

If the ACL for an object has not been set, the ObjectACL in the response to the GetObjectACL request is default, which indicates that the ACL for the object is the

same as that for the bucket. For example, if the ACL for the bucket is private, the ACL for the object is also private.

### Request syntax

```
GET / ObjectName ? acl HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorization : SignatureV alue
```

### Response elements

Element	Type	Description
AccessControlList	Container	Specifies the container used to store the ACL information.  Parent node: AccessControlPolicy
AccessControlPolicy	Container	Specifies the container that stores the returned result of the GetObjectACL request.  Parent node: None
DisplayName	String	Indicates the name of the bucket owner, which is the same as the value of ID.  Parent node: AccessControlPolicy.Owner
Grant	Enumerated string	Indicates the ACL for the object.  Valid values: private , public - read , and public - read - write  Parent node: AccessControlPolicy.AccessControlList

Element	Type	Description
ID	String	Indicates the user ID of the bucket owner.  Parent node: AccessControlPolicy.Owner
Owner	Container	Specifies the container used to store the information about the bucket owner.  Parent node: AccessControlPolicy

## Examples

### Request example:

```
GET / test - object ? acl HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Wed , 29 Apr 2015 05 : 21 : 12 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : CTkuxpLAI4
XZ + WwIfNm0Fmg brQ0 =
```

### Response example:

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 559CC9BDC7 55F95A6448 5981
Date : Wed , 29 Apr 2015 05 : 21 : 12 GMT
Content - Length : 253
Content - Type : application / xml
Connection : keep - alive
Server : AliyunOSS

<? xml version =" 1 . 0 " ? >
< AccessControlPolicy >
  < Owner >
    < ID > 0022012022 2 </ ID >
    < DisplayName > 0022012022 2 </ DisplayName >
  </ Owner >
  < AccessControlList >
    < Grant > public - read </ Grant >
  </ AccessControlList >
</ AccessControlPolicy >
```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)

- [PHP](#)
- [Go](#)
- [.NET](#)

## Error codes

Error code	HTTP Status code	Error message	Description
AccessDenied	403	You do not have read acl permission on this object.	You do not have the permission to perform the GetObjectACL operation. Only the bucket owner can call GetObjectACL to obtain the ACL for an object in the bucket.

## 7.11 PostObject

Uploads an object to a specified bucket using the HTML form.

### Post object

- Request syntax

```
POST / HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
User - Agent : browser_data
Content - Length : ContentLength
Content - Type : multipart / form - data ; boundary = 9431149156168
-- 9431149156 168
Content - Disposition : form - data ; name = " key "
key
-- 9431149156 168
Content - Disposition : form - data ; name = " success_action_redirect "
success_redirect
-- 9431149156 168
Content - Disposition : form - data ; name = " Content - Disposition "
attachment ; filename = oss_downloaded . jpg
-- 9431149156 168
Content - Disposition : form - data ; name = " x - oss - meta - uuid "
myuuid
-- 9431149156 168
Content - Disposition : form - data ; name = " x - oss - meta - tag "
mytag
-- 9431149156 168
```

```

Content-Disposition: form-data; name="OSSAccessKeyId"
access-key-id
-- 9431149156 168
Content-Disposition: form-data; name="policy"
encoded_policy
-- 9431149156 168
Content-Disposition: form-data; name="Signature"
signature
-- 9431149156 168
Content-Disposition: form-data; name="file"; filename="MyFilename.jpg"
Content-Type: image/jpeg
file_content
-- 9431149156 168
Content-Disposition: form-data; name="submit"
Upload to OSS
-- 9431149156 168 --

```

- Request header


**Note:**

The message body of a PostObject request is coded in multipart/form-data format. In PostObject operations, parameters are passed as form fields in the request message body, which are different from the parameters passed by HTTP request headers in PutObject operations.

Header	Type	Required?	Description
OSSAccessKeyId	String	Yes in some cases	<p>Specifies the AccessKey ID of the bucket owner.</p> <p>Default value: none</p> <p>Restriction: This field is required when the bucket does not allow public-read-write and when the OSSAccessKeyId (or Signature) form field is provided.</p>

Header	Type	Required?	Description
policy	String	Yes in some cases	<p>Specifies the validity of the fields in the request. A request that does not contain the policy field is treated as an anonymous request, and can only access buckets that allow public-read-write.</p> <p>Default value: none</p> <p>Restriction: This form field is required when the bucket does not allow public-read-write, or when the OSSAccessKeyId (or Signature) form field is provided.</p>
Signature	String	Yes in some cases	<p>Specifies the signature information that is computed based on the Access Key Secret and Policy. OSS checks the signature information to verify validity of the PostObject request. For more information, see 5.7.4.2 Post Signature.</p> <p>Default value: none</p> <p>Restriction: This form field is required when the bucket does not allow public-read-write, or when the OSSAccessKeyId (or Policy) form field is provided.</p>

Header	Type	Required?	Description
Cache - Control , Content - Type , Content - Dispositio n , Content - Encoding , Expires	String	No	HTTP request headers. For more information, see <a href="#">PutObject</a> .  Default value: none
file	String	Yes	Specifies the file or text content. It must be the last field in the form. The browser automatically sets the Content-Type based on the file type and overwrites the user setting. Only one file can be uploaded to OSS at a time.  Default value: none
key	String	Yes	Specifies the name of the uploaded object. If the object name includes a path, such as a/b/c/b.jpg, OSS automatically creates the corresponding directory.  Default value: none
success_ac tion_redir ect	String	No	Specifies the URL to which the client is redirected after successful upload. If this form field is not specified, the returned result is specified by success_action_status. If upload fails, OSS returns an error code, and the client is not redirected to any URL.  Default value: none

Header	Type	Required?	Description
success_action_status	String	No	<p>Specifies the status code returned to the client after the previous successful upload if success_action_redirect is not specified.</p> <p>Default value: none</p> <p>Values: 200, 201, and 204 (default)</p> <div>  <b>Note:</b> <ul style="list-style-type: none"> <li>- If the value of this field is set to 200 or 204, OSS returns an empty file and the 200 or 204 status code.</li> <li>- If the value of this field is set to 201, OSS returns an XML file and the 201 status code.</li> <li>- If this field is not specified or set to an invalid value, OSS returns an empty file and the 204 status code.</li> </ul> </div>
x-oss-meta-*	String	No	<p>Specifies the user meta value set by the user.</p> <p>Default value: none</p>



Header	Type	Required?	Description
x - oss - server - side - encryption	String	No	<p>Specifies the server-side encryption algorithm when OSS creates an object.</p> <p>Values: AES256 or KMS .</p> <p>You must purchase the KMS service before using the KMS algorithm. Otherwise, the KmsServiceNotEnabled error code is returned.</p> <p>If you specify this parameter, it is returned in the response header and the uploaded object is encrypted. When you download the encrypted object, the x-oss-server-side-encryption field is included in the response header and its value is set to the algorithm used to encrypt the object.</p>
x - oss - server - side - encryption - key - id	String	No	<p>Specifies the primary key managed by KMS.</p> <p>This parameter is valid when the value of x - oss - server - side - encryption is set to KMS.</p>
x - oss - object - acl	String	No	<p>Specifies the ACL for the created object.</p> <p>Valid values: public - read , private , and public - read - write</p>

Header	Type	Required?	Description
x - oss - security - token	String	No	<p>If STS temporary authorization is used for this access, you must specify the item to be the SecurityToken value. At the same time, OSSAccessKeyId must use a paired temporary AccessKeyId. The signature calculation is consistent with the general AccessKeyId signature.</p> <p>Default value: none</p>

- Response header

Header	Type	Description
x - oss - server - side - encryption	String	<p>If x-oss-server-side-encryption is specified in the request, the response contains this header , which indicates the encryption algorithm used.</p>

- Response elements

Parameter	Type	Description
PostResponse	Container	<p>Specifies the container that saves the result of the PostObject request.</p> <p>Sub-elements: Bucket, ETag, Key, and Location</p>
Bucket	String	<p>Specifies the bucket name.</p> <p>Parent element: PostResponse</p>

Parameter	Type	Description
ETag	String	Specifies the entity tag (ETag) that is created when an object is generated. For an object created by PostObject, the ETag value is the UUID of the object, and can be used to check whether the content of the object has changed.  Parent element: PostResponse
Location	String	Specifies the URL of the newly created object.  Parent element: PostResponse

- Detail analysis
  - To perform the PostObject operation, you must have the permission to write the bucket. If the bucket allows public-read-write, you can choose not to upload the signature information. Otherwise, signature verification must be performed on the PostObject operation. Unlike PutObject, PostObject uses AccessKeySecret to compute the signature for the policy. The computed signature string is used as the value of the Signature form field. OSS checks this value to verify validity of the signature.
  - No matter whether the bucket allows public-read-write, once any one of the OSSAccessKeyId, Policy, and Signature form fields is uploaded, the remaining

two form fields are required. If the remaining two form fields are missing, OSS returns the error code: `InvalidArgument`.

- Form encoding submitted by the `PostObject` operation must be "multipart/form-data". That is, Content-Type in the header must be in the `multipart / form - data ; boundary = xxxxxx` format, where `boundary` is the boundary string.
- The URL of the submitted form can be the domain name of the bucket. It is not necessary to specify the object in the URL. The request uses `POST / HTTP / 1 . 1` but not `POST / ObjectName HTTP / 1 . 1`.
- The form and policy must be encoded with UTF-8.
- If you have uploaded the Content-MD5 request header, OSS calculates the body's Content-MD5 and check if the two are consistent. If the two are different, the error code `InvalidDigest` is returned.
- If the `PostObject` request contains the Header signature or URL signature, OSS does not check these signatures.
- If the `Put Object` request carries a form field prefixed with `x-oss-meta-`, the form field is treated as the user meta, for example, `x-oss-meta-location`. A single object can have multiple similar parameters, but the total size of all user meta cannot exceed 8 KB.
- The total length of the body in the `PostObject` request cannot exceed 5 GB. When the file length is too large, the system returns the error code: `EntityTooLarge`.
- If the `x-oss-server-side-encryption` header is specified when you upload an object, the value of this header must be set to `AES256` or `KMS`. Otherwise, a 400 error is returned with the error code: `InvalidEncryptionAlgorithmError`. After this header is specified, the response header also contains this header, and OSS stores the encryption algorithm of the uploaded object. When this object is downloaded, the response header contains `x-oss-server-side-encryption`, the value of which is set to the encryption algorithm of this object.
- Form fields are not case-sensitive, but their values are case-sensitive.
- Examples
  - Request example:

```
POST / HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Content - Length : 344606
Content - Type : multipart / form - data ; boundary =
9431149156 168
-- 9431149156 168
```

```

Content - Dispositio n : form - data ; name =" key "
/ user / a / objectName . txt
-- 9431149156 168
Content - Dispositio n : form - data ; name =" success_ac
tion_statu s "
200
-- 9431149156 168
Content - Dispositio n : form - data ; name =" Content -
Dispositio n "
content_di sposition
-- 9431149156 168
Content - Dispositio n : form - data ; name =" x - oss - meta
- uuid "
uuid
-- 9431149156 168
Content - Dispositio n : form - data ; name =" x - oss - meta
- tag "
metadata
-- 9431149156 168
Content - Dispositio n : form - data ; name =" OSSAccessK
eyId "
44CF959000 6BF252F707
-- 9431149156 168
Content - Dispositio n : form - data ; name =" policy "
eyJleHBpcm F0aW9uIjoI MjAxMy0xMi 0wMVQxMjow MDowMFoiLC
Jjb25kaXRp b25zIjpbWy Jjb250ZW50 LWxlbmd0aC 1yYW5nZSIs
IDAsIDEwND g1NzYwXSx7 ImJlY2tldC I6ImFoYWhh In0sIHsiQS
I6ICJhIn0s eyJrZXkiOi AiQUJDInId fQ ==
-- 9431149156 168
Content - Dispositio n : form - data ; name =" Signature "
kZoYNv66bs mc10 + dcGKw5x2PR rk =
-- 9431149156 168
Content - Dispositio n : form - data ; name =" file ";
filename =" MyFilename . txt "
Content - Type : text / plain
abcdefg
-- 9431149156 168
Content - Dispositio n : form - data ; name =" submit "
Upload to OSS
-- 9431149156 168 --

```

- Response example:

```

HTTP / 1 . 1 200 OK
x - oss - request - id : 61d2042d - 1b68 - 6708 - 5906 -
33d8192136 2e
Date : Fri , 24 Feb 2014 06 : 03 : 28 GMT
ETag : 5B3C1A2E05 3D763E1B00 2CC607C5 ****
Connection : keep - alive
Content - Length : 0
Server : AliyunOSS

```

## Post Policy

The policy form field requested by POST is used to verify the validity of the request. The policy is a JSON text encoded with UTF-8 and Base64. It states the conditions that a PostObject request must meet. The post form field is optional for uploading public-read-write buckets. However, we strongly recommend you use this field to limit POST requests.

## Policy example

```
{ " expiration ": " 2014 - 12 - 01T12 : 00 : 00 . 000Z ",
  " conditions ": [
    { " bucket ": " johnsmith " },
    [ " starts - with ", "$ key ", " user / eric /" ]
  ]
}
```

In a PostObject request, the policy must contain expiration and conditions.

- **Expiration**

Expiration specifies the expiration time of the policy, which is expressed in ISO8601 GMT. For example, "2014-12-01T12:00:00.000Z" means that the PostObject request must be sent before 12:00 on December 1, 2014.

- **Conditions**

Conditions is a list that specifies the valid values of form fields in the PostObject request.



**Note:**

The value of a form field is extended after OSS checks the policy. Therefore, the valid value of the form field set in the policy is equivalent to the value of the form field before extension.

The following table lists the conditions supported by the policy.

Parameter	Description
content - length - range	Specifies the acceptable maximum and minimum sizes of the uploaded file. This condition supports the content-length-range match mode.
Cache - Control , Content - Type , Content - Dispositio n , Content - Encoding , Expires	HTTP request headers. This condition supports the exact match and starts-with match modes.
key	Specifies the object name of the uploaded file. This condition supports the exact match and starts-with match modes.

Parameter	Description
success_action_redirect	Specifies the URL to which the client is redirected after successful upload. This condition supports the exact match and starts-with match modes.
success_action_status	Specifies the status code returned after successful upload if success_action_redirect is not specified. This condition supports the exact match and starts-with match modes.
x-oss-meta-*	Specifies the meta value set by the user. This condition supports the exact match and starts-with match modes.

If the PostObject request contains extra form fields, OSS adds these fields to the conditions of the policy and checks their validity.

- Condition match modes

Condition match modes	Description
Exact match	The value of a form field must be exactly the same as the value declared in the conditions. For example, if the value of the key form field must be a , the conditions must be: { "key" : "a" }, or: [ "eq" , "\$key" , "a" ]
Starts With	The value of a form field must start with the specified value. For example, if the value of key must start with user/user1, the conditions must be: [ "starts-with" , "\$key" , "user/user1" ]
Specified file size	Specifies the range of the allowed file size. For example, if the acceptable file size is 1 to 10 bytes, the conditions must be: ["content-length-range", 1, 10]

- Escape characters

In the policy form field of the PostObject request, \$ is used to indicate a variable . Therefore, to describe \$, the escape character must be used. In addition, some

characters in JSON strings are escaped. The following table describes characters in the JSON string of the policy form field of a PostObject request.

Escape characters	Description
\	Slash
\	Backslash
\"	Double quotation marks
\\$	Dollar sign
Space	Space
\f	Form feed
\n	Newline
\r	Carriage return
\t	Horizontal tab
\uxxxx	Unicode character

### Post Signature

For a verified PostObject request, the HTML form must contain policy and signature . Policy specifies which values are acceptable in the request. The procedure for computing signature is as follows:

1. Create a UTF-8 encoded policy.
2. Encode the policy with Base64. The encoding result is the value of the policy form field, and this value is used as the string to be signed.
3. Use AccessKeySecret to sign the string. The signing method is the same as the computing method of the signature in the header, that is, replacing the string to be signed with the policy form field.

## 7.12 Callback

To enable OSS to return callback information about an object to an application server after the object is uploaded to OSS, you just need to add a callback parameter in the upload request sent to OSS. This topic describes the implementation of upload callback in details.



**Note:**



APIs that support upload callback include: [PutObject](#), [PostObject](#), and [CompleteMultipartUpload](#). For more information about upload callback, see [Principle](#).

Step 1: Construct parameters.

- Construct a callback parameter.

A callback parameter is a base64-encoded string (field) in JSON format. To construct a callback parameter, it is important to specify the URL of the server to

which the callback information is returned (callbackUrl) and the content of the callback information (callbackBody).

The following table describes the JSON fields included in a callback parameter.

Field	Description	Required
callbackUrl	<ul style="list-style-type: none"> <li>- After an object is uploaded, OSS sends a callback request using the POST method to this URL. The body of the request is the content specified in callbackBody. This URL returns an <code>HTTP / 1 . 1 200 OK</code> response only when the following conditions are met: 1. The body of the callback request is in JSON format. 2. The Content-Length header of the request must be a valid value smaller than 3 MB.</li> <li>- You can set five URLs in a request in maximum by separating them by semicolons (;). OSS sends requests to each URL until the first success response is returned.</li> <li>- If no URL is configured or the value of this field is null, OSS determines that the callback function is not configured.</li> <li>- HTTPS IP addresses are supported.</li> <li>- To ensure that Chinese characters can be correctly processed, the callbackUrl must be encoded. For example, if the value of callbackUrl is <code>http://example.com/Chinesecharacters.php?key=value&amp;ChineseName=ChineseValue</code>, it must be encoded into a JSON string, such as <code>http://example.com/%E4%B8%AD%E6%96%87.php?key=value&amp;%E4%B8%AD%E6%96%87%E5%90%8D%E7%A7%B0=%E4%B8%AD%E6%96%87%E5%80%BC</code>.</li> </ul>	Yes

Field	Description	Required
callbackHost	<ul style="list-style-type: none"> <li>- Indicates the value of the Host header in the callback request. This field is valid only when the callbackUrl is specified.</li> <li>- If this field is not specified, the hosts in the URLs specified in the callbackUrl field are resolved and specified as the value of this field.</li> </ul>	No
callbackBody	<ul style="list-style-type: none"> <li>- Indicates the value of the callback request body, for example, as key=\$(key)&amp;etag=\$(etag)&amp;my_var=\$(x:my_var).</li> <li>- System variables, custom variables, and constants are supported for this field. Custom variables are passed through the callback-var parameter in PutObject and CompleteMultipart operations and through form fields in PostObject operations.</li> </ul>	Yes
callbackBodyType	<ul style="list-style-type: none"> <li>- Indicates the Content-Type header in the callback request. This field supports two values: application/x-www-form-urlencoded and application/json, in which application/x-www-form-urlencoded is the default value.</li> <li>- If the value of callbackBodyType is application/x-www-form-urlencoded, variables in callbackBody are replaced by the encoded URLs. If the value of callbackBodyType is application/json, the variables are replaced in JSON format.</li> </ul>	No

Examples of the JSON fields included in a callback parameter are as follows:

```
{
  "callbackUrl": "121.101.166.30/test.php",
  "callbackHost": "oss-cn-hangzhou.aliyuncs.com",
  "callbackBody": "{\" mimeType \": \"${ mimeType }, \" size \": \"${ size }\"",
  "callbackBodyType": "application/json"
}
```

```
}
```

```
{
  " callbackUr  l ":" 121 . 43 . 113 . 8 : 23456 / index . html ",
  " callbackBo  dy ":" bucket =${ bucket }& object =${ object }& etag
    =${ etag }& size =${ size }& mimeType =${ mimeType }& imageInfo .
    height =${ imageInfo . height }& imageInfo . width =${ imageInfo .
    width }& imageInfo . format =${ imageInfo . format }& my_var =${ x
    : my_var }"
}
```

The following table describes configurable system parameters in callbackBody.

System parameters	Description
bucket	Indicates the bucket where the request object is stored.
object	Indicates the requested object.
etag	Indicates the ETag of the object, that is, the ETag field returned to the user who sends the request.
size	Indicates the size of the requested object, which is the total object size in CompleteMultipartUpload operations.
mimeType	Indicates the resource type. For example, the resource type of JPEG images is image/jpeg.
imageInfo.height	Indicates the height of an image.
imageInfo.width	Indicates the width of an image.
imageInfo.format	Indicates the format of an image, such as jpg or png.



**Note:**

Only an image object supports the imageinfo parameter. The values of imageInfo.height, imageInfo.width, imageInfo.format are null if the object is not an image.

- Construct custom parameters using callback-var.

You can configure custom parameters by using the callback-var parameter. A custom parameter is a key-value map. You can add required parameters to the map. When a POST callback request is initiated, OSS adds these custom parameters and the system parameters described in the preceding section to the body of the POST

request, so that these parameters can be easily obtained by the user who sends the callback request.

You can construct a custom parameter in the same way as you construct a callback parameter. A custom parameter is also a string in JSON format, which is a key-value map including all custom parameters.



**Note:**

The key of a custom parameter must start with "x:" and be lower-cased. Otherwise, OSS returns an error.

Assume that you need to configure two custom parameters `x:var1` and `x:var2`, and the values of the two parameters are `value1` and `value2` respectively. The constructed JSON strings are as follows:

```
{
  " x : var1 ":" value1 ",
  " x : var2 ":" value2 "
}
```



**Note:**

If the input callback parameter or callback-var parameter is invalid, a 400 error is returned with the `InvalidArgument` error code. This occurs in the following scenarios:

- URLs and headers are input at the same time to the callback parameter (`x-oss-callback`) or the callback-var parameter (`x-oss-callback-var`) in `PutObject` and `CompleteMultipartUpload` operations.
- The size of the callback or callback-var parameter (this does not occur in `PostObject` operations because the callback-var parameter is not available in `PostObject` operations) exceeds 5 KB.
- The callback or callback-var parameter is not base64-encoded or is not in the valid JSON format after being decoded.
- The `callbackUrl` field decoded from the callback parameter includes more than five URLs, or the port in the URL is invalid, for example:

```
{" callbackUr l ":" 10 . 101 . 166 . 30 : test ",
  " callbackBo dy ":" test "}
```

- The `callbackBody` field decoded from the callback parameter is null.

- The value of `callbackBodyType` decoded from the `callback` parameter is not `applicatio n / x - www - form - urlencoded` or `applicatio n / json`.
- The variables in the `callbackBody` field decoded from the `callback` parameter are not in the valid format, that is, `${var}`.
- The `callback-var` parameter is not in the expected JSON format, that is, `{" x : var1 ":" value1 "," x : var2 ":" value2 "...}`.

#### Step 2: Construct a callback request.

After constructing the `callback` and `callback-var` parameters, you must add the parameters to the callback request sent to OSS.

You can add the parameters in the following three methods:

- Add the parameters to the URL.
- Add the parameters to the header.
- Add the parameters to the form fields in the body of a POST request.



#### Note:

You can use only this method to specify callback parameters when uploading objects using POST requests.

The preceding three methods are alternative. If you use more than one method, OSS returns an `InvalidArgument` error.

To add the parameters to a request sent to OSS, you must use base64 to encode the JSON string constructed in the preceding section, and then add the parameters as follows:

- To add the parameters to the URL, add `callback =[ Callback ]` or `callback - var =[ CallbackVa r ]` to the request as a URL parameter. When the `CanonicalizedResource` field in the signature is calculated, `callback` or `callback-var` is used as a sub-resource.
- To add the parameters to the header, add `x - oss - callback =[ Callback ]` or `x - oss - callback - var =[ CallbackVa r ]` to the request as a header. When the `CanonicalizedOSSHeaders` field in the signature is calculated, `x-oss-callback-var` and `x-oss-callback` are used. The code example is as follows:

```
PUT / test . txt HTTP / 1 . 1
Host : callback - test . oss - test . aliyun - inc . com
```

```

Accept - ncoding : identity
Content - Length : 5
x - oss - callback - var : eyJ40m15X3 ZhciI6ImZv ciljYWxsYm
Fjay10ZXN0 In0 =
User - Agent : aliyun - sdk - python / 0 . 4 . 0 ( Linux / 2 . 6
. 32 - 220 . 23 . 2 . ali1089 . el5 . x86_64 / x86_64 ; 2 . 5 . 4 )
x - oss - callback : eyJjYWxsYm Fja1VybcI6 IjEyMS40My
4xMTMuODoy MzQ1Ni9pbm RleC5odG1s IiwgICJjYW xsYmFja0Jv
ZHkiOiJidW NrZXQ9JHti dWNrZXR9Jm 9iamVjdD0k e29iamVjdH
0mZXRhZz0k e2V0YWd9Jn NpemU9JHtz aXplfSZtaW 1lVHlwZT0k
e21pbWVUeX BlfSZpbWFn ZuluZm8uaG VpZ2h0PSR7 aW1hZ2VJbm
ZvLmhlaWdo dH0maW1hZ2 VJbmZvLndp ZHRoPSR7aW 1hZ2VJbmZv
LndpZHRofS ZpbWFnZulu Zm8uZm9ybW F0PSR7aW1h Z2VJbmZvLm
ZvcmlhdH0m bXlfdmFyPS R7eDpteV92 YXJ9In0 =
Host : callback - test . oss - test . aliyun - inc . com
Expect : 100 - Continue
Date : Mon , 14 Sep 2015 12 : 37 : 27 GMT
Content - Type : text / plain
Authorizat ion : OSS mlepou3zr4 u7b14 : 5a74vhd4UX
pmyuudV14K aen5 ****
Test

```

- Use form fields to add parameters to the body of a POST request.
- It is slightly complicated to add the callback parameter when the POST method is used to upload an object because the callback parameter must be added using an independent form field, as shown in the following example:

```

-- 9431149156 168
Content - Dispositio n : form - data ; name =" callback "
eyJjYWxsYm Fja1VybcI6 IjEwLjEwMS 4xNjYuMzA6 ODA4My9jYW
xsYmFjay5w aHAiLCJjYW xsYmFja0hv c3QiOiIxMC 4xMDEuMTY2
LjMwIiwY2 FsbGJhY2tC b2R5IjoiZm lsZW5hbWU9 JChmaWxlbm
FtZSkmdGFi bGU9JHt4On RhYmxlfSIs ImNhbGxiYW NrQm9keVR5
cGUiOiJhcH BsaWNhdGlv bi94LXd3dy 1mb3JtLXVy bGVuY29kZW QifQ
==

```

- Custom parameters cannot be added by including the callback-var parameter to a form field. Each custom parameter must be added by using an independent form field. For example, if the JSON string for the custom parameters is as follows:

```

{
  " x : var1 ":" value1 ",
  " x : var2 ":" value2 "
}

```

The form fields in the POST request are as follows:

```

-- 9431149156 168
Content - Dispositio n : form - data ; name =" callback "
eyJjYWxsYm Fja1VybcI6 IjEwLjEwMS 4xNjYuMzA6 ODA4My9jYW
xsYmFjay5w aHAiLCJjYW xsYmFja0hv c3QiOiIxMC 4xMDEuMTY2
LjMwIiwY2 FsbGJhY2tC b2R5IjoiZm lsZW5hbWU9 JChmaWxlbm
FtZSkmdGFi bGU9JHt4On RhYmxlfSIs ImNhbGxiYW NrQm9keVR5
cGUiOiJhcH BsaWNhdGlv bi94LXd3dy 1mb3JtLXVy bGVuY29kZW QifQ
==

```

```
-- 9431149156 168
Content - Dispositio n : form - data ; name =" x : var1 "
value1
-- 9431149156 168
Content - Dispositio n : form - data ; name =" x : var2 "
value2
```

You can also add callback conditions in the policy (if callback parameters are not added, upload verification is not performed on this parameter). For example :

```
{ " expiration ": " 2014 - 12 - 01T12 : 00 : 00 . 000Z ",
  " conditions ": [
    { " bucket ": " johnsmith " },
    { " callback ": " eyJjYWxsYm Fja1VybcI6 IjEwLjEwMS
4xNjYuMzA6 ODA4My9jYW xsYmFjay5w aHAiLCJjYW xsYmFja0hv
c3QiOiIxMC 4xMDEuMTY2 LjMwIiwIY2 FsbGJhY2tC b2R5IjoizM
lsZW5hbWU9 JChmaWxlbm FtZSkiLCJj YWxsYmFja0 JvZHLUeXBl
IjoiyXBwbG ljYXRpb24v eC13d3ctZm 9ybS11cmxl bmNvZGVkIn 0
="},
    [ " starts - with ", "$ key ", " user / eric / " ],
  ]
}
```

### Step 3: Initiate a callback request.

If a file is uploaded successfully, OSS sends the content specified by the callback and callback-var parameters in the request to the application server by using the POST method as follows:

```
POST / index . html HTTP / 1 . 0
Host : 121 . 43 . 113 . 8
Connection : close
Content - Length : 181
Content - Type : applicatio n / x - www - form - urlencoded
User - Agent : ehttp - client / 0 . 0 . 1
bucket = callback - test & object = test . txt & etag = D8E8FCA2DC
0F896FD7CB 4CB0031BA2 49 & size = 5 & mimeType = text % 2Fplain &
imageInfo . height =& imageInfo . width =& imageInfo . format =& x :
var1 = for - callback - test
```

### (Optional) Step 4: Sign the callback request.

If the callback parameter is configured in the request, OSS initiates a POST callback request to the application server through the URL specified by the callbackUrl field. To verify whether the callback request received by the application server is initiated by OSS, you can sign the callback request.



- Generate a signature.

A call request is signed by OSS using the RSA asymmetric algorithm.

A signature is generated by encrypting the callback string with a private key, as shown in the following code:

```
authorization = base64_encode ( rsa_sign ( private_key ,
url_decode ( path ) + query_string + '\n' + body , md5 ) )
```



**Note:**

In the preceding code, `private_key` is a private key only known by OSS, `path` is the resource path included in the callback request, `query_string` is the query string, and `body` is the message body specified in the callback request.

A callback request is signed in the following steps:

1. Obtain the callback string to be signed, which is composed by the resource path obtained by decoding the URL, the original query string, a carriage return, and the callback message body.
2. Sign the callback string with the RSA encryption algorithm, that is, using the private key to encrypt the callback string. The hash function used for signature is MD5.
3. Use Base64 to encode the signed result to get the final signature and Add the signature to the authorization header in the callback request.

The example of a signed request is as follows

```
POST / index . php ? id = 1 & index = 2 HTTP / 1 . 0
Host : 121 . 43 . 113 . 8
Connection : close
Content - Length : 18
authorization : kKQeGTRccD KyHB3H9vF + xYMSrmhMZj zzl2 /
kdD1ktNVgb WefYTQG0G2 SU / RaHBovRCE8 OkQDjC3uG3 3esH2t ****
Content - Type : applicatio n / x - www - form - urlencoded
User - Agent : ehttp - client / 0 . 0 . 1
x - oss - pub - key - url : aHR0cDovL2 dvc3NwdWJs aWMuYWxpY2
RuLmNvbS9j YWxsYmFja1 9wdWJfa2V5 X3YxLnBlbQ ==
bucket = yonghu - test
```

In the preceding example, `path` is `/ index . php` , `query_string` is `? id = 1 &`

`index = 2` , and `body` is `bucket = yonghu - test` . The final signature is

```
kKQeGTRccD KyHB3H9vF + xYMSrmhMZj zzl2 / kdD1ktNVgb WefYTQG0G2 SU
/ RaHBovRCE8 OkQDjC3uG3 3esH2txA ==.
```

- Verify the signature.

Signature verification is an inverse process of signing a request. The signature is verified by the application server as follows:

```
Result = rsa_verify ( public_key , md5 ( url_decode ( path ) +
query_string + '\ n ' + body ), base64_decode ( authorization ))
```

The fields in the preceding code have the same meanings as they are used to sign the request, in which `public_key` indicates the public key, `authorization` indicates the signature in the callback request header. The signature is verified as follows:

1. The `x-oss-pub-key-url` header in the callback request stores the base64-encoded URL of the public key. Therefore, you must decode the base64-coded URL to get the public key,

```
public_key = urlopen ( base64_decode ( x - oss - pub - key -
url_header ))
```



#### Note:

To ensure that the public key is issued by OSS, you must verify whether the value of the `x-oss-pub-key-url` header starts with `http://gosspublic.alicdn.com/` or `https://gosspublic.alicdn.com/`.

2. Obtain the decoded signature.

```
signature = base64_decode ( authorization_header )
```

3. Obtain the string to be signed the same way as described in the process of signing the callback request.

```
sign_str = url_decode ( path ) + query_string + '\ n ' +
body
```

4. Verify the signature.

```
result = rsa_verify ( public_key , md5 ( sign_str ),
signature )
```

The preceding sample is used as an example:

1. Obtain the URL of the public key by base64-decoding `aHR0cDovL2`

```
dvc3NwdWJs aWMuYWxpY2 RuLmNvbS9j YWxsYmFja1 9wdWJfa2V5
```

X3YxLnBlbQ ==. The decoded URL is `http :// gosspublic . alicdn . com / callback_p ub_key_v1 . pem .`

2. Base64-decode the signature header `kkQeGTRccD KyHB3H9vF + xYMSrmhMZj zzl2 / kdD1ktNVgb WEfYTQG0G2 SU / RaHBovRCE8 0kQDjC3uG3 3esH2txA ==`. (The decoded result cannot be displayed because it is a nonprintable string.)
  3. Obtain the string to be signed, that is, `url_decode( "index.php" ) + "?id=1&index=2" + "\n" + "bucket=yonghu-test"` , and perform the MD5 verification on the string.
  4. Verify the signature.
- Application server example

The following Python code demonstrates how an application server verifies a signature. To run the code, the M2Crypto library must be installed.

```
import httpplib
import base64
import md5
import urllib2
from BaseHTTPServer import BaseHTTPRequestHandler, HTTPServer
from M2Crypto import RSA
from M2Crypto import BIO
def get_local_ip():
    try:
        csock = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
        csock.connect(('8.8.8.8', 80))
        (addr, port) = csock.getsockname()
        csock.close()
        return addr
    except socket.error:
        return ""
class MyHTTPReqHandler(BaseHTTPRequestHandler):
    '''
    def log_message(self, format, *args):
        return
    '''
    def do_POST(self):
        # get public key
        pub_key_url = ''
        try:
            pub_key_url_base64 = self.headers['x-oss-pub-key-url']
            pub_key_url = pub_key_url_base64.decode('base64')
            if not pub_key_url.startswith("http://gosspublic.alicdn.com/") and not pub_key_url.startswith("https://gosspublic.alicdn.com/"):
                self.send_response(400)
                self.end_headers()
                return
            url_reader = urllib2.urlopen(pub_key_url)
```

```

        # you can cache it
        pub_key = url_reader.read()
    except:
        print 'pub_key_url: ' + pub_key_url
        print 'Get pub key failed!'
        self.send_response(400)
        self.end_headers()
        return
    # get authorization
    authorization_base64 = self.headers['authorization']
    authorization = authorization_base64.decode('base64')
    # get callback body
    content_length = self.headers['content-length']
    callback_body = self.rfile.read(int(content_length))
    # compose authorization string
    auth_str = ''
    pos = self.path.find('?')
    if -1 == pos:
        auth_str = urllib2.unquote(self.path) + '\n' + callback_body
    else:
        auth_str = urllib2.unquote(self.path[0:pos]) + self.path[pos:] + '\n' + callback_body
    print auth_str
    # verify authorization
    auth_md5 = md5.new(auth_str).digest()
    bio = BIO.MemoryBuffer(pub_key)
    rsa_pub = RSA.load_public_key_bio(bio)
    try:
        result = rsa_pub.verify(auth_md5, authorization, 'md5')
    except:
        result = False
    if not result:
        print 'Authorization verify failed!'
        print 'Public key: %s' % (pub_key)
        print 'Auth string: %s' % (auth_str)
        self.send_response(400)
        self.end_headers()
        return
    # do something according to callback_body
    # response to OSS
    resp_body = '{"Status": "OK"}'
    self.send_response(200)
    self.send_header('Content-Type', 'application/json')
    self.send_header('Content-Length', str(len(resp_body)))
    self.end_headers()
    self.wfile.write(resp_body)
class MyHTTPServer(HTTPServer):
    def __init__(self, host, port):
        HTTPServer.__init__(self, (host, port), MyHTTPRequestHandler)
if '__main__' == __name__:
    server_ip = get_local_ip()
    server_port = 23451
    server = MyHTTPServer(server_ip, server_port)

```

```
server . serve_fore ver ()
```

The code for the application server in other languages is as follows

Java:

- Click [here](#) to download the code.
- Running method: Extract the package and run `java -jar oss - callback - server - demo . jar 9000` (9000 is the port number and can be specified as needed).

PHP:

- Click [here](#) to download the code.
- Running method: Deploy the code to an Apache environment because some headers in the PHP code is depended on the environment. You can modify the example code according to the environment.

Python:

- Click [here](#) to download the code.
- Running method: Extract the package and run `python callback_app_server . py`. To run the code, RSA dependencies must be installed.

C#:

- Click [here](#) to download the code.
- Running method: Extract the package and see `README . md` to get more information.

.NET :

- Click [here](#) to download the code.
- Running method: Extract the package and see `README . md` to get more information.

Go:

- Click [here](#) to download the code.
- Running method: Extract the package and see `README . md` to get more information.

Ruby:

- Click [here](#) to download the code.

- Running method: Run `ruby aliyun_oss_callback_server.rb`.

Step 5: Return the callback result.

The application server returns the response to OSS.

The response to the callback request is as follows:

```
HTTP / 1 . 0    200    OK
Server : BaseHTTP / 0 . 3    Python / 2 . 7 . 6
Date : Mon , 14 Sep 2015 12 : 37 : 27 GMT
Content - Type : applicatio n / json
Content - Length : 9
{" a ":" b "}
```



**Note:**

The response returned by the application server to OSS must contain the Content-Length header, and the size of the response body cannot exceed 1 MB.

Step 6: Return the upload result.

OSS returns the information returned by the application server to the user.

The returned response is as follows:

```
HTTP / 1 . 1    200    OK
Date : Mon , 14 Sep 2015 12 : 37 : 27 GMT
Content - Type : applicatio n / json
Content - Length : 9
Connection : keep - alive
ETag : " D8E8FCA2DC 0F896FD7CB 4CB0031BA2 49 "
Server : AliyunOSS
x - oss - bucket - version : 1442231779
x - oss - request - id : 55F6BF8720 7FB30F2640 C548
{" a ":" b "}
```



**Note:**

- The body of responses for some requests (such as `CompleteMultipartUpload`) contains content (for example, information in XML format). If you use the upload callback function, the original body content is overwritten, such as `{" a ":" b "}`. Take this into consideration when you use the upload callback function.
- If the upload callback fails, a 203 error is returned with the error code `CallbackFailed`. This indicates that the file is successfully uploaded to OSS but the callback fails. A callback failure only indicates that OSS does not receive the expected callback response, but not indicates that the application server does not receive a

callback request. For example, the response returned by the application server is not in JSON format.


## 7.13 PutSymlink


Creates a symbol link directing to the target object. You can use the symbol link to access the target object.

### Request syntax

```
PUT / ObjectName ? symlink HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorization : SignatureValue
x - oss - symlink - target : TargetObjectName
```

### Request headers

Header	Type	Required	Description
x - oss - symlink - target	String	Yes	<p>Indicates the target object that the symbolic link directs to.</p> <p>Valid value: The naming conventions are the same as those for objects.</p> <div> <b>Note:</b><ul style="list-style-type: none"><li>• Similar to ObjectName, TargetObjectName must be URL -encoded.</li><li>• The target object that a symbolic link directs to cannot be a symbolic link.</li></ul></div>

Header	Type	Required	Description
x - oss - storage - class	String	No	<p>Specifies the storage class of the target object.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>Standard</li> <li>IA</li> <li>Archive</li> </ul> <p>Supported APIs: PutObject, InitMultipartUpload, AppendObject, PutObjectSymlink, and CopyObject</p> <div>  <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>We recommend that you do not set the storage class in PutObjectSymlink to IA or Archive because an IA or Archive object smaller than 64 KB is billed at 64 KB.</li> <li>If you specify the value of x-oss-storage-class when uploading an object to a bucket, the storage class of the uploaded object is the specified value of x-oss-storage-class regardless of the storage class of the bucket. For example, if you specify the value of x-oss-storage-class to Standard when uploading an object to a bucket of the IA storage class, the storage class of the object is Standard.</li> </ul> </div>



## Detail analysis

- When a symbolic link is created, the following checks are not performed:
  - Whether the target object exists.
  - Whether the storage class of the target object is valid.
  - Whether the user has permission to access the target object.

These checks are performed by APIs that access the target object, such as `GetObject`.

- If the object that you want to add already exists and you can access the object, the existing object is overwritten by the added object and a 200 OK message is returned.
- If a `PutSymlink` request carries a parameter with the `x-oss-meta-` prefix, the parameter is considered as user meta, such as `x-oss-meta-location`. An object can have multiple parameters with the `x-oss-meta-` prefix. However, the total size of all user meta cannot exceed 8 KB.

## Examples

### Request example:

```
PUT / link - to - oss . jpg ? symlink HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Cache - control : no - cache
Content - Dispositio n : attachment ; filename = oss_downlo ad .
jpg
Date : Tue , 08 Nov 2016 02 : 00 : 25 GMT
Authorizat ion : OSS qn6qrrqxo2 oawuk53otf jbyc : kZoYNv66bs
mc10 + dcGKw5x2PR rk = x - oss - symlink - target : oss . jpg
x - oss - storage - class : Standard
```

### Response example:

```
HTTP / 1 . 1 200 OK
Server : AliyunOSS
Date : Tue , 08 Nov 2016 02 : 00 : 25 GMT
Content - Length : 0
Connection : keep - alive
x - oss - request - id : 582131B910 9F4EE66CDE 56A5
ETag : " 0A477B89B4 602AA8DECB 8E19BFD447 B6 "
```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)

- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)

## Error codes

Error code	HTTP status code	Description
InvalidArgument	400	The value of x-oss-storage-class is invalid.

## 7.14 GetSymlink

Obtains a symbol link. To perform GetSymlink operations, you must have the read permission on the symbol link.

### Request syntax

```
GET / ObjectName ? symlink HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorizat ion : SignatureV alue
```

### Response headers

Header	Type	Description
x - oss - symlink - target	String	Indicates the target object that the symbol link directs to.

### Examples

#### Request example:

```
GET / link - to - oss . jpg ? symlink HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Fri , 24 Feb 2012 06 : 38 : 30 GMT
Authorizat ion : OSS qn6qrrqxo2 oawuk53otf jbyc : UNQDb7GapEgJCZkcde60 hZ9Jfe8 =
```

#### Response example:

```
HTTP / 1 . 1 200 OK
Server : AliyunOSS
Date : Fri , 24 Feb 2012 06 : 38 : 30 GMT
Last - Modified : Fri , 24 Feb 2012 06 : 07 : 48 GMT
Content - Length : 0
Connection : keep - alive
```

```
x - oss - request - id : 5650BD7220 7FB3044396 2F9A
x - oss - symlink - target : oss . jpg
ETag : " A797938C31 D59EDD08D8 6188F6D5B8 72 "
```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)

## Error codes

Error code	HTTP status code	Description
NoSuchKey	404	The requested symbol link does not exist.

## 7.15 RestoreObject

Restores an object of the Archive storage class.



### Note:

- RestoreObject only applies to objects of the Archive storage class but not those of the Standard and IA storage classes.
- A 202 status code is returned if you call RestoreObject to restore an object for the first time.
- If you have restored an object by calling RestoreObject, a 200 OK message is returned if you call the API again.

## Billing methods

The following fees are incurred when the status of an object is changed:

- Data retrieval fees are incurred if you restore an archived object.
- The restored state of an object can be prolonged to a maximum of seven days. No fees are incurred during this period.
- After a restored object returns to the frozen state, data retrieval fees are incurred if you restore it again.

## Request syntax

```
POST / ObjectName ? restore HTTP / 1 . 1
Host : archive - bucket . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorizat ion : SignatureV alue
```

## Examples

**Example of request initiated to restore a archived object for the first time:**

```
POST / oss . jpg ? restore HTTP / 1 . 1
Host : oss - archive - example . oss - cn - hangzhou . aliyuncs .
com
Date : Sat , 15 Apr 2017 07 : 45 : 28 GMT
Authorizat ion : OSS e1Unnbmlrg dnpI : y4eyu + 4yje5ioRCr 5PB =
```

## Response example

```
HTTP / 1 . 1 202 Accepted
Date : Sat , 15 Apr 2017 07 : 45 : 28 GMT
Content - Length : 0
Connection : keep - alive
Server : AliyunOSS
x - oss - request - id : 5374A28802 32A65C2300 2D74
```

**Example of a request initiated to restore an object being restored:**

```
POST / oss . jpg ? restore HTTP / 1 . 1
Host : oss - archive - example . oss - cn - hangzhou . aliyuncs .
com
Date : Sat , 15 Apr 2017 07 : 45 : 29 GMT
Authorizat ion : OSS e1Unnbmlrg dnpI : 2lqtGJ + ykDVmdy4ey u +
NIUs =
```

## Response example

```
HTTP / 1 . 1 409 Conflict
Date : Sat , 15 Apr 2017 07 : 45 : 29 GMT
Content - Length : 556
Connection : keep - alive
Server : AliyunOSS
x - oss - request - id : 5374A28802 32A65C2300 2D74
<? xml version =" 1 . 0 " encoding =" UTF - 8 " ? >
< Error >
  < Code > RestoreAlr eadyInProg ress </ Code >
  < Message > The restore operation is in progress .</
Message >
  < RequestId > 58EAF14146 1FB42C2B00 0008 </ RequestId >
  < HostId > 10 . 101 . 200 . 203 </ HostId >
</ Error >
```

**Example of a request initiated to restore a restored object:**

```
POST / oss . jpg ? restore HTTP / 1 . 1
Host : oss - archive - example . oss - cn - hangzhou . aliyuncs .
com
Date : Sat , 15 Apr 2017 07 : 45 : 29 GMT
```

```
Authorization : OSS e1Unnbm1rg dnpI : u606FMJnn + WuBwbByZxm 1
+ y4eyu + NIUs =
```

### Response example

```
HTTP / 1 . 1 200 Ok
Date : Sat , 15 Apr 2017 07 : 45 : 30 GMT
Content - Length : 0
Connection : keep - alive
Server : AliyunOSS
x - oss - request - id : 5374A28802 32A65C2300 2D74
```

### SDK

The SDKs of this API are as follows:

- [Java](#)
- [Python](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)

### Error codes

Error code	HTTP status code	Description
NoSuchKey	404	The requested object does not exist.
OperationNotSupported	400	The storage class of the requested object is not Archive.
RestoreAlreadyInProgress	409	You have called RestoreObject successfully and the object is being restored. Do not initiate RestoreObject requests repeatedly.

## 7.16 SelectObject

Queries an object. To perform SelectObject operations, you must have the read permission on the object.

### SelectObject

SelectObject is used to run SQL statements on the target object and return the query result.

The 206 status code is returned if the operation is successfully performed. If the SQL statements are incorrect or do not match the target object, the 400 status code is returned.



**Note:**

For more information about the functions of `SelectObject`, see [SelectObject](#).

• Request syntax

- Request syntax (CSV)

```
POST / object ? x - oss - process = csv / select HTTP / 1 . 1

HOST : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : time GMT
Content - Length : ContentLength
Content - MD5 : MD5Value
Authorization : Signature

<? xml version =" 1 . 0 " encoding =" UTF - 8 ">
< SelectRequest >
  < Expression > base64 encode ( Select * from OSSObject
where ...)</ Expression >
  < InputSerialization >
    < CompressionType > None | GZIP </ CompressionType >
    < CSV >
      < FileHeaderInfo >
        NONE | IGNORE | USE
      </ FileHeaderInfo >
      < RecordDelimiter > base64 encode </ RecordDelimiter >
      < FieldDelimiter > base64 encode </ FieldDelimiter >
      < QuoteCharacter > base64 encode </ QuoteCharacter >
      < CommentCharacter > base64 encode </ CommentCharacter >
      < Range > line - range = start - end | split - range = start -
end </ Range >
    </ CSV >
  </ InputSerialization >
  < OutputSerialization >
    < CSV >
      < RecordDelimiter > base64 encode </ RecordDelimiter >
      < FieldDelimiter > base64 encode </ FieldDelimiter >

    </ CSV >
      < KeepAllColumns > false | true </ KeepAllColumns >
      < OutputRawData > false | true </ OutputRawData >
        < EnablePayloadCrc > true </ EnablePayloadCrc >
      < OutputHeader > false </ OutputHeader >
    </ OutputSerialization >
  < Options >
    < SkipPartialDataRecord > false </ SkipPartialDataRecord >
    < MaxSkippedRecordsAllowed >
      max allowed number of records skipped
    < MaxSkippedRecordsAllowed >
  </ Options >
```

```
</ SelectRequ est >
```

#### - Request syntax (JSON)

```
POST / object ? x - oss - process = json / select HTTP / 1 . 1

HOST : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : time GMT
Content - Length : ContentLen gth
Content - MD5 : MD5Value
Authorizat ion : Signature

<? xml version =" 1 . 0 " encoding =" UTF - 8 ">
< SelectRequ est >
  < Expression >
    Base64 encode of sql such as ( select * from
    ossobject )
  </ Expression >
  < InputSeria lization >
    < Compressio nType > None | GZIP </ Compressio nType >
    < JSON >
      < Type > DOCUMENT | LINES </ Type >
      < Range >
        line - range = start - end | split - range = start - end
      </ Range >
      < ParseJsonN umberAsStr ing > true | false
    </ ParseJsonN umberAsStr ing >
    </ JSON >
  </ InputSeria lization >
  < OutputSeri alization >
    < JSON >
      < RecordDeli miter >
        Base64 of record delimiter
      </ RecordDeli miter >
    </ JSON >
    < OutputRawD ata > false | true </ OutputRawD ata >
    < EnablePayl oadCrc > true </ EnablePayl oadCrc >
  </ OutputSeri alization >
  < Options >
    < SkipPartia lDataRecor d >
      false | true
    </ SkipPartia lDataRecor d >
    < MaxSkipped RecordsAll owed >
      max allowed number of records skipped
    < MaxSkipped RecordsAll owed >
    </ Options >
</ SelectRequ est >
```

#### • Request elements

Element	Type	Description
SelectRequest	Container	<p>Specifies the container that saves the SelectObject request.</p> <p>Sub-nodes: Expression, InputSeria lization, and OutputSerialization</p> <p>Parent node: None</p>

Element	Type	Description
Expression	String	Specifies the base64-coded SQL statements.  Sub-node: None  Parent node: SelectRequest
InputSerialization	Container	(Optional) Specifies the input serialization parameters.  Sub-nodes: CompressionType, CSV, and JSON  Parent node: SelectRequest
OutputSerialization	Container	(Optional) Specifies the output serialization parameters.  Sub-nodes: CSV, JSON, and OutputRawData  Parent node: SelectRequest
CSV(InputSerialization)	Container	(Optional) Specifies the format parameter for the input CSV file.  Sub-nodes: FileHeaderInfo, RecordDelimiter, FieldDelimiter, QuoteCharacter, CommentCharacter, and Range  Parent node: InputSerialization
CSV(OutputSerialization)	Container	(Optional) Specifies the format parameter for the output CSV file.  Sub-nodes: RecordDelimiter and FieldDelimiter  Parent node: OutputSerialization



Element	Type	Description
JSON(InputSerialization)	Container	Specifies the format parameter for the input JSON file.  Sub-node: Type
Type	Enumeration	Specifies the type of the input JSON file: DOCUMENT   LINES
JSON(InputSerialization)	Container	Specifies the format parameter for the input JSON file.  Sub-node: RecordDelimiter
OutputRawData	Bool (false by default)	(Optional) Specifies the output data as raw data, which is not the frame-based format.  Sub-node: None Parent node: OutputSerialization
CompressionType	Enumeration	Specifies the compression type of the object: None GZIP  Sub-node: None Parent node: InputSerialization


Element	Type	Description
FileHeaderInfo	Enumeration	<p>(Optional) Specifies the header information about the CSV file.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>- <b>Use:</b> Indicates that the CSV file contains header information. You can use the column name in the CSV file as the column name in the SelectObject operation.</li> <li>- <b>Ignore:</b> Indicates that the CSV file contains header information. However, you cannot use the column name in the CSV file as the column name in the SelectObject operation.</li> <li>- <b>None:</b> Indicates that the CSV file does not contain header information. This is the default value.</li> </ul> <p>Sub-node: None</p> <p>Parent node: CSV (input)</p>
RecordDelimiter	String	<p>(Optional) Specifies the delimiter, which is base64-encoded and <code>\ n</code> by default. The value of this element before being encoded can be the ANSI value of two characters in maximum. For example, <code>\ n</code> is used to indicate a line break in Java code.</p> <p>Sub-node: None</p> <p>Parent node: CSV (input and output) and JSON (output)</p>

Element	Type	Description
FieldDelimiter	String	<p>(Optional) Specifies the delimiter used to separate columns in the CSV file. The value of this element is the base64-encoded ANSI value of a character and is <code>,</code> by default. For example, <code>,</code> is used to indicate a comma in Java code.</p> <p>Sub-node: None</p> <p>Parent node: CSV (input and output)</p>
QuoteCharacter	String	<p>(Optional) Specifies the quote characters used in the CSV file. The value of this element is base64-encoded and is <code>\</code> by default. In a CSV file, line breaks and column delimiters are processed as normal characters. The value of this element before being encoded must be the ANSI value of a character. For example, <code>\</code> is used to indicate a quote character in Java code.</p> <p>Sub-node: None</p> <p>Parent node: CSV (input)</p>
CommentCharacter	String	<p>Specifies the comment character used in the CSV file. The value of this element is base64-encoded and is null (no comment character) by default.</p>

Element	Type	Description
Range	String	<p>(Optional) Specifies the query range. The following two query methods are supported:</p> <ul style="list-style-type: none"><li>- Query by rows: line-range=start-end</li><li>- Query by splits:split-range=start-end</li></ul> <p>The start and end parameters in the preceding code are both inclusive. The format of the two parameters are the same as that of the range parameter in range get operations.</p> <p>This parameter is valid only when the document is in CSV format or the JSON Type is LINES.</p> <p>Sub-node: None</p> <p>Parent nodes: CSV (input) and JSON (input)</p>

Element	Type	Description
KeepAllColumns	Bool	<p>(Optional) Indicates that all columns in the CSV file are included in the returned result. However, only columns included in the select statement have values. The default value of this parameter is false. The columns in the returned result are sorted in order of the column numbers from low to high. For example:</p> <pre>select _5 , _1 from ossobject .</pre> <p>If you set the value of KeepAllColumn to true and six columns are included in the CSV file, the following result is returned for the preceding select statement:</p> <p>Value of 1st column,,,Value of 5th column,\n</p> <p>Sub-node: None</p> <p>Parent node: OutputSerialization (CSV)</p>
EnablePayloadCrc	Bool	<p>Indicates that each frame includes a 32-bit CRC32 value for verification. The client can calculate the CRC32 value of each payload and compare it with the included CRC32 value to verify data integrity.</p> <p>Sub-node: None</p> <p>Parent node: OutputSerialization</p>

Element	Type	Description
Options	Container	<p>Specifies other optional parameters.</p> <p>Sub-node: SkipPartialDataRecord and MaxSkippedRecordsAllowed</p> <p>Parent node: SelectRequest</p>
OutputHeader	Bool	<p>Indicates that the header information about the CSV file is included in the beginning of the returned result.</p> <p>Default value: false</p> <p>Sub-node: None</p> <p>Parent node: OutputSerialization</p>
SkipPartialDataRecord	Bool	<p>Indicates that rows without data are ignored. If the value of this parameter is false, OSS ignores rows without data (by processing the values of the rows as null) and does not report errors. If the value of this parameter is true, a row without data is skipped. If the number of skipped rows exceeds the maximum allowed number, OSS reports an error and stops processing the data.</p> <p>Default value: false</p> <p>Sub-node: None</p> <p>Parent node: Options</p>

Element	Type	Description
MaxSkippedRecordsAllowed	Integer	<p>Specifies the maximum allowed number of skipped rows. If a row does not match the type specified in the SQL statement, or a column or multiple columns in a row are missed and the value of SkipPartialDataRecord is True, the row is skipped. If the number of skipped rows exceeds the value of this parameter, OSS reports an error and stops processing the data.</p> <div> <b>Note:</b> If a row is not in the valid CSV format, for example, a column in the row includes continual odd numbered quote characters, OSS stops processing the data immediately and reports an error because this format error may result in incorrect resolution to the CSV file. That is, this parameter can be used to adjust the tolerance for irregular data but does not applied to invalid CSV files.</div> <p>Default value: 0</p> <p>Sub-node: None</p> <p>Parent node: Options</p>

Element	Type	Description
ParseJsonNumberAsString	Bool	<p>Indicates that the numbers (integer and float numbers) in a JSON file are resolved into strings. The accuracy of float numbers in a JSON file degrades when the numbers are resolved.</p> <p>Therefore, we recommend that you set the value of this parameter to true if you want to keep the original data. To use the numbers for calculation, you can cast them into the required format , such as int, double, or decimal, in the SQL statement.</p> <p>Default value: false</p> <p>Sub-node: None</p> <p>Parent node: JSON</p>

- Response body

If the HTTP status included in the response for a request is 4xx, it indicates that the request does not pass the SQL syntax check or an obvious error is included in the request. In this case, the body format of the returned error message is the same as that of the error message returned for a GetObject request.

If the HTTP status code included in the response for a request is 5xx, it indicates that an error occurs in the server. In this case, the body format of the returned message is the same as that of the error message returned for a GetObject request.

If the HTTP status code 206 is returned in the response and the value of header x-oss-select-output-raw is true, it indicates that the object data (but not frame-based data) is successfully returned. The client can obtain the data in the same way as that used in GetObject operations.

If the value of x-oss-select-output-raw is false, the result is returned as frames.

If you set a value for OutputRawData in a request, OSS returns the requested data in the format that you specified. However, we recommend that you do not set a



value for `OutputRawData` so that OSS returns the requested data in the format automatically select by OSS.

If you set the value of `OutputRawData` to `true` in an HTTP request, the request may be time out when no data is returned for the SQL statement for a long period.

If you perform a `SelectObject` operation using a JSON file and the select statement includes repeated keys (for example: `select s.key, s.key from ossoobject s`), the value of the `x-oss-select-output-json-dup-key` header in the response is `true`.

A returned frame is in the following format, in which the checksum is CRC32

Version|Frame-Type | Payload Length | Header Checksum | Payload | Payload Checksum

<1 byte><--3 bytes--><---4 bytes----><-----4 bytes--><variable><----4bytes----->

All integers in a frame are big-endian. Currently, the value of Version is 1.

`SelectObject` supports three frame types, as described in the following table.

Frame type	Frame -Type value	Payload format	Description
Data Frame	8388609	offset   data <-8 bytes><---variable->	A data frame includes the data returned for the <code>SelectObject</code> request. The offset parameter is an 8-bit integer, which indicates the current scanning location (the offset from the file header ) and is used to report the progress of the operation.
Continuous Frame	8388612	offset <----8 bytes-->	A continuous frame is used to report the progress of an operation and keep an HTTP connection. If no data is returned for a query request within 5 seconds, a continuous frame is returned.

Frame type	Frame -Type value	Payload format	Description
End Frame	8388613	offset   total scanned bytes   http status code   error message  <--8bytes-><-- 8bytes-----><---- 4 bytes-----><-- variable----->	<p>An end frame is used to return the final status of an operation, including the scanned bytes and the final offset. The total scanned bytes parameter indicates the size of the scanned data, the http status code parameter indicates the final status of the operation, and the error message parameter includes error messages, including the number of each skipped row and the total number of skipped rows.</p> <p>SelectObject is a streamed operation so that only the first data block is processed when the response header is sent. If the first data block matches the SQL statement, the HTTP status code in the response header is 206, which indicates that the operation is successful. However, the final status code may not be 206 because the following data blocks may be valid but the status code in the response header cannot be modified in this case. Therefore the HTTP status code is included in the end frame to indicate the final status of the operation. The client should use the status code included in the end frame to determine whether the operation is successful.</p>

- Error messages

The format of error messages included in an end frame is as follows:

```
ErrorCodes . DetailMessage
```

The ErrorCodes part includes a single ErrorCode or multiple ErrorCodes separated by commas. The ErrorCodes and DetailMessage part are separated by a period. For detailed error codes, see the ErrorCode list at the end of this topic.

- Example requests

- Example request (CSV)

```
POST / oss - select / bigcsv_nor mal . csv ? x - oss - process
= csv % 2Fselect HTTP / 1 . 1
Date : Fri , 25 May 2018 22 : 11 : 39 GMT
Content - Type :
Authorization : OSS LTAIJPXxML ocA0fD : FC / 9JRbBGRw4o
2QqdaL246P xuvk =
User - Agent : aliyun - sdk - dotnet / 2 . 8 . 0 . 0 ( windows
16 . 7 / 16 . 7 . 0 . 0 / x86 ; 4 . 0 . 30319 . 42000 )
Content - Length : 748
Expect : 100 - continue
Connection : keep - alive
Host : host name

<? xml version =" 1 . 0 ">
< SelectRequest >
  < Expression > c2VsZWN0IG NvdW50KCop IGZyb20gb3 Nzb2JqZWN0
  IHdoZXJlIF 80ID4gNDU =
  </ Expression >
  < InputSerialization >
    < Compression > None </ Compression >
    < CSV >
      < FileHeader Info > Ignore </ FileHeader Info >
      < RecordDelimiter > Cg ==</ RecordDelimiter >
      < FieldDelimiter > LA ==</ FieldDelimiter >
      < QuoteCharacter > Ig ==</ QuoteCharacter >
      < CommentCharacter > Iw ==</ CommentCharacter />
    </ CSV >
  </ InputSerialization >
  < OutputSerialization >
    < CSV >
      < RecordDelimiter > Cg ==</ RecordDelimiter >
      < FieldDelimiter > LA ==</ FieldDelimiter >
      < QuoteCharacter > Ig ==</ QuoteCharacter >
    </ CSV >
    < KeepAllColumns > false </ KeepAllColumns >
    < OutputRawData > false </ OutputRawData >
  </ OutputSerialization >
</ SelectRequest >
```

- Example request (JSON)

```
POST / oss - select / sample_json . json ? x - oss - process =
json % 2Fselect HTTP / 1 . 1
Host : host name
Accept - Encoding : identity
```

```

User - Agent : aliyun - sdk - python / 2 . 6 . 0 ( Darwin / 16 .
7 . 0 / x86_64 ; 3 . 5 . 4 )
Accept : */*
Connection : keep - alive
date : Mon , 10 Dec 2018 18 : 28 : 11 GMT
authorizat ion : OSS AccessKeyS ignature
Content - Length : 317

< SelectRequ est >
< Expression > c2VsZWN0IC ogZnJvbSBv c3NvYmplY3 Qub2JqZWN0
c1sqXSB3aG VyZSBwYXJ0 eSA9ICdEZW 1vY3JhdCc =
</ Expression >
< InputSeria lization >
< JSON >
  < Type > DOCUMENT </ Type >
</ JSON >
</ InputSeria lization >
< OutputSeri alization >
< JSON >
  < RecordDeli miter > LA ==</ RecordDeli miter >
</ JSON >
</ OutputSeri alization >
< Options />
</ SelectRequ est >

```

- **Regular expressions in an SQL statement**

```
SELECT select - list from table where_opt limit_opt
```

**SELECT, OSSOBJECT, and WHERE are keywords that cannot be modified.**

```

select_lis t : column name
| column index ( for example : _1 , _2 . column index
only applies to CSV files )
| json path ( for example : s . contacts . firstname . json
path only applies to JSON files )
| function ( column index | column name )
| function ( json_path ) ( only applies for JSON files )

```

```
| select_list AS alias
```

The following functions are supported: AVG, SUM, MAX, MIN, COUNT, and CAST (type conversion function). You can use only the wildcard (\*) after COUNT.

table: OSSOBJECT

| OSSOBJECT json\_path (only supported for JSON files)

For a CSV file, the table must be OSSOBJECT. For a JSON file (including DOCUMENT and LINES types), you can specify a json\_path after OSSOBJECT.

json\_path: ['string'] (The brackets can be deleted if the string does not include a space or a wildcard (\*), that is, 'string'.)

| [n] (Used to indicate the nth element in an array. The value of n is counted from 0.)

| [\*] (Used to indicate any child element in an array or object.)

| 'string' (The quotation marks around string can be deleted if the string does not include a space or a wildcard (\*).)

| json\_path jsonpath (You can concatenate multiple elements in a json path, for example, [n].property1.attributes[\*].)

```
Where_opt :
| WHERE expr
expr :
| literal value
| column name
| column index
| json path ( only applies to JSON files )
| expr op expr
| expr OR expr
| expr AND expr
| expr IS NULL
| expr IS NOT NULL
| ( column name | column index | json path ) IN ( value1
, value2 ,...)
| ( column name | column index | json path ) NOT in (
value1 , value2 ,...)
| ( column name | column index | json path ) between
value1 and value2
| NOT ( expr )
| expr op expr
| ( expr )
```

```
| cast ( column index | column name | json path |
literal as INT | DOUBLE |)
```

**op:** includes the following operators: >, <, >=, <=, !=, =, LIKE, +, -, \*, /, %, and ||.

**cast:** You can only cast the data in a same column to one type.

**limit\_opt :**

| limit integer

Combination use of an aggregation function and limit

```
Select avg ( cast ( _1 as int )) from ossobject limit
100
```

The preceding statement calculates the average values of the first columns in the first 100 rows, which is different from the MySQL statement. It is because only one row is returned for a aggregation function in SelectObject operations so that it is unnecessary to limit its output. Therefore, limit is performed before aggregation functions in SelectObject operations.

Limits for SQL statements

- Only text files encoded in UTF-8 and UTF-8 text files compressed in the GZIP format are supported. The deflate format is not supported for GZIP files.
- An SQL statement can query only one file. The following commands are not supported: join, order by, group by, and having.
- A Where statement cannot include an aggregation condition. For example, the following statement is not allowed: where max(cast(age as int)) > 100.
- A maximum of 1,000 columns are supported. The maximum column number is 1024.
- A maximum of 5 wildcard "%" are supported in a LIKE statement. The wildcard "%" plays the same role as the wildcard "\*", which is used to indicate 0 or multiple characters. The keyword Escape is supported in a LIKE statement,

which is used to escape the special characters (such as "%", "\*", and "?") into normal strings.

- A maximum of 1,024 constants are supported in an IN statement.
- The Projection after Select can be a column name, a CSV column index (such as \_1 and \_2), an aggregation function, or a CAST function. Other expressions are not supported, for example, `select _1 + _2 from ossobject`.
- The maximum column size and row size for a CSV file are 256 KB.
- The json path after from supports a JSON node with a maximum size of 512 KB. The path can have 10 levels at most and includes a maximum of 5,000 elements in the array.
- In SQL statements for a JSON file, the select or where expressions cannot include the array wildcard ([\*]), which can be included only in the json path after from. For example, `select s . contacts [*] from ossobject s` is not supported but `select * from ossobject . contacts [*]` is supported.
- The maximum size of an SQL statement is 16 KB. A maximum of 20 expressions can be added after where. A statement supports at most 10 levels and 100 aggregation operations.
- Data error handling
  - Some columns are missed in some rows in a CSV file.

If the value of `SkipPartialDataRecord` is not specified or is set to false, OSS calculates the expressions in the SQL statement by processing the values of the missed columns as null.

If the value of `SkipPartialDataRecord` is set to true, OSS ignores the rows in which some columns are missed. In this case, if the value of `MaxSkippedRecordsAllowed` is not specified or is set to a value smaller than the number

of skipped rows, OSS returns an error by sending the 400 HTTP status code or including the 400 status code in the end frame.

For example, assuming that the SQL statement is `select _1 , _3 from ossobject` and the data in a row of the CSV file is "John, company A".

If the value of `SkipPartialDataRecord` is set to false, the returned result is "John, \n". If the value of `SkipPartialDataRecord` is set to true, this row is ignored.

- Some keys are missed in a JSON file.

Some objects in the JSON file may not include the keys specified in the SQL statement. In this case, if the value of `SkipPartialDataRecord` is set to false, OSS calculates the expressions in the SQL statement by processing the missed keys as null.

If the value of `SkipPartialDataRecord` is true, OSS ignores the data in the JSON node. In this case, if the value of `MaxSkippedRecordsAllowed` is not specified or is set to a value smaller than the number of ignored rows, OSS returns an error by sending the 400 HTTP status code or including the 400 status code in the end frame.

For example, assuming that the SQL statement is `select s . firstName , s . lastName , s . age from ossobject . contacts [*] s` and the value of a JSON node is { "firstName" : " John" , " lastName" : " Smith" }.

If the value of `SkipPartialDataRecord` is not specified or be set to false, the returned result is { "firstName" : " John" , "lastName" : " Smith" }. If the value of `SkipPartialDataRecord` is set to true, this row is ignored.

- The data type of some columns in row in a CSV file does not match the SQL statement.

If the data type of some rows in a CSV file does not match the type specified in the SQL statement, this row is ignored. If the number of ignored rows exceeds



the value of `MaxSkippedRecordsAllowed`, OSS stops processing data and returns a 400 HTTP status code.

For example, assuming that the SQL statement is `select _1 , _3 from ossobject where _3 > 5`.

If the value of a row in the CSV file is `John , Company A , To be hired`, this row is ignored because the third column in the row is not an integer.

- The data type of some keys in a JSON file does not match the SQL statement.

The handling method is the same as that in a CSV file. For example, assuming that the SQL statement is `select s . name from ossobject s where s . aliren_age > 5`.

If the value of a JSON node is `{"Name":"John", "Career age":To be hired}`, this node is ignored.

- Keys in a returned JSON file.

The returned result for a `SelectObject` operation using a JSON file is a file in the JSON LINES format, in which the keys are determined as follows:

- If the SQL statement is `select * from ossobject ...`, if a JSON object (`{...}`) is returned for the wildcard (`*`), the object is directly returned. If the returned result is not a JSON object (for example, a string or an array), a `DummyKey_1` is used to indicate the returned result.

For example, if the data is `{ "Age" :5}` and the SQL statement is `select * from ossobject . Age s where s = 5`. The result returned for the wildcard (`*`) is 5, which is not a JSON object. Therefore, the returned result for the statement is `{ "_1" :5}`. However, if the statement is `select * from ossobject s where s . Age = 5`, the result returned for the

wildcard (\*) is the JSON object { "Age" :5}, so that the object is directly returned for the statement.

- If the SQL statement does not use `select *` but specifies a column, the format of the response is as follows: `{"{ column1 }": value , "{ column2 }": value ...}`.

In the response, the value of "n" in {column n} is generated as follows:

- If the alias of the column is specified in the SelectObject request, the value of n is set to the specified alias.
- If the column is a key of a JSON object, the key is used as the output key.
- If the column is an aggregation function or an element in a JSON array, the serial number of the column in the output result followed by a prefix `_` is used as the key of the output result.

For example, if the data is { "contacts" :{ "Age" :35, "Children" :[ "child1" , "child2" , " child3" ]}}, and the SQL statement is `select s . contacts . Age , s . contacts . Children [ 0 ] from ossobjects` , the output result is { "Age" :35, "\_2" : " child1" }. This result is returned because Age is a key of the input JSON object, but Children [0] is the first element in the array Children, which is in the second column in the output result.

- If the alias of the row is specified in the request, the output result for `select s . contacts . Age , s . contacts . Children [ 0 ] as firstChild from ossobject` is { "Age" :35, "firstChild" : " child1" }.
- If the SQL statement is `select max ( cast ( s . Age as int )) from ossobject . contacts s` , the output result is { "\_1" :35}, in which the serial number of the column with the prefix `_1` is used to indicate the key because this row is a aggregation function.



#### Note:

Keys in a JSON file are case-sensitive when they are used to match the keys in an SQL statement. For example, `select s_Age` and `select s_age` are different keys.

## CreateSelectObjectMeta

CreateSelectObjectMeta is used to obtain information about the target CSV file, such as the total number of rows, the total number of columns, and the number of Splits. If the information does not exist in the file, the whole CSV file is scanned for the preceding information. The information obtained in the first call of the API is used when the API is called again, so that you do not need to scan the whole CSV file. If the API is executed correctly, the 200 status code is returned. If the target file is not a valid CSV or JSON LINES file, or the specified delimiter does not match the target CSV file, the 400 HTTP status code is returned.



### Note:

You must have the write permission on the target object before performing a CreateSelectObjectMeta operation.

- Request syntax
  - Request syntax (CSV)

```
POST    / samplecsv ? x - oss - process = csv / meta

< CsvMetaReq uest >
< InputSeria lization >
  < Compressio nType > None </ Compressio nType >
  < CSV >
    < RecordDeli miter > base64   encode </ RecordDeli miter >
    < FieldDelim iter > base64   encode </ FieldDelim iter >
    < QuoteChara cter > base64   encode </ QuoteChara cter >
  </ CSV >
</ InputSeria lization >
< OverwriteI fExists > false | true </ OverwriteI fExists >
</ CsvMetaReq uest >
```

- Request syntax (JSON)

```
POST    / samplecsv ? x - oss - process = json / meta

< JsonMetaRe quest >
< InputSeria lization >
  < Compressio nType > None </ Compressio nType >
  < JSON >
    < Type > LINES </ Type >
  </ JSON >
</ InputSeria lization >
< OverwriteI fExists > false | true </ OverwriteI fExists >
```

```
</ JsonMetaRequest >
```

• Request elements

Element	Type	Description
CsvMetaRequest	Container	Specifies the container that saves the Select csv Meta request.  Sub-node: InputSerialization  Parent node: None
JsonMetaRequest	Container	Specifies the container that saves the Select json Meta request.  Sub-node: InputSerialization  Parent node: None
InputSerialization	Container	(Optional) Specifies the input serialization parameters.  Sub-node: CompressionType, CSV, and JSON  Parent node: CsvMetaRequest and JsonMetaRequest
OverwriteIfExists	Bool	(Optional) Recalculates the SelectMeta and overwrites the existing data. The default value is false, which means that the result is directly returned if the Select Meta already exists.  Sub-node: None  Parent node: CsvMetaRequest and JsonMetaRequest
CompressionType	Enumeration	(Optional) Specifies the compression type of the object. Only None is supported currently.  Sub-node: None  Parent node: InputSerialization

Element	Type	Description
RecordDelimiter	String	<p>(Optional) Specifies the delimiter, which is base64-encoded and <code>\ n</code> by default. The value of this element before being encoded can be the ANSI value of two characters in maximum. For example, <code>\ n</code> is used to indicate a line break in Java code.</p> <p>Sub-node: None</p> <p>Parent node: CSV</p>
FieldDelimiter	String	<p>(Optional) Specifies the delimiter used to separate columns in the CSV file. The value of this element is the base64-encoded ANSI value of a character and is <code>,</code> by default. For example, <code>,</code> is used to indicate a comma in Java code.</p> <p>Sub-node: None</p> <p>Parent node: CSV (input and output)</p>
QuoteCharacter	String	<p>(Optional) Specifies the quote characters used in the CSV file. The value of this element is base64-encoded and is <code>\"</code> by default. In a CSV file, line breaks and column delimiters are processed as normal characters. The value of this element before being encoded must be the ANSI value of a character. For example, <code>\"</code> is used to indicate a quote character in Java code.</p> <p>Sub-node: None</p> <p>Parent node: CSV (input)</p>

Element	Type	Description
CSV	Container	<p>Specifies the format of the input CSV file.</p> <p>Sub-node: RecordDelimiter, FieldDelimiter, and QuoteCharacter</p> <p>Parent node: InputSerialization</p>
JSON	Container	<p>Specifies the format of the input JSON file.</p> <p>Sub-node: Type</p> <p>Parent node: InputSerialization</p>
Type	Enumeration	<p>Specifies the type of the input JSON file.</p> <p>Valid value: LINES</p>

Similar to SelectObject, the results for CreateSelectObjectMeta is also returned as frames, which have two types: continuous frames and end meta frames.

Continuous frames used for CreateSelectObjectMeta is the same as those used for SelectObject.

Frame type	Frame -Type value	Payload format	Description
Meta End Frame (CSV)	8388614	offset   status  splits count   rows count   columns count   error message  <-8 bytes><--4bytes><--4 bytes--><--8 bytes><--4 bytes---><variable size>	<p>offset: A 8-bit integer that indicates the offset when the scanning is complete.</p> <p>status: A 4-bit integer that indicates the final status of the operation.</p> <p>splits_count: A 4-bit integer that indicates the number of splits.</p> <p>rows_count: A 8-bit integer that indicates the total number of rows.</p> <p>cols_count: A 4-bit integer that indicates the total number of columns.</p> <p>error_message: Includes detailed error messages. If no error occurs, the value of this parameter is null.</p> <p>Meta End Frame: Used to report the final status of a CreateSelectObjectMeta operation.</p>

Frame type	Frame -Type value	Payload format	Description
Meta End Frame (JSON)	8388615	offset   status  splits count   rows count   error message  <-8 bytes><--4bytes><-- 4 bytes--><--8 bytes>< variable size>	offset: A 8-bit integer that indicates the offset when the scanning is complete.  status: A 4-bit integer that indicates the final status of the operation.  splits_count: A 4-bit integer that indicates the number of splits.  rows_count: A 8-bit integer that indicates the total number of rows.  error_message: Includes detailed error messages. If no error occurs, the value of this parameter is null.  Meta End Frame: Used to report the final status of a CreateSelectObjectMeta operation.

**Response Header:** No specified header is included in the response.

- **Example requests**

- **Example request (CSV)**

```
POST / oss - select / bigcsv_nor mal . csv ? x - oss - process
= csv % 2Fmeta HTTP / 1 . 1
Date : Fri , 25 May 2018 23 : 06 : 41 GMT
Content - Type :
Authorization : OSS AccessKeyS ignature
User - Agent : aliyun - sdk - dotnet / 2 . 8 . 0 . 0 ( windows
16 . 7 / 16 . 7 . 0 . 0 / x86 ; 4 . 0 . 30319 . 42000 )
Content - Length : 309
Expect : 100 - continue
Connection : keep - alive
```



```

Host : Host

<? xml version =" 1 . 0 ">
< CsvMetaReq uest >
  < InputSeria lization >
    < CSV >
      < RecordDeli miter > Cg ==</ RecordDeli miter >
      < FieldDelim iter > LA ==</ FieldDelim iter >
      < QuoteChara cter > Ig ==</ QuoteChara cter >
    </ CSV >
  </ InputSeria lization >
  < OverwriteI fExisting > false </ OverwriteI fExisting >
</ CsvMetaReq uest >

```

- Example request (JSON)

```

POST / oss - select / sample . json ? x - oss - process = json %
2Fmeta HTTP / 1 . 1
Date : Fri , 25 May 2018 23 : 06 : 41 GMT
Content - Type :
Authorizat ion : OSS AccessKeyS ignature
User - Agent : aliyun - sdk - dotnet / 2 . 8 . 0 . 0 ( windows
16 . 7 / 16 . 7 . 0 . 0 / x86 ; 4 . 0 . 30319 . 42000 )
Content - Length : 309
Expect : 100 - continue
Connection : keep - alive
Host : Host

<? xml version =" 1 . 0 ">
< JsonMetaRe quest >
  < InputSeria lization >
    < JSON >
      < Type > LINES </ Type >
    </ JSON >
  </ InputSeria lization >
  < OverwriteI fExisting > false </ OverwriteI fExisting >
</ JsonMetaRe quest >

```

### Supported time format

You can transfer a string in the formats listed in the following table into a timestamp without specifying the time format. For example, the string cast('20121201' as timestamp) is automatically resolved into a timestamp: 1st, December, 2012.

The following table describes the time formats that can be automatically recognized and transferred.

Format	Description
YYYYMMDD	year month day
YYYY/MM/DD	year/month/day
DD/MM/YYYY/	day/month/year
YYYY-MM-DD	year-month-day
DD-MM-YY	day-month-year

Format	Description
DD.MM.YY	day.month.year
HH:MM:SS.mss	hour:minute:second.millisecond
HH:MM:SS	hour:minute:second
HH MM SS mss	hour minute second millisecond
HH.MM.SS.mss	hour.minute.second.millisecond
HHMM	hour second
HHMMSSmss	hour minute second millisecond
YYYYMMDD HH:MM:SS.mss	year month day hour:minute:second.millisecond
YYYY/MM/DD HH:MM:SS.mss	year/month/day hour:minute:second.millisecond
DD/MM/YYYY HH:MM:SS.mss	day/month/year hour:minute:second.millisecond
YYYYMMDD HH:MM:SS	year month day hour:minute:second
YYYY/MM/DD HH:MM:SS	year/month/day hour:minute:second
DD/MM/YYYY HH:MM:SS	day/month/year hour:minute:second
YYYY-MM-DD HH:MM:SS.mss	year-month-day hour:minute:second.millisecond
DD-MM-YYYY HH:MM:SS.mss	day-month-year hour:minute:second.millisecond
YYYY-MM-DD HH:MM:SS	year-month-day hour:minute:second
YYYYMMDDTHH:MM:SS	year month day T hour:minute:second
YYYYMMDDTHH:MM:SS.mss	year month day T hour:minute:second.millisecond
DD-MM-YYYYTHH:MM:SS.mss	day-month-year T hour:minute:second.millisecond
DD-MM-YYYYTHH:MM:SS	day-month-year T hour:minute:second
YYYYMMDDTHHMM	year month day T hour minute
YYYYMMDDTHHMMSS	year month day T hour minute second
YYYYMMDDTHHMMSSMSS	year month day T hour minute second millisecond

Format	Description
ISO8601-0	<p>year-month-day T hour:minute+hour:minute, or year-month-day T hour:minute-hour:minute</p> <p>"+" indicates that the time in the current timezone is in front of standard UTC time. "-" indicates that the time in the current timezone is behind the stand UTC time. In this format, ISO8601-0 can be used to indicate "+".</p>
ISO8601-1	<p>year-month-day T hour:minute+hour:minute, or year-month-day T hour:minute-hour:minute</p> <p>"+" indicates that the time in the current timezone is in front of standard UTC time. "-" indicates that the time in the current timezone is behind the stand UTC time. In this format, ISO8601-1 can be used.</p>
CommonLog	Such as 28/Feb/2017:12:30:51 +0700
RFC822	Such as Tue, 28 Feb 2017 12:30:51 GMT
?D/?M/YY	day/month/year, in which the day and month can be a 1-bit or 2-bit number.
?D/?M/YY ?H:?M	day month year hour:minute, in which the day, month, hour, and minute can be a 1-bit or 2-bit number.
?D/?M/YY ?H:?M:?S	day month year hour:minute:second, in which the day, month, hour, minute, and second can be a 1-bit or 2-bit number.

The formats in the following table are ambiguous. You must specify a time format when using strings in these formats. For example, the cast('20121201' as timestamp format 'YYYYDDMM') statement incorrectly resolves the string 20121201 to 12nd, January, 2012.

Format	Description
YYYYDDMM	year day month
YYYY/DD/MM	year/day/month
MM/DD/YYYY	month/day/year
YYYY-DD-MM	year-day-month
MM-DD-YYYY	month-day-year
MM.DD.YYYY	month.day.year

## ErrorCode

SelectObject returns Errorcodes in the following two methods:

- Include the HTTP status code in the response headers and include error messages in the response body, which is the same as other OSS requests. An ErrorCode returned in this way indicates that an obvious input or data error (such as an invalid SQL statement is input) occurs.
- Include the Error code in the end frame of the response body. An ErrorCode returned in this way indicates that the data is not correct or does not match the SQL statement. For example, a string exists in a column of which the type is specified as integer in the SQL statement. In this case, a part of data is processed and returned to the client, and the status code is 206.

Some ErrorCodes (such as InvalidCSVLine) can be returned as the HTTP status code in the response header or the status code included in the end frame according to the location of the error row in the CSV file.

ErrorCode	Description	HTTP status code	Http status code in end frame
InvalidSql Parameter	Invalid SQL parameter. Indicates that the SQL statement in the request is null, the SQL statement size exceeds the limit, or the SQL statement is not base64-encoded.	400	None

ErrorCode	Description	HTTP status code	Http status code in end frame
InvalidInputFieldDelimiter	Invalid column delimiter in the input CSV file.  Indicates that the parameter is not base64-encoded or the size of the parameter is larger than 1 after being decoded.	400	None
InvalidInputRecordDelimiter	Invalid row delimiter in the input CSV file. Indicates that the parameter is not base64-encoded or the size of the parameter is larger than 2 after being decoded.	400	None
InvalidInputQuote	Invalid quote character in the input CSV file. Indicates that the parameter is not base64-encoded or the size of the parameter is larger than 1 after being decoded.	400	None
InvalidOutputFieldDelimiter	Invalid column delimiter in the output CSV file. Indicates that the parameter is not base64-encoded or the size of the parameter is larger than 1 after being decoded.	400	None
InvalidOutputRecordDelimiter	Invalid row delimiter in the output CSV file. Indicates that the parameter is not base64-encoded or the size of the parameter is larger than 2 after being decoded.	400	None
UnsupportedCompressionFormat	Invalid Compression parameter. Indicates that the value of the parameter is not NONE or GZIP (case-insensitive).	400	None

ErrorCode	Description	HTTP status code	Http status code in end frame
InvalidCommentCharacter	Invalid comment character in the CSV file. Indicates that the parameter is not base64-encoded or the size of the parameter is larger than 1 after being decoded.	400	None
InvalidRange	Invalid Range parameter. Indicates that the parameter is not prefixed with <code>line - range =</code> or <code>split - range =</code> , or the range value does not meet the HTTP standard for Range.	400	None
DecompressFailure	Indicates that the value of Compression is GZIP and the decompression fails.	400	None
InvalidMaxSkippedRecordsAllowed	Indicates that the value of MaxSkippedRecordsAllowed is not an integer.	400	None
SelectCsvMetaUnavailable	Indicates that CreateSelectObjectMeta is firstly called when the Range parameter is specified but the target object does not include CSV Meta.	400	None
InvalidTextEncoding	Indicates that the object is not UTF-8 encoded.	400	None
InvalidOSSSelectParameters	Indicates the EnablePayloadCrc and OutputRawData parameters are both set to true, which results in conflicts.	400	None
InternalError	Indicates that an OSS system error occurs.	500 or 206	None or 500
SqlSyntaxError	Indicates that the syntax of the base64-decoded SQL statement is incorrect.	400	None
SqlExceedsMaxInCount	Indicates that the number of values included in the IN statement exceeds 1,024.	400	None

ErrorCode	Description	HTTP status code	Http status code in end frame
SqlExceedsMaxColumnNameLength	Indicates that the size of the column name exceeds 1,024.	400	None
SqlInvalidColumnIndex	Indicates that the column index in the SQL statement is smaller than 1 or larger than 100.	400	None
SqlAggregationOnNonNumericType	Indicates that an aggregation function is used in a non-numeric column.	400	None
SqlInvalidAggregationOnTimestamp	Indicates that the SUM/AVG aggregation function is used in the timestamp column.	400	None
SqlValueTypeOfInMustBeSame	Indicates that values of different types are included in the IN statement.	400	None
SqlInvalidEscapeChar	Indicates that escape characters in the LIKE statement is "?", "%", or "*".	400	None
SqlOnlyOneEscapeCharIsAllowed	Indicates that the size of the escape character in the LIKE statement is larger than 1.	400	None
SqlNoCharAfterEscapeChar	Indicates that there are no character after the escape character in the LIKE statement.	400	None
SqlInvalidLimitValue	Indicates that the number after the Limit statement is smaller than 1.	400	None
SqlExceedsMaxWildcardCount	Indicates that the number of wildcards ("*" or "%") exceeds the limit in the LIKE statement.	400	None
SqlExceedsMaxConditionCount	Indicates that the number of conditional expressions in the Where statement exceeds the limit.	400	None
SqlExceedsMaxConditionDepth	Indicates that the depth of the conditional tree in the Where statement exceeds the limit.	400	None

ErrorCode	Description	HTTP status code	Http status code in end frame
SqlOneColumnCastToDifferentTypes	Indicates that a column is casted to different types in the SQL statement.	400	None
SqlOperationAppliedToDifferentTypes	Indicates that an operator is used for two objects of different type in the SQL statement. For example, this ErrorCode is returned if the col1 in <code>_col1 &gt; 3</code> is a string.	400	None
SqlInvalidColumnName	Indicates that a column name used in the SQL statement is not included in the header of the CSV file.	400	None
SqlNotSupportedTimestampFormat	Indicates that the timestamp format specified in the CAST statement is not supported.	400	None
SqlNotMatchTimestampFormat	Indicates that the timestamp format specified in the CAST statement does not match the timestamp string.	400	None
SqlInvalidTimestampValue	Indicates that no timestamp format is specified in the CAST statement and the provided timestamp string cannot be casted into a timestamp.	400	None
SqlInvalidLikeOperand	Indicates that the left column in the LIKE statement is not column names of column indexes, the left column in the LIKE statement is not the string type, or the right column in the LIKE statement is the string type.	400	None
SqlInvalidMixOfAggregationAndColumn	Indicates that the SQL statement includes the column names and indexes of aggregation functions and non-aggregation functions at the same time.	400	None
SqlExceedsMaxAggregationCount	Indicates that the number of aggregation functions included in the SQL statement exceeds the limit.	400	None



ErrorCode	Description	HTTP status code	Http status code in end frame
SqlInvalidMixOfStarAndColumn	Indicates that the wildcard "*", column name, and column index are included in the SQL statement at the same time.	400	None
SqlInvalidKeepAllColumnsWithAggregation	Indicates that the SQL statement includes aggregation functions while the KeepAllColumns parameter is set to true.	400	None
SqlInvalidKeepAllColumnsWithDuplicateColumn	Indicates that the SQL statement include repeated column names or indexes while the KeepAllColumns parameter is set to true.	400	None
SqlInvalidSqlAfterAnalysis	Indicates that the SQL statement is not supported because it is too complicated after being resolved.	400	None
InvalidArithmeticOperand	Indicates that arithmetical operations are performed on non-numeric constants or columns in the SQL statement.	400	None
SqlInvalidAndOperand	Indicates that the type of expressions connected by AND in the SQL statement is not bool.	400	None
SqlInvalidOrOperand	Indicates that the type of expressions connected by OR in the SQL statement is not bool.	400	None
SqlInvalidNotOperand	Indicates that the type of expressions connected by NOT in the SQL statement is not bool.	400	None
SqlInvalidIsNullOperand	Indicates that the IS NULL operation is performed on a constant in the SQL statement.	400	None
SqlCompareOperandTypeMismatch	Indicates that the SQL statement compares two objects of different types.	400	None

ErrorCode	Description	HTTP status code	Http status code in end frame
SqlInvalidConcatOperand	Indicates that two constants are connected by the string connect operator (  ) in the SQL statement.	400	None
SqlUnsupportedSql	Indicates that the SQL statement is too complicated so that the size of the generated SQL plan exceeds the limit.	400	None
HeaderInfoExceedsMaxSize	Indicates that the size of header information specified in the SQL statement exceeds the limit.	400	None
OutputExceedsMaxSize	Indicates that a single row of output results exceeds the limit size.	400	None
InvalidCsvLine	Indicates that a row in the CSV file is invalid (including that the size of the row exceeds the limit) or the number of ignored rows exceeds the value of MaxSkippedRecordsAllowed.	206 or 400	400 or none
NegativeRowIndex	Indicates that the value of the array Index in the SQL statement is a negative number.	400	None
ExceedsMaxNestedColumnDepth	Indicates that the nested levels of the JSON file in the SQL statement exceeds the limit.	400	None
NestedColumnNotSupportedInCsv	Indicates that the nested attributes (including array "[]" or ".") are not supported in the CSV file in the SQL statement.	400	None
TableRootNodeOnlySupportInJson	Indicates that the root node path can be specified after From ossobject only in JSON files.	400	None
JsonNodeExceedsMaxSize	Indicates that the size of the root node in the JSON file exceeds the limit.	400 or 206	None or 400
InvalidJsonData	Indicates that the JSON data is invalid (incorrect format).	400 or 206	None or 400

ErrorCode	Description	HTTP status code	Http status code in end frame
ExceedsMaxJsonArraySize	Indicates that the number of elements in an array in the root node of the JSON file exceeds the limit.	400 or 206	None or 400
WildCardNotAllowed	Indicates that the wildcard (*) in the cannot be used in the JSON file in select or where statements. For example, the following statement is not supported: <pre>select s . a . b [*] from ossobject where a . c [*] &gt; 0 .</pre>	400	None
JsonNodeExceedsMaxDepth	Indicates that the depth of the root node of the JSON file exceeds the limit.	400 or 206	None or 400

## 7.17 PutObjectTagging

Configures or updates the tags of an object.

### Request syntax

```
PUT / objectname ? tagging
Content - Length : 114
Host : bucketname . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorization : SignatureV alue
< Tagging >
  < TagSet >
    < Tag >
      < Key > Key </ Key >
      < Value > Value </ Value >
    </ Tag >
  </ TagSet >
</ Tagging >
```

### Request elements

Element	Type	Required?	Description
Tagging	Container	Yes	Sub-node: TagSet

Element	Type	Required?	Description
TagSet	Container	Yes	Parent node: Tagging Sub-node: Tag
Tag	Container	No	Parent node: TagSet Sub-node: Key, Value
Key	String	No	Parent node: Tag Sub-node: None
Value	String	No	Parent node: Tag Sub-node: None

#### Detail analysis

- The requester must have the permission to perform the PutObjectTagging operation.
- The Last-Modified time of an object is not updated if the tag of the object is modified.
- A tag can contain letters, numbers, spaces, and the following symbols: plus sign (+), hyphen (-), equal sign (=), period (.), underscore (\_), colon (:), and forward slash (/).

#### Examples

- Request example:

```
PUT / objectname ? tagging
Content - Length : 114
Host : bucketname . oss - cn - hangzhou . aliyuncs . com
Date : Mon , 18 Mar 2019 08 : 25 : 17 GMT
Authorization : OSS *****:*****
< Tagging >
  < TagSet >
    < Tag >
      < Key > a </ Key >
      < Value > 1 </ Value >
    </ Tag >
    < Tag >
      < Key > b </ Key >
      < Value > 2 </ Value >
```

```

    </ Tag >
  </ TagSet >
</ Tagging >

```

- **Response example:**

```

200 ( OK )
content - length : 0
server : AliyunOSS
x - oss - request - id : 5C8F55ED46 1FB4A64C00 0004
date : Mon , 18 Mar 2019 08 : 25 : 17 GMT

```

## 7.18 GetObjectTagging

Obtains the tags of an object.

### Request syntax

```

GET / objectname ? tagging
Host : bucketname . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorizat ion : SignatureV alue

```

### Response elements

Element	Type	Description
Tagging	Container	Sub-node: TagSet
TagSet	Container	Parent node: Tagging Sub-node: Tag
Tag	Container	Parent node: TagSet Sub-node: Key, Value
Key	String	Parent node: Tag Sub-node: None
Value	String	Parent node: Tag Sub-node: None

### Examples

- **Request example:**

```

GET / objectname ? tagging
Host : bucketname . oss - cn - hangzhou . aliyuncs . com

```

```
Date : Wed , 20 Mar 2019 02 : 02 : 36 GMT
Authorizat ion : OSS *****:*****
```

- **Response example:**

```
200 ( OK )
content - length : 209
server : AliyunOSS
x - oss - request - id : 5C919F3846 1FB4282600 0002
date : Wed , 20 Mar 2019 02 : 02 : 32 GMT
content - type : applicatio n / xml
<? xml version =" 1 . 0 " encoding =" UTF - 8 ">
< Tagging >
  < TagSet >
    < Tag >
      < Key > a </ Key >
      < Value > 1 </ Value >
    </ Tag >
    < Tag >
      < Key > b </ Key >
      < Value > 2 </ Value >
    </ Tag >
  </ TagSet >
</ Tagging >
```

## 7.19 DeleteObjectTagging

Deletes the tag of a specified object.

### Request syntax

```
DELETE / objectname ? tagging
Host : bucketname . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Authorizat ion : SignatureV alue
```

### Examples

- **Request example:**

```
DELETE / objectname ? tagging
Host : bucketname . oss - cn - hangzhou . aliyuncs . com
Date : Tue , 09 Apr 2019 03 : 00 : 33 GMT
Authorizat ion : OSS LTAIbsTkyS Sptaz ****/ Zr0o6BKgAl
7iiBtHN2JM C ****
```

- **Response example:**

```
204 ( No Content )
content - length : 0
server : AliyunOSS
x - oss - request - id : 5CAC0AD16D 0232E2051B ****
date : Tue , 09 Apr 2019 03 : 00 : 33 GMT
```

## 8 Multipart upload operations

---

### 8.1 Introduction

In addition to PutObject, OSS also provides the multipart upload mode. You can upload files in the multipart upload mode in the following scenarios (but not limited to the following):

- Resumable upload must be supported.
- The files to be uploaded are larger than 100 MB.
- The network conditions are poor, and the connection with the OSS server is frequently disconnected.
- Before a file is uploaded, the size of the file cannot be determined.

### 8.2 InitiateMultipartUpload

Before transmitting data in Multipart Upload mode, you must call the InitiateMultipartUpload interface to require OSS to initiate a Multipart Upload event.

The InitiateMultipartUpload interface returns a globally unique upload ID created by the OSS server to identify this Multipart Upload event. You can initiate operations based on this Upload ID, such as stopping or querying the Multipart Upload.

#### Request syntax

```
POST / ObjectName ? uploads HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT date
Authorization : SignatureValue
```

#### Request parameters

During the InitiateMultipartUpload operation, you can use the encoding-type to encode the Key in the returned result.



Parameter	Type	Description
encoding - type	String	<p>Specifies the encoding type of the Key in the returned result. Currently, URL encoding is supported. The Key is UTF-8-encoded, but the XML 1.0 standard does not support parsing certain control characters, such as the characters with ASCII values from 0 to 10. If the Key contains control characters not supported by the XML 1.0 standard, you can specify the encoding-type to encode the returned Key.</p> <p>Default value: None</p> <p>Optional value: url</p>

## Request header

Header	Type	Description
Cache - control	String	<p>Specifies the Web page caching behavior when the object is downloaded. For more information, see <a href="#">RFC2616</a>.</p> <p>Default value: None</p>
Content - Dispositio n	String	<p>Specifies the object name when the object is downloaded. For more information, see <a href="#">RFC2616</a>.</p> <p>Default value: None</p>
Content - Encoding	String	<p>Specifies the content encoding format when the object is downloaded. For more information, see <a href="#">RFC2616</a>.</p> <p>Default value: None</p>



Header	Type	Description
Expires	Integer	<p>Specifies the expiration time in milliseconds. For more information, see <a href="#">RFC2616</a>.</p> <p>Default value: None</p>
x - oss - server - side - encryption	String	<p>Specifies the server-side encryption algorithm used to upload each part of the object. OSS stores each uploaded part based on server-side encryption.</p> <p>Valid value: AES256 or KMS</p> <p>You must enable KMS (Key Management Service) in the console before you can use the KMS encryption algorithm. Otherwise, a KmsServiceNotenabled error code is reported.</p>
x - oss - server - side - encryption - key - id	String	<p>Specifies the customer master key (CMK) managed by KMS.</p> <p>This parameter is valid when the value of x - oss - server - side - encryption is KMS.</p>

Header	Type	Description
x - oss - storage - class	String	<p>Specifies the storage class of the object.</p> <p><b>Values:</b></p> <ul style="list-style-type: none"> <li>Standard</li> <li>IA</li> <li>Archive</li> </ul> <p><b>Supported interfaces:</b> PutObject, InitMultipartUpload, AppendObject, PutObjectSymlink, and CopyObject</p> <div>  <b>Note:</b> <ul style="list-style-type: none"> <li>If the value of StorageClass is invalid, a 400 error is returned. Error code: InvalidArgument</li> <li>If you specify the value of x-oss-storage-class when uploading an object to a bucket, the storage class of the uploaded object is the specified value of x-oss-storage-class regardless of the storage class of the bucket. For example, if you set the value of x-oss-storage-class to Standard when uploading an object to a bucket of the IA storage class, the storage class of the object is Standard.</li> </ul> </div>
x - oss - tagging	String	<p>Specifies the tag of the object. You can set multiple tags at the same time, for example, TagA=A&amp;TagB=B.</p> <div>  <b>Note:</b> <p>You must perform URL encoding for the tag key and value in advance. If a tag does not contain an equal sign (=), this string does not have a value.</p> </div>

## Response elements

Name	Type	Description
Bucket	String	Indicates the name of a bucket for which a Multipart Upload event is initiated.  Parent element: InitiateMultipartUploadResult
InitiateMultipartUploadResult	Container	Indicates the container that saves the result of the InitiateMultipartUpload request.  Child elements: Bucket, Key, UploadId Parent element: None
Key	String	Indicates the name of an object for which a Multipart Upload event is initiated.  Parent element: InitiateMultipartUploadResult
UploadId	String	Indicates the unique ID of a Multipart Upload event.  Parent element: InitiateMultipartUploadResult
EncodingType	String	Specifies the encoding type for the returned results. If the encoding-type parameter is specified in the request, the Key is encoded in the returned result.  Parent element: Container

## Detail analysis

- When performing this operation to calculate the authentication signature, you must add “?uploads” to CanonicalizedResource.
- InitiateMultipartUpload requests support the following standard HTTP request headers: Cache-Control, Content-Disposition, Content-Encoding, Content-

Type, Expires, and custom headers starting with `x - oss - meta -`. For more information, see [PutObject](#).

- An `InitiateMultipartUpload` request does not affect the existing object with the same name.
- When receiving an `InitiateMultipartUpload` request, the server returns a request body in XML format. The request body includes three elements: `Bucket`, `Key`, and `UploadID`. You must record the `UploadID` for subsequent Multipart operations.
- If the `x-oss-server-side-encryption` header is set in the `InitiateMultipartUpload` request, the server returns this header in the response header. During the upload of each part, the server automatically stores the part based on entropy encryption. Currently, the OSS server only supports the AES256 and KMS encryption methods. If other methods are specified, the OSS server returns a 400 error with the `InvalidEncryptionAlgorithmError` error code. When uploading each part, you do not need to add the `x-oss-server-side-encryption` request header. If this request header is specified, OSS returns a 400 error with the `InvalidArgument` error code.

## Example

### Request example:

```
POST / multipart . data ? uploads HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Wed , 22 Feb 2012 08 : 32 : 21 GMT
x - oss - storage - class : Archive
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc :/ cluRFtRwMT
ZpC2hTj4F6 7AG ****
```

### Response example:

```
HTTP / 1 . 1 200 OK
Content - Length : 230
Server : AliyunOSS
Connection : keep - alive
x - oss - request - id : 42c25703 - 7503 - fbd8 - 670a - bda01eae
****
Date : Wed , 22 Feb 2012 08 : 32 : 21 GMT
Content - Type : application / xml
<? xml version =" 1 . 0 " encoding =" UTF - 8 ">
< InitiateMultipartUploadResult xmlns =" http :// doc . oss - cn
- hangzhou . aliyuncs . com ">
  < Bucket > multipart_ upload </ Bucket >
  < Key > multipart . data </ Key >
  < UploadId > 0004B9894A 22E5B1888A 1E29F823 ****</ UploadId >
```

```
</ InitiateMultipartUploadResult >
```

## 8.3 UploadPart

After initiating a Multipart Upload event, you can upload data in parts based on the specified object name and Upload ID. Each uploaded part has a part number ranging from 1 to 10,000.

For the same Upload ID, this part number identifies not only this part of data but also the location of this part in the entire file. If you upload new data using the same part number, OSS overwrites the existing data identified by this part number. The number of parts ranges from 1 to 10,000. The size of a single part ranges from 100 KB to 5 GB, while the last part can be less than 100 KB.

### Request syntax

```
PUT / ObjectName ? partNumber = PartNumber & uploadId = UploadId
HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Content - Length : Size
Authorization : SignatureValue
```

### Detail analysis

- Before calling the Initiate Multipart Upload interface to upload a part of data, you must call this interface to obtain an Upload ID issued by the OSS server.
- In the Multipart Upload mode, except the last part, all other parts must be larger than 100 KB. However, the Upload Part interface does not immediately verify the size of the uploaded part (because it does not know whether the part is the last one ). It verifies the size of the uploaded part only when Multipart Upload is completed.
- OSS puts the MD5 value of the part data received by the server in the ETag header and return it to the user.
- The part number ranges from 1 to 10,000. If the part number exceeds this range, OSS returns the InvalidArgument error code.
- If the x-oss-server-side-encryption request header is specified when the Initiate Multipart Upload interface is called, OSS encrypts the uploaded part and return the x-oss-server-side-encryption header in the Upload Part response header. The value of x-oss-server-side-encryption indicates the server-side encryption algorithm used for this part.

- To make sure that the data transmitted over the network is free from errors, the user includes Content-MD5 in the request. The OSS calculates the MD5 value for the uploaded data and compares it with the MD5 value uploaded by the user. If they are inconsistent, OSS returns the InvalidDigest error code.

## Examples

### Request example:

```
PUT / multipart . data ? partNumber = 1 & uploadId = 0004B9895D
BBB6EC98E3 6 HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Content - Length : 6291456
Date : Wed , 22 Feb 2012 08 : 32 : 21 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : J /
lICfXEvPmm SW86bBAfMm UmWjI =
[ 6291456 bytes data ]
```

### Response example:

```
HTTP / 1 . 1 200 OK
Server : AliyunOSS
Connection : keep - alive
ETag : 7265F4D211 B56873A381 D321F586E4 A9
x - oss - request - id : 3e6aba62 - 1eae - d246 - 6118 - 8ff42cd0c2
1a
Date : Wed , 22 Feb 2012 08 : 32 : 21 GMT
```

## 8.4 UploadPartCopy

Uploads a part by copying data from an existing object.

You can add an x-oss-copy-source header in the UploadPart request to call UploadPart Copy. When copying an object larger than 1 GB, you must use the UploadPartCopy method. For the UploadPartCopy operation, the source bucket and the target bucket must be in the same region. If you want to copy an object that is less than 1 GB by a single operation, you can use the CopyObject method.

### Request syntax

```
PUT / ObjectName ? partNumber = PartNumber & uploadId = UploadId
HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Content - Length : Size
Authorization : SignatureV alue
x - oss - copy - source : / SourceBucketName / SourceObjectName
```

```
x - oss - copy - source - range : bytes = first - last
```

### Request header

Except the common request header, other headers in the Upload Part Copy request are used to specify the address of the copied source object and copying range.

Name	Type	Description
x - oss - copy - source	String	Specifies the copy source address (the requester must have the permission to read the source object).  Default: None
x - oss - copy - source - range	Integer	Specifies the copying range of the copied source object. For example, if the range is set to bytes = 0-9, OSS transfers byte 0 to byte 9. This request header is not required when the entire source object is copied.  Default: None

The following request header is used for the source objects specified by x-oss-copy-source.

Name	Type	Description
x - oss - copy - source - if - match	String	If the ETag value of the source object is equal to the ETag provided in the request, OSS performs the CopyObject operation. Otherwise, OSS returns the 412 Precondition Failed error.  Default: None

Name	Type	Description
x-oss-copy-source-if-none-match	String	<p>If the source object has not been modified after the time specified in the request, OSS performs the CopyObject operation. Otherwise, OSS returns the 412 Precondition Failed error.</p> <p>Default: None</p>
x-oss-copy-source-if-unmodified-since	String	<p>If the time specified by the received parameter is the same as or later than the modification time of the object, OSS transfers the object normally, and returns the 200 OK message. Otherwise, OSS returns the 412 Precondition Failed error.</p> <p>Default: None</p>
x-oss-copy-source-if-modified-since	String	<p>If the source object has been modified after the time specified by the user, OSS performs the CopyObject operation. Otherwise, OSS returns the 412 Precondition Failed error.</p> <p>Default: None</p>



## Response elements

Name	Type	Description
x - oss - copy - source - if - match	String	If the ETag value of the source object is equal to the ETag provided in the request, OSS performs the CopyObject operation. Otherwise, OSS returns the 412 Precondition Failed error.  Default: None
x - oss - copy - source - if - none - match	String	If the source object has not been modified after the time specified in the request, OSS performs the CopyObject operation. Otherwise, OSS returns the 412 Precondition Failed error.  Default: None
x - oss - copy - source - if - unmodified - since	String	If the time specified by the received parameter is the same as or later than the modification time of the object, OSS transfers the object normally, and returns the 200 OK message. Otherwise, OSS returns the 412 Precondition Failed error.  Default: None

Name	Type	Description
x - oss - copy - source - if - modified - since	String	If the source object has been modified after the time specified by the user, OSS performs the CopyObject operation. Otherwise, OSS returns the 412 Precondition Failed error.  Default: None

#### Detail analysis

- Before calling the InitiateMultipartUpload interface to upload a part of data, you must call this interface to obtain an Upload ID issued by the OSS server.
- In the MultipartUpload mode, besides the last part, all other parts must be larger than 100 KB. However, the Upload Part interface does not immediately verify the size of the uploaded part (because it cannot immediately determine which part is the last one). It verifies the size of the uploaded part only when the MultipartUpload operation is completed.
- If the x-oss-copy-source-range request header is not specified, the entire source object is copied. If the request header is specified, the returned message includes the length of the entire file and the COPY range. For example, if the returned message is Content-Range: bytes 0-9/44, which means that the length of the entire file is 44, and the COPY range is 0 to 9. If the specified range does not conform to the range rules, OSS copies the entire file and does not contain Content-Range in the result.
- If the x-oss-server-side-encryption request header is specified when the InitiateMultipartUpload interface is called, OSS encrypts the uploaded part and return the x-oss-server-side-encryption header in the Upload Part response header. The value of x-oss-server-side-encryption indicates the server-side encryption algorithm used for this part. For more information, see the InitiateMultipartUpload API.
- This operation cannot be used to copy objects created by Append Object.
- If the bucket type is Archive, you cannot call this interface. Otherwise, OSS returns Error 400 with the error code “OperationNotSupported” .

## Examples

### Request example:

```
PUT / multipart . data ? Partnumber = 1 & sealadid =
porterhttp / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Content - Length : 6291456
Date : Wed , 22 Feb 2012 08 : 32 : 21 GMT
Authorizat ion : OSS qn6qrrqxo2 oawuk53otf jbyc : J /
lICfXEvPmm SW86bBAfMm UmWjI =
x - oss - copy - source : / oss - example / src - object
x - oss - copy - source - range : bytes = 100 - 6291756
```

### Response example:

```
HTTP / 1 . 1 200 OK
Server : AliyunOSS
Connection : keep - alive
x - oss - request - id : 3e6aba62 - 1eae - d246 - 6118 - 8ff42cd0c2
1a
Date : Thu , 17 Jul 2014 06 : 27 : 54 GMT '
<? xml version =" 1 . 0 " encoding =" UTF - 8 " ? >
< CopyPartRe sult xmlns =" http :// doc . oss - cn - hangzhou .
aliyuncs . com ">
  < LastModifi ed > 2014 - 07 - 17T06 : 27 : 54 . 000Z </
LastModifi ed >
  < ETag > " 5B3C1A2E05 3D763E1B00 2CC607C5A0 FE "</ ETag >
</ CopyPartRe sult >
```

## 8.5 CompleteMultipartUpload

Completes the MultipartUpload operation performed on the entire file after all data parts of the file have been uploaded.

During a CompleteMultipartUpload operation, you must provide the list (including the part number and ETags) of all valid data parts. After receiving the part list you have submitted, OSS verifies the validity of each data part individually. After all the data parts have been verified, OSS combines these parts into a complete object.

### Request syntax

```
POST / ObjectName ? uploadId = UploadId HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
Content - Length : Size
Authorizat ion : Signature

< CompleteMu ltipartUpl oad >
< Part >
< PartNumber > PartNumber </ PartNumber >
< ETag > ETag </ ETag >
</ Part >
```

```
</ CompleteMultipartUpload >
```

### Request parameters

During the Complete Multipart Upload operation, you can use encoding-type to encode the Key in the returned result.

Name	Type	Description
encoding - type	String	<p>Specifies the encoding type of the Key in the returned result. Currently, the URL encoding is supported. The Key adopts UTF-8 encoding, but the XML 1.0 Standard does not support parsing certain control characters, such as the characters with ASCII values from 0 to 10. In case that the Key contains control characters not supported by the XML 1.0 Standard, you can specify the encoding-type to encode the returned Key.</p> <p>Default: None</p> <p>Optional value: url</p>

### Request elements

Name	Type	Description
CompleteMultipartUpload	Container	<p>Specifies the container used to store the content of the CompleteMultipartUpload request.</p> <p>Sub-node: One or more part elements</p> <p>Parent node: None</p>

Name	Type	Description
ETag	String	Specifies the ETag value returned by OSS after data parts are successfully uploaded.  Parent node: Part
Part	Container	Specifies the container that stores the uploaded data parts.  Sub-nodes: ETag, PartNumber  Parent node: InitiateMultipartUploadResult
PartNumber	Integer	Specifies the number of parts.  Parent node: Part

## Response elements

Name	Type	Description
Bucket	String	Specifies the bucket name.  Parent node: CompleteMultipartUploadResult
CompleteMultipartUploadResult	Container	Specifies the container that stores the result of the Complete Multipart Upload request.  Sub-nodes: Bucket, Key, ETag, Location Location  Parent node: None

Name	Type	Description
ETag	String	Specifies the ETag (entity tag) is created when an object is generated and is used to indicate the content of the object. For the objects created based on the Complete Multipart Upload request, the value of ETag is the UUID of the object content. The value of ETag can be used to check whether the content of the object is changed.  Parent node: CompleteMultipartUploadResult
Location	String	Specifies the URL of the newly created object.  Parent node: CompleteMultipartUploadResult
Key	String	Specifies the name of the newly created object.  Parent node: CompleteMultipartUploadResult
EncodingType	String	Specifies the encoding type for the returned results. If encoding-type is specified in the request, the Key is encoded in the returned result.  Parent node: Container

#### Detail analysis

- When receiving a CompleteMultipartUpload request, OSS verifies that all parts except the last part are larger than 100 KB and checks each part number and ETag in the part list submitted by the user. Therefore, when uploading data parts, the

client must record not only the part number but also the ETag value returned by OSS each time a part is uploaded successfully.

- It takes a few minutes for OSS to process the CompleteMultipartUpload request. During this time, if the client is disconnected from OSS, OSS continues to complete the request.
- The part numbers in the part list submitted by a user can be non-consecutive. For example, the first part number is 1 and the second part number is 5.
- After OSS successfully processes the Complete MultipartUpload request, the corresponding Upload ID becomes invalid.
- The same object may have different Upload IDs. When an Upload ID is completed, other Upload IDs of this object are not affected.
- If the x-oss-server-side-encryption request header is specified when the Initiate MultipartUpload interface is called, OSS returns the x-oss-server-side-encryption header in the CompleteMultipartUpload response header. The value of x-oss-server-side-encryption indicates the server-side encryption algorithm used for this object.
- If you have uploaded the Content-MD5 request header, the OSS calculates the body's Content-MD5 and check if the two are consistent. If the two are different, the error code InvalidDigest is returned.

## Examples

### Request example:

```
POST / multipart . data ? uploadId = 0004B9B2D2 F7815C432C
9057C03134 D4 HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Content - Length : 1056
Date : Fri , 24 Feb 2012 10 : 19 : 18 GMT
Authorizat ion : OSS qn6qrrqxo2 oawuk53otf jbyc : 8VwFhFUWmV
ecK6jQlHlX MK / zMT0 =

< CompleteMultipartUpload >
  < Part >
    < PartNumber > 1 </ PartNumber >
    < ETag >" 3349DC7001 40D7F86A07 8484278075 A9 "</ ETag >
  </ Part >
  < Part >
    < PartNumber > 5 </ PartNumber >
    < ETag >" 8EFDA8BE20 6636A69535 9836FE0A0E 0A "</ ETag >
  </ Part >
  < Part >
    < PartNumber > 8 </ PartNumber >
    < ETag >" 8C31506516 7132444177 411FDA149B 92 "</ ETag >
  </ Part >
```

```
</ CompleteMultipartUpload >
```

### Response example:

```
HTTP / 1.1 200 OK
Server : AliyunOSS
Content-Length : 329
Content-Type : application/xml
Connection : keep-alive
X-OSS-request-ID : 594f0751-3b1e-168f-4501-4ac71d217d6e
Date : Fri, 24 Feb 2012 10:19:18 GMT

<?xml version="1.0" encoding="UTF-8"?>
<CompleteMultipartUploadResult xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">
  <Location>http://oss-example.oss-cn-hangzhou.aliyuncs.com/multipart.data</Location>
  <Bucket>oss-example</Bucket>
  <Key>multipart.data</Key>
  <ETag>B864DB6A936D376F9F8D3ED3BBE540DD-3</ETag>
</CompleteMultipartUploadResult>
```

## 8.6 AbortMultipartUpload

Stops a MultipartUpload event. To perform an AbortMultipartUpload operation, you must provide the Upload ID of the MultipartUpload event you want to stop.



### Note:

- After a MultipartUpload event is stopped, you cannot use this Upload ID to perform any operations, and the uploaded data parts are also deleted.
- After you stop a MultipartUpload event, if parts in this event are still being uploaded, they are not deleted. Therefore, if multiple MultipartUpload events are performed concurrently, you must call AbortMultipartUpload for multiple times to completely release the OSS storage spaces.

### Request syntax

```
DELETE /ObjectName?uploadId=UploadId HTTP/1.1
Host: BucketName.oss-cn-hangzhou.aliyuncs.com
Date: GMT Date
Authorization: Signature
```

### Examples

#### Request example:

```
Delete /multipart.data?&uploadId=0004B9895D BBB6EC98E
HTTP/1.1
Host: oss-example.oss-cn-hangzhou.aliyuncs.com
Date: Wed, 22 Feb 2012 08:32:21 GMT
```



```
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : J /  
lICfXEvPmm SW86bBAfMm UmWjI =
```

### Response example:

```
HTTP / 1 . 1 204  
Server : AliyunOSS  
Connection : keep - alive  
x - oss - request - id : 059a22ba - 6ba9 - daed - 5f3a - e48027df34  
4d  
Date : Wed , 22 Feb 2012 08 : 32 : 21 GMT
```

## SDK

The SDKs of this API are as follows:

- [Java](#)
- [PHP](#)
- [Go](#)
- [C](#)
- [.NET](#)

## Error codes

Error code	HTTP status code	Description
NoSuchUpload	404	The Upload ID does not exist.

## 8.7 ListMultipartUploads

Lists all MultipartUpload events that are being executed, that is, MultipartUpload events that have been initiated but are not completed or aborted.

The result returned by OSS includes the information about a maximum of 1,000 MultipartUpload events. If you want to specify the number of MultipartUpload events included in the results returned by OSS, you can add the max-uploads parameter in the request. In addition, the IsTruncated element in the results returned by OSS indicates whether other information about other MultipartUpload events are included.

## Request syntax

```
Get /? uploads HTTP / 1 . 1  
Host : BucketName . oss - cn - hangzhou . aliyuncs . com  
Date : GMT Date
```

Authorization : Signature

### Request parameters

Parameter	Type	Description
delimiter	String	Indicates the character used to group object names. All those objects whose names contain the specified prefix and behind which the delimiter occurs for the first time act as a group of elements - CommonPrefixes.
max - uploads	String	Specifies the maximum number of MultipartUpload tasks returned by one response. If this parameter is not specified , the default value 1,000 is used. The max-uploads value cannot exceed 1,000.

Parameter	Type	Description
key - marker	String	<p>This parameter is used together with the upload-id-marker parameter to specify the starting position of the returned result.</p> <ul style="list-style-type: none"><li>· If the upload-id-marker parameter is not set, the query result includes MultipartUpload events in which all object names are greater than the value of the key-marker parameter in the lexicographic order.</li><li>· If the upload-id-marker parameter is set, the query result includes MultipartUpload events in which all object names are greater than the value of the key-marker parameter in the lexicographic order , and all MultipartUpload events in which the object names are the same as the value of the key-marker parameter , but the Upload IDs are greater than the value of the upload-id-marker parameter.</li></ul>
prefix	String	<p>Limits the prefix of the returned object key. Note that if you specify a prefix in the request, the prefix is included in the returned key.</p>

Parameter	Type	Description
upload-id-marker	String	<p>This parameter is used together with the key-marker parameter to specify the starting position of the returned result.</p> <ul style="list-style-type: none"><li>· If the key-marker parameter is not set, OSS ignores the upload-id-marker parameter.</li><li>· If the key-marker parameter is set, the query result includes MultipartUpload events in which all object names are greater than the value of the key-marker parameter in the lexicographic order, and all MultipartUpload events in which the object names are the same as the value of the key-marker parameter, but the Upload IDs are greater than the value of the upload-id-marker parameter.</li></ul>

Parameter	Type	Description
encoding - type	String	<p>Indicates that the returned results are encoded and specifies the encoding type. Delimiter, KeyMarker, Prefix, NextKeyMarker, and Key use UTF-8 characters, but the XML 1.0 Standard does not support parsing certain control characters, such as characters with ASCII values ranging from 0 to 10. If some elements in the returned results contain control characters that are not supported by the XML 1.0 Standard, encoding-type can be specified to encode these elements, such as Delimiter, KeyMarker, Prefix, NextMarker, and Key.</p> <p>Default: None</p>

## Response elements

Name	Type	Description
ListMultipartUploadsResult	Container	<p>Indicates the container that stores the result of the ListMultipartUpload request.</p> <p>Sub-nodes: Bucket, KeyMarker, UploadIdMarker, NextKeyMarker, NextUploadIdMarker, MasUploads, Delimiter, Prefix, CommonPrefixes, IsTruncated, Upload</p> <p>Parent node: None</p>
Bucket	String	<p>Indicates the bucket name.</p> <p>Parent node: ListMultipartUploadsResult</p>
EncodingType	String	<p>Indicates the encoding type for the returned results. If encoding-type is specified in the request, those elements including Delimiter, KeyMarker, Prefix, NextKeyMarker, and Key are encoded in the returned result.</p> <p>Parent node: ListMultipartUploadsResult</p>
KeyMarker	String	<p>Indicates the position of the starting object in the list.</p> <p>Parent node: ListMultipartUploadsResult</p>

Name	Type	Description
UploadIdMarker	String	Indicates the position of the starting Upload ID in the list.  Parent node: ListMultipartUploadsResult
NextKeyMarker	String	If not all results are returned this time, the response includes the NextKeyMarker element to indicate the value of KeyMarker in the next request.  Parent node: ListMultipartUploadsResult
NextUploadMarker	String	If not all results are returned this time, the response includes the NextUploadMarker element to indicate the value of UploadMarker in the next request.  Parent node: ListMultipartUploadsResult
MaxUploads	Integer	Indicates the maximum upload number returned by the OSS.  Parent node: ListMultipartUploadsResult

Name	Type	Description
IsTruncated	enumerative string	<p>Indicates whether the returned MultipartUpload event list is truncated. The “true” value indicates that not all results are returned; “false” indicates that all results are returned.</p> <p>Valid values: false , true</p> <p>Default: false</p> <p>Parent node: ListMultipartUploadsResult</p>
Upload	Container	<p>Indicates the container that stores the information about the MultipartUpload events.</p> <p>Sub-nodes: Key, UploadId, Initiated</p> <p>Parent node: ListMultipartUploadsResult</p>
Key	String	<p>Indicates the name of an object for which a MultipartUpload event is initiated.</p> <p>Parent node: Upload</p>
UploadId	String	<p>Indicates the ID of a MultipartUpload event.</p> <p>Parent node: Upload</p>
Initiated	Date	<p>Indicates the time when a Multipart Upload event is initiated.</p> <p>Parent node: Upload</p>



## Detail analysis

- The maximum value of the `max-uploads` parameter is 1,000.
- The results returned by OSS are listed in ascending order based on the lexicographic order of object names; for the same object, the results are listed in ascending time order.
- Using the `prefix` parameter, you can flexibly manage objects in a bucket in groups (similar to the folder function).
- A `ListMultipartUploads` request supports five request parameters: `prefix`, `marker`, `delimiter`, `upload-id-marker`, and `max-uploads`. Based on the combinations of these parameters, you can set rules for querying `MultipartUpload` events to obtain the expected query results.

## Examples

### Request example:

```
Get /? uploads HTTP / 1 . 1
HOST : OSS - example .
Date : Thu , 23 Feb 2012 06 : 14 : 27 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : JX75CtQqsm
BBz + dcivn7kwBM vOY =
```

### Response example:

```
HTTP / 1 . 1 200
Server : AliyunOSS
Connection : keep - alive
Content - length : 1839
Content - type : application / xml
x - oss - request - id : 58a41847 - 3d93 - 1905 - 20db - ba6f561ce67a
Date : Thu , 23 Feb 2012 06 : 14 : 27 GMT

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< ListMultipartUploads Result xmlns =" http :// doc . oss - cn - hangzhou . aliyuncs . com ">
  < Bucket > oss - example </ Bucket >
  < KeyMarker ></ KeyMarker >
  < UploadIdMarker ></ UploadIdMarker >
  < NextKeyMarker > oss . avi </ NextKeyMarker >
  < NextUploadIdMarker > 0004B99B8E 707874FC2D 692FA5D77D 3F </ NextUploadIdMarker >
  < Delimiter ></ Delimiter >
  < Prefix ></ Prefix >
  < MaxUploads > 1000 </ MaxUploads >
  < IsTruncated > false </ IsTruncated >
  < Upload >
    < Key > multipart . data </ Key >
    < UploadId > 0004B999EF 518A1FE585 B0C9360DC4 C8 </ UploadId >
    < Initiated > 2012 - 02 - 23T04 : 18 : 23 . 000Z </ Initiated >
  </ Upload >
</ ListMultipartUploads Result >
```

```

    </ Upload >
    < Upload >
      < Key > multipart . data </ Key >
      < UploadId > 0004B999EF 5A239BB913 8C6227D69F 95 </
UploadId >
      < Initiated > 2012 - 02 - 23T04 : 18 : 23 . 000Z </ Initiated
>
    </ Upload >
    < Upload >
      < Key > oss . avi </ Key >
      < UploadId > 0004B999B8E 707874FC2D 692FA5D77D 3F </
UploadId >
      < Initiated > 2012 - 02 - 23T06 : 14 : 27 . 000Z </ Initiated
>
    </ Upload >
  </ ListMultip artUploads Result >

```

## 8.8 ListParts

Lists all parts that are successfully uploaded in a MultipartUpload event with a specified Upload ID.

### Request syntax

```

Get    / ObjectName ? uploadId = UploadId  HTTP / 1 . 1
Host :  BucketName . oss - cn - hangzhou . aliyuncs . com
Date :  GMT    Date
Authorizat ion :  Signature

```

### Request parameters

Parameter	Type	Description
uploadId	String	Specifies the ID of a MultipartUpload event.  Default value: None
max - parts	Integer	Specifies the maximum part number in the response.  Default value: 1000
part - number - marker	Integer	Specifies the starting position of a specified list. A part is listed only when the part number is greater than the value of this parameter.  Default value: None

Parameter	Type	Description
encoding - type	String	<p>Indicates that the returned results are encoded and specifies the encoding type. The Key are UTF-8 encoded, but the XML 1.0 Standard does not support parsing certain control characters, such as the characters with ASCII values from 0 to 10. In case that the Key contains control characters not supported by the XML 1.0 Standard, you can specify the encoding-type to encode the returned Key.</p> <p>Default value: None</p> <p>Optional value: url</p>

## Response elements

Name	Type	Description
ListPartsResult	Container	<p>Indicates the container that stores the result of the ListParts request.</p> <p>Sub-nodes: Bucket, Key, UploadId, PartNumberMarker, NextPartNumberMarker, MaxParts, IsTruncated, Part</p> <p>Parent node: None</p>
Bucket	String	<p>Indicates the bucket name.</p> <p>Parent node: ListPartsResult</p>

Name	Type	Description
EncodingType	String	Indicates the encoding type of the returned result. If the encoding type is specified in the request, the Key is encoded in the returned result.  Parent node: ListPartsResult
Key	String	Indicates the object name.  Parent node: ListPartsResult
UploadId	String	Indicates the ID of an MultipartUpload event.  Parent node: ListPartsResult
PartNumberMarker	Integer	Indicates the starting position of the part numbers in the listing result.  Parent node: ListPartsResult
NextPartNumberMarker	Integer	If not all results are returned this time, the response request includes the NextPartNumberMarker element to indicate the value of PartNumberMarker in the next request.  Parent node: ListPartsResult

Name	Type	Description
MaxParts	Integer	Indicates the maximum part number in the returned result.  Parent node: ListPartsResult
IsTruncated	Enumerating strings	Indicates whether the returned result for the ListParts request is truncated. The “true” value indicates that not all results are returned; “false” indicates that all results are returned.  Values: true , false  Parent node: ListPartsResult
Part	String	Indicates the container that stores part information.  Sub-nodes: PartNumber, LastModified, ETag, Size  Parent node: ListPartsResult
PartNumber	Integer	Indicates the part number.  Parent node: ListPartsResult.Part
LastModified	Date	Indicates the time when a part is uploaded.  Parent node: ListPartsResult.part

Name	Type	Description
ETag	String	Indicates the ETag value in the content of the uploaded part.  Parent node: ListPartsResult.Part
Size	Integer	Indicates the size of the uploaded part.  Parent node: ListPartsResult.Part

### Detail analysis

- ListParts supports two request parameters: max-parts and part-number-marker.
- The maximum value and the default value of the max-parts parameter are both 1,000.
- The results returned by OSS are listed in ascending order based on the part numbers.
- Errors may occur in network transmission. Therefore, we recommended you do not use the result (part number and ETag value) of ListParts to generate the final part list of CompleteMultipart.

### Examples

#### Request example:

```
Get / multipart . data ? uploadId = 0004B999EF 5A239BB913
8C6227D69F 95 HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Thu , 23 Feb 2012 07 : 13 : 28 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : 4qOnUMc9UQ
Wqkz8wDqD3 lIsa9P8 =
```

#### Response example:

```
HTTP / 1 . 1 200
Server : AliyunOSS
Connection : keep - alive
Content - length : 1221
Content - type : application / xml
x - oss - request - id : 106452c8 - 10ff - 812d - 736e - c865294afc
1c
Date : Thu , 23 Feb 2012 07 : 13 : 28 GMT
<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
```

```

< ListPartsR esult    xmlns =" http :// doc . oss - cn - hangzhou .
aliyuncs . com ">
  < Bucket > multipart_ upload </ Bucket >
  < Key > multipart . data </ Key >
  < UploadId > 0004B999EF 5A239BB913 8C6227D69F 95 </ UploadId >
  < NextPartNu mberMarker > 5 </ NextPartNu mberMarker >
  < MaxParts > 1000 </ MaxParts >
  < IsTruncate d > false </ IsTruncate d >
  < Part >
    < PartNumber > 1 </ PartNumber >
    < LastModifi ed > 2012 - 02 - 23T07 : 01 : 34 . 000Z </
LastModifi ed >
    < ETag >& quot ; 3349DC7001 40D7F86A07 8484278075 A9 & quot
; </ ETag >
    < Size > 6291456 </ Size >
  </ Part >
  < Part >
    < PartNumber > 2 </ PartNumber >
    < LastModifi ed > 2012 - 02 - 23T07 : 01 : 12 . 000Z </
LastModifi ed >
    < ETag >& quot ; 3349DC7001 40D7F86A07 8484278075 A9 & quot
; </ ETag >
    < Size > 6291456 </ Size >
  </ Part >
  < Part >
    < PartNumber > 5 </ PartNumber >
    < LastModifi ed > 2012 - 02 - 23T07 : 02 : 03 . 000Z </
LastModifi ed >
    < ETag >& quot ; 7265F4D211 B56873A381 D321F586E4 A9 & quot
; </ ETag >
    < Size > 1024 </ Size >
  </ Part >
</ ListPartsR esult >

```

## 9 Cross-Origin Resource Sharing

### 9.1 Introduction

Cross-Origin Resource Sharing (CORS) allows web applications to access resources in other regions.

With the CORS support, OSS allows users to develop more flexible web applications. OSS provides interfaces for developers to easily control various permissions for cross-domain access.

### 9.2 PutBucketcors

Sets a CORS rule for a specified bucket. If a rule has been set for the bucket, it is overwritten.

Request syntax

```
PUT /? cors HTTP / 1 . 1
Date : GMT Date
Content - Length : ContentLength
Content - Type : application / xml
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Authorization : SignatureValue
<? xml version =" 1 . 0 " encoding =" UTF - 8 ">
< CORSConfiguration >
  < CORSRule >
    < AllowedOrigin > the origin you want allow CORS
request from </ AllowedOrigin >
    < AllowedOrigin >...</ AllowedOrigin >
    < AllowedMethod > HTTP method </ AllowedMethod >
    < AllowedMethod >...</ AllowedMethod >
    < AllowedHeader > headers that allowed browser to
send </ AllowedHeader >
    < AllowedHeader >...</ AllowedHeader >
    < ExposeHeader > headers in response that can
access from client app </ ExposeHeader >
    < ExposeHeader >...</ ExposeHeader >
    < MaxAgeSeconds > time to cache pre - flight
response </ MaxAgeSeconds >
  </ CORSRule >
  < CORSRule >
    ...
  </ CORSRule >
  ...
</ CORSConfiguration >
```



```
</ CORSConfig uration >
```

## Request elements

Element	Type	Required	Description
CORSRule	Container	Yes	Specifies the container that stores CORS rules. A maximum of 10 rules can be set for a bucket.  Parent node: CORSConfiguration
AllowedOrigin	String	Yes	Specifies the allowed origins from which the cross-domain requests are initiated. You can use multiple elements to specify multiple allowed origins. Each rule allows up to one wildcard (*), which indicates that cross-domain requests from all origins are allowed.  Parent node: CORSRule
AllowedMethod	enumeration (GET, PUT, DELETE, POST, HEAD)	Yes	Specifies the allowed methods for cross-domain requests.  Parent node: CORSRule

Element	Type	Required	Description
AllowedHeader	String	No	<p>Controls whether the headers specified by Access-Control-Request-Headers in the OPTIONS prefetch command are allowed. Each header specified by Access-Control-Request-Headers must match a value in AllowedHeader. Each rule allows up to one wildcard (*).</p> <p>Parent node: CORSRule</p>
ExposeHeader	String	No	<p>Specifies the response headers that can be accessed by from an application (for example, a Javascript XMLHttpRequest object). The wildcard (*) is not allowed.</p> <p>Parent node: CORSRule</p>

Element	Type	Required	Description
MaxAgeSeconds	Integer	No	Specifies the cache time (in seconds) of a browser used to respond a prefetch (OPTIONS) request to a specific resource. Only one of this parameter is allowed in a CORSRule.  Parent node: CORSRule
CORSConfiguration	Container	Yes	Specifies the container that stores the CORS rules for a bucket.  Parent node: None

#### Detail analysis

- CORS is disabled for buckets by default, that is, cross-domain requests from any origin are forbidden.
- To use CORS in applications, for example, accessing OSS from [www.a.com](http://www.a.com) through the XMLHttpRequest function of the browser, you must manually upload a CORS rule through this interface to enable CORS. This rule is described in an XML document.
- The CORS settings for each bucket is specified by multiple CORS rules. A maximum of 10 CORS rules can be set for a bucket. The uploaded XML document cannot be larger than 16 KB.
- When receiving a cross-domain request (or an OPTIONS request), OSS reads the CORS rules for the bucket and then checks related permissions. OSS checks each rule sequentially and uses the first rule that matches the request to approve the request and return the corresponding header. If none of the rules match the request, OSS does not include any CORS header in the response.

- The following conditions must be met before OSS determines that a CORS rule matches the request:
  - The origin from which the request is initiated must match the value of AllowOrigin of the CORS rule.
  - The method of the request (such as GET or PUT) or the method corresponding to the Access-Control-Request-Method header in an OPTIONS request must match the value of AllowedMethod of the CORS rule.
  - Each header included in the Access-Control-Request-Headers header in an OPTIONS request must match the value of AllowedHeader of the CORS rule.
- If you include the Content-MD5 header in the request, OSS calculates the Content-MD5 of the request body and checks whether the two values are the same. If the two values are different, the error code InvalidDigest is returned.

## Examples

### Request example of adding a bucket CORS rule:

```
PUT /? cors HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Content - Length : 186
Date : Fri , 04 May 2012 03 : 21 : 12 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : KU5h8YMUC7
8M30dXqf3J xrTzHiA =
<? xml version =" 1 . 0 " encoding =" UTF - 8 ">
< CORSConfig uration >
  < CORSRule >
    < AllowedOri gin >*</ AllowedOri gin >
    < AllowedMet hod > PUT </ AllowedMet hod >
    < AllowedMet hod > GET </ AllowedMet hod >
    < AllowedHea der > Authorizat ion </ AllowedHea der >
  </ CORSRule >
  < CORSRule >
    < AllowedOri gin > http :// www . a . com </ AllowedOri gin >
    < AllowedOri gin > http :// www . b . com </ AllowedOri gin >
    < AllowedMet hod > GET </ AllowedMet hod >
    < AllowedHea der > Authorizat ion </ AllowedHea der >
    < ExposeHead er > x - oss - test </ ExposeHead er >
    < ExposeHead er > x - oss - test1 </ ExposeHead er >
    < MaxAgeSeco nds > 100 </ MaxAgeSeco nds >
  </ CORSRule >
</ CORSConfig uration >
```

### Response example:

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 50519080C4 689A033D00 235F
Date : Fri , 04 May 2012 03 : 21 : 12 GMT
Content - Length : 0
Connection : keep - alive
```

Server : AliyunOSS

## 9.3 GetBucketcors

Obtains the current CORS rules for a specified bucket.

### Request syntax

```
GET  /? cors  HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT   Date
Authorizat ion : SignatureV alue
```

### Response elements

Element	Type	Description
CORSRule	Container	Indicates the container that stores CORS rules. A maximum of 10 rules can be set for a bucket.  Parent node: CORSConfiguration
AllowedOrigin	String	Indicates the allowed origins from which the cross-domain requests are initiated. You can use multiple elements to specify multiple allowed origins. Each rule allows up to one wildcard (*), which indicates that cross-domain requests from all origins are allowed.  Parent node: CORSRule
AllowedMethod	Enumeration (GET, PUT, DELETE, POST, HEAD)	Indicates the allowed methods for cross-domain requests.  Parent node: CORSRule

Element	Type	Description
AllowedHeader	String	Controls whether the headers specified by Access-Control-Request-Headers in the OPTIONS prefetch command are allowed. Each header specified by Access-Control-Request-Headers must match a value in AllowedHeader. Each rule allows up to one wildcard (*).  Parent node: CORSRule
ExposeHeader	String	Indicates the response headers that can be accessed by from an application (for example, a Javascript XMLHttpRequest object). The wildcard (*) is not allowed.  Parent node: CORSRule
MaxAgeSeconds	Integer	Indicates the cache time (in seconds) of a browser used to respond a prefetch (OPTIONS) request to a specific resource. Only one of this parameter is allowed in a CORSRule.  Parent node: CORSRule
CORSConfiguration	Container	Indicates the container that stores the CORS rules for a bucket.  Parent node: None

## Detail analysis

- If the requested bucket does not exist, the 404 No Content error is returned with the error code: NoSuchBucket.
- Only the owner of a bucket owner can obtain the CORS rules for the bucket. Otherwise, the 403 Forbidden error is returned with the error code: AccessDenied.
- If CORS rules for the requested bucket do not exist, the 404 Not Found error is returned with the error code: NoSuchCORSConfiguration.

## Example

### Request example:

```
GET /? cors HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Thu , 13 Sep 2012 07 : 51 : 28 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : BuG4rRK +
zNhH1AcF51 NNHD39zXw =
```

### Response example returned when CORS rules are configured for the bucket:

```
HTTP / 1 . 1 200
x - oss - request - id : 50519080C4 689A033D00 235F
Date : Thu , 13 Sep 2012 07 : 51 : 28 GMT
Connection : keep - alive
Content - Length : 218
Server : AliyunOSS

<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< CORSConfig uration >
  < CORSRule >
    < AllowedOri gin >*</ AllowedOri gin >
    < AllowedMet hod > GET </ AllowedMet hod >
    < AllowedHea der >*</ AllowedHea der >
    < ExposeHead er > x - oss - test </ ExposeHead er >
    < MaxAgeSeco nds > 100 </ MaxAgeSeco nds >
  </ CORSRule >
</ CORSConfig uration >
```

## 9.4 DeleteBucketcors

Disables the CORS function for a specified bucket and clears all CORS rules.

### Request syntax

```
DELETE /? cors HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT Date
```

```
Authorization : SignatureV alue
```

### Detail analysis

- If the requested bucket does not exist, OSS returns the 404 No Content error with the error code: NoSuchBucket.
- Only the owner of a bucket can delete the CORS rules for the bucket. If you perform the DeleteBucketcors operation on a bucket that is not owned by you, a 403 Forbidden error is returned with the error code: Accessdenied.

### Examples

#### Request example:

```
DELETE /? cors HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Fri , 24 Feb 2012 05 : 45 : 34 GMT
Authorization : OSS qn6qrrqxo2 oawuk53otf jbyc : LnM4AZ10eI
duZF5vGFWi cOMEkVg =
```

#### Response example:

```
HTTP / 1 . 1 204 No Content
x - oss - request - id : 5051845BC4 689A033D00 22BC
Date : Fri , 24 Feb 2012 05 : 45 : 34 GMT
Connection : keep - alive
Content - Length : 0
Server : AliyunOSS
```

## 9.5 OptionObject

Before sending a cross-domain request, the browser sends a preflight request (OPTIONS) containing a specified origin, HTTP method, and header information to OSS to determine whether to send a real request.

OSS can enable CORS for a bucket through PutBucketcors. After CORS is enabled for a bucket, OSS determines whether to allow the preflight request sent from the browser based on the specified CORS rules. If OSS does not allow the request or CORS is disabled for the bucket, the 403 Forbidden error is returned.

### Request syntax

```
OPTIONS / ObjectName HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Origin : Origin
Access - Control - Request - Method : HTTP method
```



Access - Control - Request - Headers : Request Headers

### Request header

Header	Type	Description
Origin	String	Specifies the origin of a request, which is used to identify a cross-domain request.  Default value: None
Access - Control - Request - Method	String	Specifies the methods to be used in a real request.  Default value: None
Access - Control - Request - Headers	String	Specifies the headers (except for simple headers) to be used in a real request.  Default value: None

### Response header

Header	Type	Description
Access - Control - Allow - Origin	String	Indicates the origin contained in the request . This header is not contained if the request is not allowed.
Access - Control - Allow - Methods	String	Indicates the HTTP method used by the request. This header is not contained if this request is not allowed.
Access - Control - Allow - Headers	String	Indicates the list of allowed headers in the request. If the request contains forbidden headers, this header is not contained and the request is rejected.

Header	Type	Description
Access - Control - Expose - Headers	String	Indicates the list of headers that can be accessed by the client' s JavaScript application.
Access - Control - Max - Age	Integer	Indicates the allowed time duration (in seconds) required for the browser to buffer the preflight results .

## Examples

### Request example:

```
OPTIONS / testobject HTTP / 1 . 1
Host : oss - example . oss - cn - hangzhou . aliyuncs . com
Date : Fri , 24 Feb 2012 05 : 45 : 34 GMT
Origin : http :// www . example . com
Access - Control - Request - Method : PUT
Access - Control - Request - Headers : x - oss - test
```

### Response example:

```
HTTP / 1 . 1 200 OK
x - oss - request - id : 5051845BC4 689A033D00 22BC
Date : Fri , 24 Feb 2012 05 : 45 : 34 GMT
Access - Control - Allow - Origin : http :// www . example . com
Access - Control - Allow - Methods : PUT
Access - Control - Expose - Headers : x - oss - test
Connection : keep - alive
Content - Length : 0
Server : AliyunOSS
```

## 10 LiveChannel-related operations

---

### 10.1 Overview

You can upload audio and video data to OSS through the RTMP protocol and store the data as audio and video files in specified formats. Before uploading audio and video data, you must create a LiveChannel to obtain the URL used to push video or audio streams. For more information, see the documents of APIs related to LiveChannel.

When uploading audio and video data to OSS through the RTMP protocol, you must pay attention to the following limits:

- By using the RTMP protocol, you can only push video or audio streams but not pull the streams.
- A LiveChannel must include a video stream in H264 format.
- Audio streams are optional in a LiveChannel. Only audio streams in the AAC format are supported. Audio streams in other formats are discarded.
- Only the HLS protocol is supported to store the uploaded video and audio data as files in specified formats.
- Only one client can push streams to a LiveChannel at the same time.

### 10.2 Push RTMP streams using a URL and signature

This topic describes how to push streams through RTMP by using a URL.

The URL format is as follows: `rtmp ://${ bucket }.${ host }/ live /${ channel }?${ params }`

In the preceding URL format:

- `live` is the name of the application by which OSS uses the RTMP protocol.
- `param` is the parameter for pushing a stream, and is in the same format as the query string in the HTTP request (that is, "varA=valueA&varB=valueB").
- If the ACL rule for the target bucket is not public-read-write, the URL for pushing the stream must be signed. The signing method is similar to URLs of objects that are signed, which is described in the following section.

## RTMP stream URL parameters

Parameter	Description
playlistName	Specifies the name of the generated m3u8 file. The value of this parameter overwrites the value specified in the LiveChannel settings. Note that the generated m3u8 file is still prefixed with "\${channel_name}/".

## Signing method of an RTMP stream URL

A signed URL for pushing a stream is in the following format: `rtmp://${bucket}.${host}/live/${channel}?OSSAccessKeyId=xxx&Expires=yyy&Signature=zzz&${params}`

Parameter	Description
OSSAccessKeyId	Assumes the same role as the AccessKeyId in the signed HTTP request.
Expires	Indicates the expiration time of the URL, in Unix timestamp format.
Signature	Indicates the signature string. The calculation method for the string is described in the following section.
params	Indicates other parameters. All parameters included in the URL must be signed.

The value of Signature is calculated as follows:

```
base64 ( hmac - sha1 ( AccessKeySecret ,
    + Expires + "\n"
    + CanonicalizedParams
    + CanonicalizedResource ) )
```

Parameter	Description
CanonicalizedResource	The format of this parameter is as follows: <code>/BucketName/ChannelName</code>

Parameter	Description
CanonicalizedParams	Indicates a string spliced by all param keys (in the "key:value\n" format) in alphabetical order. If the number of parameters is 0, the value of this parameter is null. SecurityToken, OSSAccessKeyId, Expire, and Signature are not included. Each param key is used in the string only once.

## 10.3 PutLiveChannel

Before uploading audio or video data to OSS through the RTMP protocol, you must use PutLiveChannel to create a LiveChannel. PutLiveChannel returns a URL used to push streams through the RTMP protocol and a URL used to play the uploaded data.

You can use the URLs returned by PutLiveChannel to push streams and play the uploaded data. In addition, you can perform operations on the created LiveChannel, such as query the stream pushing status, query stream pushing records, or disable stream pushing.

### Request syntax

```
PUT / ChannelName ? live HTTP / 1 . 1
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Date : GMT date
Content - Length : Size
Authorization : SignatureValue
<? xml version =" 1 . 0 " encoding =" UTF - 8 ">
< LiveChannelConfiguration >
  < Description > ChannelDescription </ Description >
  < Status > ChannelStatus </ Status >
  < Target >
    < Type > HLS </ Type >
    < FragDuration > FragDuration </ FragDuration >
    < FragCount > FragCount </ FragCount >
    < PlaylistName > PlaylistName </ PlaylistName >
  </ Target >
  < Snapshot >
    < RoleName > Snapshot ram role </ RoleName >
    < DestBucket > Snapshot dest bucket </ DestBucket >
    < NotifyTopic > Notify topic of MNS </ NotifyTopic >
    < Interval > Snapshot interval in second </ Interval >
  </ Snapshot >
</ LiveChannelConfiguration >
```

```
</ LiveChannelConfiguration >
```

## Request elements

Element	Type	Description	Required
LiveChannelConfiguration	Container	Specifies the container used to store the settings of the LiveChannel.  Sub-node: Description, Status, Target  Parent node: None	Yes
Description	String	Specifies the description of the LiveChannel, which is 128 bytes in maximum.  Sub-node: None  Parent node: LiveChannelConfiguration	No
Status	Enumerated string	Specifies the status of the LiveChannel.  Sub-node: None  Parent node: LiveChannelConfiguration  Valid values: enabled and disabled  Default value: enabled	No
Target	Container	Specifies the container used to store the settings for storing uploaded data.  Sub-node: Type, FragDuration, FragCount, and PlaylistName  Parent node: LiveChannelConfiguration	Yes

Element	Type	Description	Required
Type	Enumerated string	Specifies the format that the uploaded data is stored as.  Sub-node: None  Parent node: Target  Valid value: HLS	Yes
FragDuration	String	Specifies the duration (in seconds) of each ts file when the value of Type is HLS.  Sub-node: None  Parent node: Target  Default value: 5  Value range: [1, 100]	No
FragCount	String	Specifies the number of ts files included in the m3u8 file when the value of Type is HLS.  Sub-node: None  Parent node: Target  Default value: 3  Value range: [1, 100]	No
PlaylistName	String	Specifies the name of the m3u8 file generated when the value of Type is HLS. The name must be ended with ".m3u8" and in the following length range: [6, 128].  Sub-node: None  Parent node: Target  Default value: playlist .m3u8  Value range: [6, 128]	No

Element	Type	Description	Required
Snapshot	Container	<p>Specifies the container used to store the Snapshot (high-frequent snapshot operation) options.</p> <p>Sub-node: RoleName, DestBucket, NotifyTopic, Interval, and PornRec</p> <p>Parent node: Snapshot</p>	No
RoleName	String	<p>Specifies the name of the role who performs the high-frequent snapshot operations. The role must have the permission to write data into DestBucket and send messages to NotifyTopic.</p> <p>Sub-node: None</p> <p>Parent node: Snapshot</p>	No
DestBucket	String	<p>Specifies the bucket where the snapshots are stored. The DestBucket and the current bucket must be owned by the same user.</p> <p>Sub-node: None</p> <p>Parent node: Snapshot</p>	No
NotifyTopic	String	<p>Specifies the topic of the MNS used to notify the user of the result of high-frequent snapshot operations.</p> <p>Sub-node: None</p> <p>Parent node: Snapshot</p>	No



Element	Type	Description	Required
Interval	Numeric	<p>Specifies the interval (in seconds) between each snapshot operation. If no key frame (I-frame) exists in an interval, no snapshot is captured in the interval.</p> <p>Sub-node: None</p> <p>Parent node: Snapshot</p> <p>Value range: [1, 100]</p>	No

#### Detail analysis

- ChannelName must conform to the naming conventions for objects and cannot include "/".
- The default values of FragDuration and FragCount take effect only when the values are both not specified. If you specify the value of one of the two parameters, the value of the other must also be specified.
- If the value of Type is HLS, OSS updates the generated m3u8 file each time when a ts file is generated. The number of newly-generated ts files included in the m3u8 file is specified by FragCount.
- If the value of Type is HLS, when the duration of the video or audio data in the current ts file reaches the value of FragDuration, OSS generates a new ts file when receiving the next key frame. If OSS does not receive the next key frame within a time period (calculated by  $\max(2 \times \text{FragDuration}, 60\text{s})$ ), a new ts file is generated, which results in lag in audio or video playing.

#### Response element

Element	Type	Description
CreateLiveChannelResult	Container	<p>Specifies the container used to store the response for the CreateLiveChannel request.</p> <p>Sub-nodes: PublishUrls and PlayUrls</p> <p>Parent node: None</p>

Element	Type	Description
PublishUrls	Container	Specifies the container used to store the stream pushing URL.  Sub-node: Url  Parent node: CreateLiveChannelResult
Url	String	Specifies the stream pushing URL.  Sub-node: None  Parent node: PublishUrls
PlayUrls	Container	Specifies the container used to store the stream pushing URL.  Sub-node: Url  Parent node: CreateLiveChannelResult
Url	String	Specifies the URL used to play the audio or video data.  Sub-node: None  Parent node: PlayUrls

### Detail analysis

- The stream pushing URL is not signed. If the ACL for the bucket is not public-read-write, you must sign the URL before accessing it.
- The URL used to play the audio or video data is not signed. If the ACL for the bucket is private, you must sign the URL before accessing it.

### Examples

#### Request example

```
PUT / test - channel ? live HTTP / 1 . 1
Date : Wed , 24 Aug 2016 11 : 11 : 28 GMT
Content - Length : 333
Host : test - bucket . oss - cn - hangzhou . aliyuncs . com
Authorization : OSS YJjHKOKWDW INLKXv : hvwOZJRh8t oAj3DZvtsu
Pgfp + agA =
<? xml version =" 1 . 0 " encoding =" utf - 8 ">
```

```

< LiveChannelConfiguration >
  < Description />
  < Status > enabled </ Status >
  < Target >
    < Type > HLS </ Type >
    < FragDuration > 2 </ FragDuration >
    < FragCount > 3 </ FragCount >
  </ Target >
  < Snapshot >
    < RoleName > role_for_snapshot </ RoleName >
    < DestBucket > snapshotdest </ DestBucket >
    < NotifyTopic > snapshotnotify </ NotifyTopic >
    < Interval > 1 </ Interval >
  </ Snapshot >
</ LiveChannelConfiguration >

```

### Response example

```

HTTP / 1 . 1 200
content-length : 259
server : AliyunOSS
x-oss-server-time : 4
connection : close
x-oss-request-id : 57BD8419B9 2475920B00 02F1
date : Wed , 24 Aug 2016 11 : 11 : 28 GMT
x-oss-bucket-storage-type : standard
content-type : application/xml
<?xml version="1.0" encoding="UTF-8"?>
< CreateLiveChannelResult >
  < PublishUrls >
    < Url > rtmp://test-bucket.oss-cn-hangzhou.aliyuncs.com/live/test-channel </ Url >
  </ PublishUrls >
  < PlayUrls >
    < Url > http://test-bucket.oss-cn-hangzhou.aliyuncs.com/test-channel/playlist.m3u8 </ Url >
  </ PlayUrls >
</ CreateLiveChannelResult >

```

## 10.4 ListLiveChannel

Lists specified LiveChannels.

### Request syntax

```

GET /?live HTTP / 1 . 1
Date : GMT date
Host : BucketName.oss-cn-hangzhou.aliyuncs.com

```

Authorization : SignatureV alue

### Request parameter

Parameter	Description	Required
marker	Indicates that the results after the marker are returned in alphabetical order.	No
max - keys	Specifies the maximum number of the returned LiveChannels.  Default value: 100  Maximum value: 1000	No
prefix	Specifies that only LiveChannels with the prefix are returned. When you use the prefix parameter to query LiveChannels, it is also included in the returned keys.	No

### Response elements

Element	Type	Description
ListLiveChannelResult	Container	Specifies the container that stores the response to the ListLiveChannel request.  Sub-node: Prefix, Marker, MaxKeys, and IsTruncated, NextMarker, and LiveChannel  Parent node: None

Element	Type	Description
Prefix	String	<p>Specifies the prefix of the query result.</p> <p>Sub-node: None</p> <p>Parent node: ListLiveChannelResult</p>
Marker	String	<p>Indicates that the LiveChannels after the marker in alphabetical order are returned.</p> <p>Sub-node: None</p> <p>Parent node: ListLiveChannelResult</p>
MaxKeys	String	<p>Specifies the maximum number of returned LiveChannels in the response.</p> <p>Sub-node: None</p> <p>Parent node: ListLiveChannelResult</p>
IsTruncated	String	<p>Indicates whether all results are returned. The value <code>true</code> indicates that not all results are returned, and value <code>false</code> indicates that all results are returned.</p> <p>Sub-node: None</p> <p>Parent node: ListLiveChannelResult</p>

Element	Type	Description
NextMarker	String	<p>If not all results are returned, this element is included in the response to indicate the value of Marker for the next request.</p> <p>Sub-node: None</p> <p>Parent node: ListLiveChannelResult</p>
LiveChannel	Container	<p>Specifies the container that stores the information about a returned LiveChannel.</p> <p>Sub-node: Name, Description, Status, LastModified, PublishUrls, and PlayUrls</p> <p>Parent node: ListLiveChannelResult</p>
Name	String	<p>Indicates the name of the returned LiveChannel.</p> <p>Sub-node: None</p> <p>Parent node: LiveChannel</p>
Description	String	<p>Specifies the description of the returned LiveChannel.</p> <p>Sub-node: None</p> <p>Parent node: LiveChannel</p>

Element	Type	Description
Status	Enumerated string	Indicates the status of the returned LiveChannel.  Sub-node: None  Parent node: LiveChannel  Valid value: disabled and enabled
LastModified	String	Indicates the last modification time of the returned LiveChannel. The value of this parameter is in ISO8601 format.  Sub-node: None  Parent node: LiveChannel
PublishUrls	Container	Specifies the container that stores the URL used to push a stream to the LiveChannel.  Sub-node: Url  Parent node: LiveChannel
Url	String	Specifies the URL used to push a stream to the LiveChannel.  Sub-node: None  Parent node: PublishUrls
PlayUrls	Container	Specifies the container that stores the URL used to play a stream pushed to the LiveChannel.  Sub-node: Url  Parent node: LiveChannel

Element	Type	Description
Url	String	<p>Specifies the URL used to play the stream pushed to the LiveChannel.</p> <p>Sub-node: None</p> <p>Parent node: PlayUrls</p>

## Examples

### Request example

```
GET /? live & max - keys = 1 HTTP / 1 . 1
Date : Thu , 25 Aug 2016 07 : 50 : 09 GMT
Host : test - bucket . oss - cn - hangzhou . aliyuncs . com
Authorization : OSS YJjHKOKWDW INLKXv : TaX + tlc / Xsgpz6uRuq
cbmUJsIHw =
```

### Response example

```
HTTP / 1 . 1 200
content - length : 656
server : AliyunOSS
connection : close
x - oss - request - id : 57BEA331B9 2475920B00 245E
date : Thu , 25 Aug 2016 07 : 50 : 09 GMT
content - type : applicatio n / xml
<? xml version =" 1 . 0 " encoding =" UTF - 8 ">
< ListLiveCh annelResul t >
  < Prefix ></ Prefix >
  < Marker ></ Marker >
  < MaxKeys > 1 </ MaxKeys >
  < IsTruncate d > true </ IsTruncate d >
  < NextMarker > channel - 0 </ NextMarker >
  < LiveChanne l >
    < Name > channel - 0 </ Name >
    < Descriptio n ></ Descriptio n >
    < Status > disabled </ Status >
    < LastModifi ed > 2016 - 07 - 30T01 : 54 : 21 . 000Z </
LastModifi ed >
    < PublishUrl s >
      < Url > rtmp :// test - bucket . oss - cn - hangzhou . aliyuncs
. com / live / channel - 0 </ Url >
    </ PublishUrl s >
    < PlayUrls >
      < Url > http :// test - bucket . oss - cn - hangzhou . aliyuncs
. com / channel - 0 / playlist . m3u8 </ Url >
    </ PlayUrls >
```



```
</ LiveChannel >
```

## 10.5 DeleteLiveChannel

Deletes the specified LiveChannel.

### Request syntax

```
DELETE / ChannelName ? live HTTP / 1 . 1
Date : GMT date
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Authorization : SignatureValue
```

### Detail analysis

- A DeleteLiveChannel request fails only when a client is pushing a stream to the LiveChannel.
- DeleteLiveChannel only deletes the LiveChannel but not the files generated by the streams pushed to the LiveChannel.

### Examples

#### Request example

```
DELETE / test - channel ? live HTTP / 1 . 1
Date : Thu , 25 Aug 2016 07 : 32 : 26 GMT
Host : test - bucket . oss - cn - hangzhou . aliyuncs . com
Authorization : OSS YJjHKOKWDW INLKXv : ZbfvQ3XwmY EE809CX8kw
VQYNbzQ =
```

#### Response example

```
HTTP / 1 . 1 204
content - length : 0
server : AliyunOSS
connection : close
x - oss - request - id : 57BE9F0AB9 2475920B00 23E0
date : Thu , 25 Aug 2016 07 : 32 : 26 GMT
```

## 10.6 PutLiveChannelStatus

A LiveChannel can be enabled or disabled. You can use PutLiveChannelStatus to switch the status of a LiveChannel.

If a LiveChannel is in the disabled status, you cannot push streams to the LiveChannel. If you are pushing a stream to a LiveChannel when the status of the LiveChannel is switched to disabled, your client is disconnected from the LiveChannel (there may be a delay of 10 seconds).

### Request syntax

PUT /ChannelName?live&status=NewStatus HTTP/1.1  
 Date: GMT date  
 Host: BucketName.oss-cn-hangzhou.aliyuncs.com  
 Authorization: SignatureValue

### Request parameter

Parameter	Description	Required
NewStatus	Specifies the status of the LiveChannel.  Valid values: enabled and disabled	Yes

### Detail analysis

- If no client is pushing streams to a LiveChannel, you can switch the status of the LiveChannel by using PutLiveChannel, which creates a new LiveChannel.
- If a stream is being pushed to a LiveChannel by other clients, you cannot use PutLiveChannel to create a new LiveChannel. You can switch the status of the LiveChannel to disabled only by using PutLiveChannelStatus.

### Examples

#### Request example

```
PUT /test-channel?live&status=disabled HTTP/1.1
Date: Thu, 25 Aug 2016 05:37:38 GMT
Host: test-bucket.oss-cn-hangzhou.aliyuncs.com
Authorization: OSS YJjHKOKWDW INLKXv:X/mBrSbkNoqM/JoAfRC0yty Q5pY=
```

#### Response example

```
HTTP/1.1 200
content-length: 0
server: AliyunOSS
connection: close
x-oss-request-id: 57BE8422B9 2475920B00 2030
date: Thu, 25 Aug 2016 05:37:39 GMT
```

## 10.7 GetLiveChannelInfo

Obtains the configuration information about a specified LiveChannel.

### Request syntax

```
GET /ChannelName?live HTTP/1.1
```

```

Date : GMT date
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Authorization : SignatureValue

```

## Response element

Element	Type	Description
LiveChannelConfiguration	Container	<p>Specifies the container that stores the response to the GetLiveChannelInfo request.</p> <p>Sub-node: Description, Status, and Target</p> <p>Parent node: None</p>
Description	String	<p>Specifies the description of the LiveChannel.</p> <p>Sub-node: None</p> <p>Parent node: LiveChannelConfiguration</p>
Status	Enumerated string	<p>Indicates the status of the LiveChannel.</p> <p>Sub-node: None</p> <p>Parent node: LiveChannelConfiguration</p> <p>Valid value: enabled and disabled</p>
Target	Container	<p>Specifies the container used to store the settings for storing uploaded data.</p> <p>Sub-node: Type, FragDuration, FragCount, and PlaylistName</p> <p>Parent node: LiveChannelConfiguration</p>

Element	Type	Description
Type	Enumerated string	Specifies the format that the uploaded data is stored as when its value is HLS.  Sub-node: None Parent-node: Target Valid value: HLS
FragDuration	String	Specifies the duration (in seconds) of each ts file when the value of Type is HLS.  Sub-node: None Parent node: Target
FragCount	String	Specifies the number of ts files included in the m3u8 file when the value of Type is HLS.  Sub-node: None Parent node: Target
PlaylistName	String	Specifies the name of the m3u8 file generated when the value of Type is HLS.  Sub-node: None Parent node: Target

### Detail analysis

The sub-nodes of Target, including FragDuration, FragCount, and PlaylistName, are returned only when the value of Type is HLS.

### Examples

#### Request example

```
GET / test - channel ? live HTTP / 1 . 1
Date : Thu , 25 Aug 2016 05 : 52 : 40 GMT
Host : test - bucket . oss - cn - hangzhou . aliyuncs . com
```

```
Authorization : OSS YJjHKOKWDW INLKXv : D6bDCRXKht 58hin1BL83
wxyGvl0 =
```

### Response example

```
HTTP / 1 . 1 200
content - length : 475
server : AliyunOSS
connection : close
x - oss - request - id : 57BE87A8B9 2475920B00 2098
date : Thu , 25 Aug 2016 05 : 52 : 40 GMT
content - type : application / xml
<? xml version =" 1 . 0 " encoding =" UTF - 8 ">
< LiveChannelConfiguration >
  < Description ></ Description >
  < Status > enabled </ Status >
  < Target >
    < Type > HLS </ Type >
    < FragDuration > 2 </ FragDuration >
    < FragCount > 3 </ FragCount >
    < PlaylistName > playlist . m3u8 </ PlaylistName >
  </ Target >
</ LiveChannelConfiguration >
```

## 10.8 GetLiveChannelStat

Obtains the stream pushing status of a specified LiveChannel.

### Request syntax

```
GET / ChannelName ? live & comp = stat HTTP / 1 . 1
Date : GMT date
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Authorization : SignatureValue
```

### Response element

Element	Type	Description
LiveChannelStat	Container	<p>Specifies the container used to store the response to the GetLiveChannelStat request.</p> <p>Sub-node: Status, ConnectedTime, Video, and Audio</p> <p>Parent node: None</p>

Element	Type	Description
Status	Enumerated string	<p>Indicates the current stream pushing status of the LiveChannel.</p> <p>Sub-node: None</p> <p>Parent node: LiveChannelStat</p> <p>Valid value: Disabled , Live , and Idle</p>
Connected Time	String	<p>If the value of Status is Live, this parameter indicates the time when the current client start to push streams. The value of this parameter is in the ISO8601 format.</p> <p>Sub-node: None</p> <p>Parent node: LiveChannelStat</p>
RemoteAddr	String	<p>If the value of Status is Live, this parameter indicates the IP address of the current client that pushes streams.</p> <p>Sub-node: None</p> <p>Parent node: LiveChannelStat</p>

Element	Type	Description
Video	Container	<p>If the value of Status is Live, this parameter specifies the container that stores the information about the video stream.</p> <p>Sub-node: Width, Height, FrameRate, Bandwidth, and Codec</p> <p>Parent node: LiveChannelStat</p>
Width	String	<p>Indicates the width (in pixels) of the current video stream.</p> <p>Sub-node: None</p> <p>Parent node: Video</p>
Height	String	<p>Indicates the height (in pixels) of the current video stream</p> <p>Sub-node: None</p> <p>Parent node: Video</p>
FrameRate	String	<p>Indicates the frame rate of the current video stream.</p> <p>Sub-node: None</p> <p>Parent node: Video</p>
Bandwidth	String	<p>Indicates the bit rate (bit/s) of the current video stream.</p> <p>Sub-node: None</p> <p>Parent node: Video</p>

Element	Type	Description
Codec	Enumerated string	Indicates the codec of the current video stream.  Sub-node: None  Parent node: Video
Audio	Container	If the value of Status is Live, this parameter specifies the container that stores the information about the audio stream.  Sub-node: SampleRate, Bandwidth, and Codec  Parent node: LiveChannelStat
SampleRate	String	Indicates the sampling rate of the current audio stream.  Sub-node: None  Parent node: Audio
Bandwidth	String	Indicates the bit rate (bit/s) of the current audio stream.  Sub-node: None  Parent node: Audio
Codec	Enumerated string	Indicates the codec of the current audio stream.  Sub-node: None  Parent node: Audio

#### Detail analysis

- The Video and Audio containers are only returned when the value of Status is Live. However, they may not be returned even if the value of Status is Live. For example



, the Video and Audio containers are not returned when the client is connected to the LiveChannel but does not start to send video and audio data.

- Bandwidth indicates the average bit rate of the video or audio stream in the recent period. The value of Bandwidth may be 0 immediately after the Status of the LiveChannel is switched to Live.

## Examples

### Request example 1

```
GET / test - channel ? live & comp = stat HTTP / 1 . 1
Date : Thu , 25 Aug 2016 06 : 22 : 01 GMT
Host : test - bucket . oss - cn - hangzhou . aliyuncs . com
Authorization : OSS YJjHKOKWDW INLKXv : f0zwkAgVTV S01VKLPiIn
Q0JYy0A =
```

### Response example 1

```
HTTP / 1 . 1 200
content - length : 100
server : AliyunOSS
connection : close
x - oss - request - id : 57BE8E89B9 2475920B00 2164
date : Thu , 25 Aug 2016 06 : 22 : 01 GMT
content - type : application / xml
<? xml version =" 1 . 0 " encoding =" UTF - 8 ">
< LiveChannelStat >
  < Status > Idle </ Status >
</ LiveChannelStat >
```

### Request example 1

```
GET / test - channel ? live & comp = stat HTTP / 1 . 1
Date : Thu , 25 Aug 2016 06 : 25 : 26 GMT
Host : test - bucket . oss - cn - hangzhou . aliyuncs . com
Authorization : OSS YJjHKOKWDW INLKXv : WeC5joEaRz fSSS8xK0tl
o7WTK1I =
```

### Response example 2

```
HTTP / 1 . 1 200
content - length : 469
server : AliyunOSS
connection : close
x - oss - request - id : 57BE8F56B9 2475920B00 2187
date : Thu , 25 Aug 2016 06 : 25 : 26 GMT
content - type : application / xml
<? xml version =" 1 . 0 " encoding =" UTF - 8 ">
< LiveChannelStat >
  < Status > Live </ Status >
  < ConnectedTime > 2016 - 08 - 25T06 : 25 : 15 . 000Z </
ConnectedTime >
  < RemoteAddr > 10 . 1 . 2 . 3 : 47745 </ RemoteAddr >
  < Video >
    < Width > 1280 </ Width >
    < Height > 536 </ Height >
```

```

    < FrameRate > 24 </ FrameRate >
    < Bandwidth > 0 </ Bandwidth >
    < Codec > H264 </ Codec >
  </ Video >
  < Audio >
    < Bandwidth > 0 </ Bandwidth >
    < SampleRate > 44100 </ SampleRate >
    < Codec > ADPCM </ Codec >
  </ Audio >
</ LiveChannelStat >

```

## 10.9 GetLiveChannelHistory

Obtains the stream pushing record of a LiveChannel.

### Request syntax

```

GET / ChannelName ? live & comp = history HTTP / 1 . 1
Date : GMT date
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Authorization : SignatureValue

```

### Response element

Element	Type	Description
LiveChannelHistory	Container	<p>\Specifies the container that stores the response to the GetLiveChannelHistory request.</p> <p>Sub-node: LiveRecord</p> <p>Parent node: None</p>
LiveRecord	Container	<p>Specifies the container that stores a stream pushing record.</p> <p>Sub-node: StartTime, EndTime, and RemoteAddr</p> <p>Parent node: LiveChannelHistory</p>

Element	Type	Description
StartTime	String	Indicates the time when the client starts to push the stream. The value of this parameter is in ISO8601 format.  Sub-node: None Parent node: LiveRecord
EndTime	String	Indicates the time when the client stops to push the stream. The value of this parameter is in ISO8601 format.  Sub-node: None Parent node: LiveRecord
RemoteAddr	String	Indicates the IP address of the client that pushes the stream.  Sub-node: None Parent node: LiveRecord

### Detail analysis

A maximum of 10 records of the streams recently pushed to the specified LiveChannel is returned.

### Examples

#### Request example

```
GET / test - channel ? live & comp = history HTTP / 1 . 1
Date : Thu , 25 Aug 2016 07 : 00 : 12 GMT
Host : test - bucket . oss - cn - hangzhou . aliyuncs . com
Authorization : OSS YJjHKOKWDW INLKXv : pqgDBP8JXT XAytBoXpvn
oZfo68k =
```

#### Response example

```
HTTP / 1 . 1 200
content - length : 1892
server : AliyunOSS
connection : close
```

```

x - oss - request - id : 57BE977CB9 2475920B00 22FB
date : Thu , 25 Aug 2016 07 : 00 : 12 GMT
content - type : application / xml
<? xml version =" 1 . 0 " encoding =" UTF - 8 ">
< LiveChannelHistory >
  < LiveRecord >
    < StartTime > 2016 - 07 - 30T01 : 53 : 21 . 000Z </ StartTime >
    < EndTime > 2016 - 07 - 30T01 : 53 : 31 . 000Z </ EndTime >
    < RemoteAddr > 10 . 101 . 194 . 148 : 56861 </ RemoteAddr >
  </ LiveRecord >
  < LiveRecord >
    < StartTime > 2016 - 07 - 30T01 : 53 : 35 . 000Z </ StartTime >
    < EndTime > 2016 - 07 - 30T01 : 53 : 45 . 000Z </ EndTime >
    < RemoteAddr > 10 . 101 . 194 . 148 : 57126 </ RemoteAddr >
  </ LiveRecord >
  < LiveRecord >
    < StartTime > 2016 - 07 - 30T01 : 53 : 49 . 000Z </ StartTime >
    < EndTime > 2016 - 07 - 30T01 : 53 : 59 . 000Z </ EndTime >
    < RemoteAddr > 10 . 101 . 194 . 148 : 57577 </ RemoteAddr >
  </ LiveRecord >
  < LiveRecord >
    < StartTime > 2016 - 07 - 30T01 : 54 : 04 . 000Z </ StartTime >
    < EndTime > 2016 - 07 - 30T01 : 54 : 14 . 000Z </ EndTime >
    < RemoteAddr > 10 . 101 . 194 . 148 : 57632 </ RemoteAddr >
  </ LiveRecord >
</ LiveChannelHistory >

```

## 10.10 PostVodPlaylist

Generates a VoD playlist (m3u8 file) for the ts files generated by the streams pushed to a specified LiveChannel in a specified time period.

### Request syntax

```

POST / ChannelName / PlaylistName ? vod & endTime = EndTime &
startTime = StartTime HTTP / 1 . 1
Date : GMT date
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Authorization : SignatureValue

```

### Request elements

Element	Description	Required
ChannelName	Specifies the name of an existing LiveChannel.	Yes
PlaylistName	Specifies the name of the generated VoD playlist, which must be ended with ".m3u8".	Yes

Element	Description	Required
StartTime	Specifies the start time of the ts file that you want to query, which is a Unix timestamp.	Yes
EndTime	Specifies the end time of the ts file that you want to query, which is a Unix timestamp.	Yes

### Detail analysis

- The value of EndTime must be later than that of StartTime. The period between the EndTime and StartTime must be shorter than one day.
- OSS queries all ts files generated by the streams pushed to the LiveChannel in a specified time period, and splices the files into a playlist.

### Examples

#### Request example

```
POST / test - channel / vod . m3u8 ? vod & endTime = 1472020226 &
startTime = 1472020031 HTTP / 1 . 1
Date : Thu , 25 Aug 2016 07 : 13 : 26 GMT
Host : test - bucket . oss - cn - hangzhou . aliyuncs . com
Authorization : OSS YJjHKOKWDW INLKXv : ABIigvnLtC HK +
7fMHLeRlOU nzv0 =
```

#### Response example

```
HTTP / 1 . 1 200
content - length : 0
server : AliyunOSS
connection : close
etag : " 9C6104DD9C F1A0C4D0CF D21F43905D 59 "
x - oss - request - id : 57BE9A96B9 2475920B00 2359
date : Thu , 25 Aug 2016 07 : 13 : 26 GMT
```

## 10.11 GetVodPlaylist


Queries for the playlist generated by the streams pushed to a specified LiveChannel in a specified time period.

### Request syntax

```
GET / ChannelName ? vod & endTime = EndTime & startTime =
StartTime HTTP / 1 . 1
Date : GMT date
```

```
Host : BucketName . oss - cn - hangzhou . aliyuncs . com
Authorizat ion : SignatureV alue
```

### Request element

Element	Description	Required
ChannelName	Specifies the name of an existing LiveChannel.	Yes
StartTime	Specifies the start time of the ts file that you want to query, which is a Unix timestamp.	Yes
EndTime	Specifies the end time of the ts file that you want to query, which is a Unix timestamp.   <b>Note:</b> The value of EndTime must be later than that of StartTime. The period between the EndTime and StartTime must be shorter than one day.	Yes

### Examples

#### Request example

```
GET / test - channel ? vod & endTime = 1472020226 & startTime =
1472020031 HTTP / 1 . 1
Date : Thu , 25 Aug 2016 07 : 13 : 26 GMT
Host : test - bucket . oss - cn - hangzhou . aliyuncs . com
Authorizat ion : OSS YJjHKOKWDW INLKXv : ABiigvnLtC HK +
7fMHLerlOU nzv0 =
```

#### Response example

```
HTTP / 1 . 1 200
content - length : 312
server : AliyunOSS
connection : close
etag : " 9C6104DD9C F1A0C4D0CF D21F43905D 59 "
x - oss - request - id : 57BE9A96B9 2475920B00 2359
date : Thu , 25 Aug 2016 07 : 13 : 26 GMT
Content - Type : applicatio n / x - mpegURL

# EXTM3U
# EXT - X - VERSION : 3
# EXT - X - MEDIA - SEQUENCE : 0
# EXT - X - TARGETDURATION : 13
# EXTINF : 7 . 120 ,
1543895706 266 . ts
# EXTINF : 5 . 840 ,
1543895706 323 . ts
```

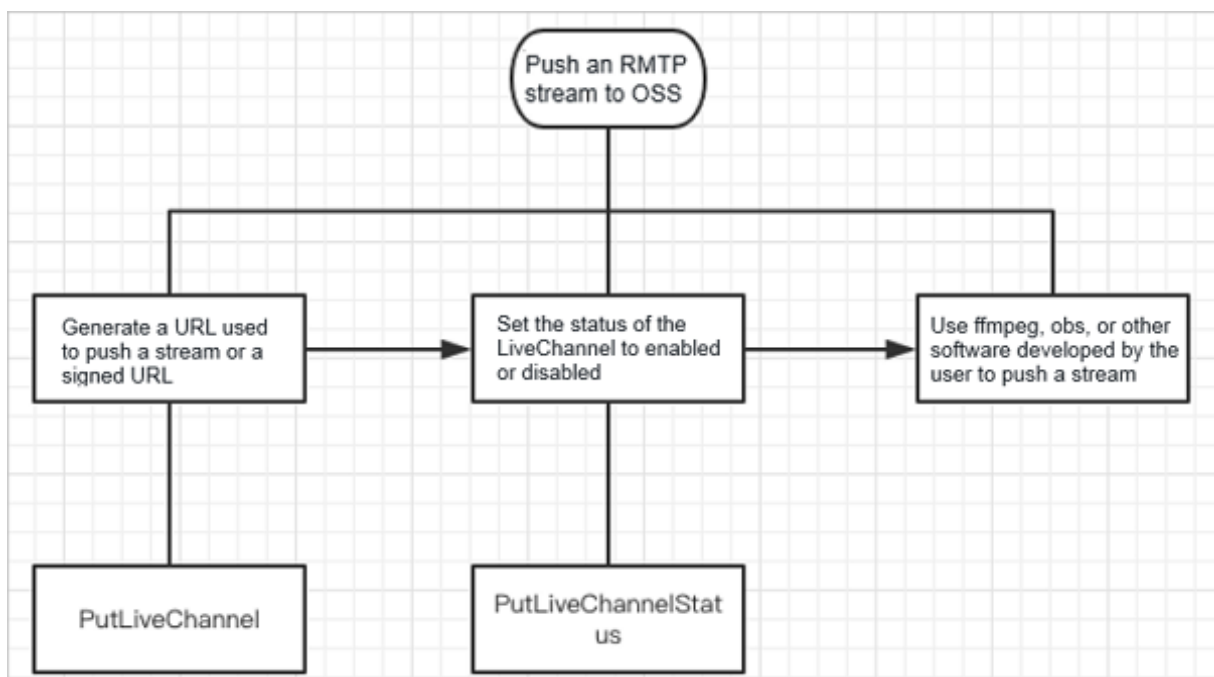
```
# EXTINF : 6 . 400 ,
1543895706 356 . ts
# EXTINF : 5 . 520 ,
1543895706 389 . ts
# EXTINF : 5 . 240 ,
1543895706 428 . ts
# EXTINF : 13 . 320 ,
1543895706 468 . ts
# EXTINF : 5 . 960 ,
1543895706 538 . ts
# EXTINF : 6 . 520 ,
1543895706 561 . ts
# EXT - X - ENDLIST
```

## 10.12 FAQ

This topic provides solutions for common problems that you may come across while you are using LiveChannel.

### Push a stream to OSS LiveChannel

The following figure shows the process of pushing a stream to a LiveChannel, helping you investigate problems occurred when you push a stream to a LiveChannel.



For more information, see the following topics:

- [PutLiveChannel](#)
- [PutLiveChannelStatus](#)

**Case 1: The m3u8 file is missing.**

**Problem:** The generated m3u8 file only contains the last 3 ts files by default. The m3u8 file conforms to the default rules of the HLS protocol.

**Solution:** Use `PostVodPlaylist` to converge the ts files generated in the specified time period into a m3u8 index file.

**Note:**

- The value of `EndTime` must be later than the value of `StartTime`. The duration between the `EndTime` and `StartTime` must be shorter than one day.
- OSS queries all the ts files generated by the streams pushed to the specified LiveChannel in the specified time range and converges these files into a playlist.

**Case 2: Failed to generate the m3u8 file**

**Problem:** The m3u8 file is not successfully generated until the audio or video data is completely uploaded to OSS.

**Solution:** You can capture packets at the client side to check whether the "publish success" message is included, which indicates that the audio or video data is completely uploaded to OSS. If the message is included but the m3u8 file is not generated, you can analyze the packets sent from the client for root causes.

**Case 3: The client cannot push a stream to OSS**

**Problem:** The client fails to use ffmpeg to push a stream:

```
ffmpeg -re -i 0_20180525_105430445.aac -acodec aac -strict -2 -f flv rtmp://xxx.oss-cn-beijing.aliyuncs.com/live/test_1000?Expires=1540458859&OSSAccessKeyId=LTAIujianb6C9z&Signature=qwh31xQsan_mao6ygCFJg_ovNIg%3D&playlistName=playlist.m3u8
```

**Solution:**

- We recommend you use the original command to push a stream without setting additional parameters.
- If the "&" character is included in the URL used to push a stream, enclose the URL with quotation marks (""). For example: `ffmpeg -re -i 0_20180525105430445.aac -acodec aac -strict -2 -f flv "rtmp://xxx.oss-cn-beijing.aliyuncs.com/live/test_1000?Expires=1540458859&OSSAccessKeyId=LTAIujianb6C9z&Signature=qwh31xQsan_mao6ygCFJgovNIg%3D&playlistName=playlist.m3u8"`



- Use OBS to push a stream to check whether the problem is caused by ffmpeg.

Case 4: Lag problems occur when the m3u8 file is generated.

If the value of Type is HLS, when the duration of the video or audio data in the current `ts` file reaches the value of `FragDuration`, OSS generates a new `ts` file when receiving the next key frame. If OSS does not receive the next key frame within a time period (calculated by `max ( 2 * FragDuration , 60s )`), a new `ts` file is generated, which results in lag in audio or video playing.

Case 5: No audio or video data is included in the generated m3u8 file.

This problem may be caused by the following reasons:

- `AVC` header or `AAC` header is not sent. You can capture packets sent by the client to check whether the two headers are sent.
- The length of `RTMP` message is shorter than 2, or the length of `sequence header` is too short.
- The size of `Message` of the audio data exceeds the cache size.
- `codec_ctx` is important for the codec. If the audio or video data included in the parameter is incorrect, the m3u8 file may fail to be generated.

Case 6: The data upload to OSS by ffmpeg does not include audio data.

- View the logs generated by ffmpeg to check whether `aac_header` is sent.
- Capture the RTMP packets sent by the client to check whether `aac_header` is sent.

```
2018-10-31T00:37:13+08:00      Stream #0:0, 0, 1/1000
2018-10-31T00:37:13+08:00 : Video: h264 (High), 1 reference frame
2018-10-31T00:37:13+08:00 18 fps, 18 tbr, 1k tbn,
2018-10-31T00:37:13+08:00 1k tbc
2018-10-31T00:37:13+08:00      Stream #0:1, 0, 1/1000: Audio: aac
2018-10-31T00:37:13+08:00 Stream mapping:
2018-10-31T00:37:13+08:00 (copy)
2018-10-31T00:37:13+08:00 cur_dts is invalid (this is harmless)
2018-10-31T00:37:14+08:00      Last message repeated 2 times
```