Alibaba Cloud
Object Storage Service

API Reference

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MORE THAN JUST CLOUD | Alibaba Cloud

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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.	⛔ Danger: 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.	⚠ Warning: 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.	ⓘ Notice: 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.	📋 Note: You can use Ctrl + A to select all files.
>	Multi-level menu cascade.	Settings > Network > Set network type
Bold	It is used for buttons, menus, page names, and other UI elements.	Click OK.
`Courier font`	It is used for commands.	Run the `cd / d C :/ windows` command to enter the Windows system folder.
`Italics`	It is used for parameters and variables.	`bae log list --instanceid` *`Instance_ID`*
[] or [a|b]	It indicates that it is a optional value, and only one item can be selected.	`ipconfig` *`[-all|-t]`*

Style	Description	Example
{} or {a|b}	It indicates that it is a required value, and only one item can be selected.	`swich` *{stand | slave}*

Contents

1 Overview

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 *Regions and endpoints*.

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 *Regions and endpoints*.
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 Access control

2.1 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.

2.2 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	*OSSRequestSigner.java*
Python SDK	*auth.py*
Net SDK	*OssRequestSigner.cs*
PHP SDK	*OssClient.php*
C SDK	*oss_auth.c*
JavaScript SDK	*client.js*
Go SDK	*auth.go*
Ruby SDK	*util.rb*
iOS SDK	*OSSModel.m*
Android SDK	*OSSUtils.java*

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 OtxrzxIsfpFjA7SwPzILwy8Bw21TLhquhboDYROV.

Request	Signature string calculation formula	Signature string
PUT /nelson HTTP/1.0 Content-MD5: eB5eJF1ptWaXm4bijSPyxw== 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: abracadabra	Signature = base64(hmac-sha1(AccessKeySecret,VERB + "\n" + Content-MD5 + "\n" + Content-Type + "\n" + Date + "\n" + CanonicalizedOSSHeaders + CanonicalizedResource))	"PUT\n eB5eJF1ptWaXm4bijSPyxw==\n text/html\n Thu, 17 Nov 2005 18:49:58 GMT\n x-oss-magic: abracadabra\nx-oss-meta-author:foo@bar.com\n/oss-example/nels

The signature calculation method is as follows:

Python sample code:

```
import   base64
import   hmac
import   sha
h  =  hmac . new (" OtxrzxIsfp  FjA7SwPzIL  wy8Bw21TLh  quhboDYROV ",
            " PUT \ nODBGOERFM  DMzQTczRUY  3NUE3NzA5Q  zdFNUYzMDQ
xNEM =\ ntext / html \ nThu ,  17   Nov   2005   18 : 49 : 58   GMT
\ nx - oss - magic : abracadabr  a \ nx - oss - meta - author : foo @
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 >
     SignatureD  oesNotMatc  h
 </ Code >
 < Message >
     The   request   signature   we   calculated   does   not
 match   the   signature   you   provided .  Check   your   key
 and   signing   method .
 </ Message >
 < StringToSi  gnBytes >
     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
 </ StringToSi  gnBytes >
 < RequestId >
     1E446260FF  9B10C2
 </ RequestId >
 < HostId >
     oss - cn - hangzhou . aliyuncs . com
 </ HostId >
 < SignatureP  rovided >
     y5H7yzPsA / tP4 + 0tH1HHvPEw  Uv8 =
 </ SignatureP  rovided >
 < StringToSi  gn >
     GET
 Wed ,  11   May   2011   07 : 59 : 25   GMT
/ oss - example ?  acl
```

```
  </ StringToSi  gn >
  < OSSAccessK  eyId >
       AKIAIVAKMS  MOY7VOMRWQ
  </ OSSAccessK  eyId >
 </ Error >
```

Common problem

Content-MD5 calculation method

```
 Content - MD5   calculatio  n
 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   calculatio  n   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 ='
```

2.3 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.generatePr esignedUrl	*OSSClient.java*
Python SDK	Bucket.sign_url	*api.py*
Net SDK	OssClient.GeneratePr esignedUri	*OssClient.cs*
PHP SDK	OssClient.signUrl	*OssClient.php*
JavaScript SDK	signatureUrl	*object.js*
C SDK	oss_gen_signed_url	*oss_object.c*

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.)

2.4 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	Any user (including anonymous users) can perform read/write operations, and delete operations on objects in the bucket. ⚠ Warning: 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.

ACL	Permission	Description
public-read	Public read and private write	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. Warning: 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.
private	Private read and write	Only the owner of the bucket can perform read/write operations on the objects in the bucket. Other users cannot access the objects.

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.

3 Service operations

4 Bucket operations

4.1 PutBucket

`PutBucket` is used to create a bucket (anonymous access is not supported).

The region where a bucket is created is consistent with the region of the endpoint from which the request is sent. Once the region of a bucket is determined, all objects in the bucket are stored in the region. 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 4-1: Request header

	Type	Description
x - oss - acl	String	Specifies the ACL for the bucket. Valid values: public - read - write , public - read , and private

Request element

Table 4-2: Request element

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

Detail analysis

- The ACL for a bucket is private by default if it is not specified when the bucket is created.
- If the bucket name does not conform to the naming convention, a 400 Bad Request message is returned with an error code: InvalidBucketName.
- If user authentication information is not carried in a PutBucket request, a 403 Forbidden message is returned with an error code: AccessDenied.
- You can create up to 30 buckets within the same region. If more than 30 buckets are created within a region, a 400 Bad Request message is returned with an error code: TooManyBuckets.
- When creating a bucket, you can specify the data redundancy type (DataRedundancyType) of the bucket. The valid values include: `LRS` (local data redundancy, default value) and `ZRS` (zone redundancy).

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
 Authorizat  ion :  OSS   qn6qrrqxo2  oawuk53otf  jbyc : 77Dvh5wQgI
 jWjwO / KyRt8dOPfo  8 =
<?  xml   version =" 1 . 0 "  encoding =" UTF - 8 "? >
< CreateBuck  etConfigur  ation >
   < StorageCla  ss > Standard </ StorageCla  ss >
</ CreateBuck  etConfigur  ation >
```

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
```

4.2 PutBucketLogging

Bucket owners can use `PutBucketLogging` to enable the access logging function for their 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:

OSS provides bucket access logs for bucket owners to understand and analyze bucket access behaviors easily. The bucket access logs provided by OSS do not guarantee that every single access record is logged.

Request syntax

```
 PUT  /?  logging   HTTP / 1 . 1
 Date :  GMT   Date
 Content - Length :  ContentLen  gth
 Content - Type :  applicatio  n / xml
 Authorizat  ion :  SignatureV  alue
 Host :  BucketName . oss - cn - hangzhou . aliyuncs . com
<?  xml   version =" 1 . 0 "  encoding =" UTF - 8 "? >
< BucketLogg  ingStatus >
    < LoggingEna  bled >
        < TargetBuck  et > TargetBuck  et </ TargetBuck  et >
        < TargetPref  ix > TargetPref  ix </ TargetPref  ix >
    </ LoggingEna  bled >
</ BucketLogg  ingStatus >
```

Request elements

Name	Type	Required	Description
`BucketLoggingStatus`	container	Yes	The container for storing access log status information Child element: LoggingEnabled Parent element: none
`LoggingEnabled`	container	No	The container for storing access log information. This element is required only when server access logging is enabled. Child element: TargetBucket, TargetPrefix Parent element: BucketLoggingStatus

Name	Type	Required	Description
TargetBucket	character	This element is required when server access logging is enabled	The bucket for storing access logs. Child element: none Parent element: BucketLoggingStatus.LoggingEnabled
TargetPrefix	character	No	The prefix of the names of saved access log files. Child element: none Parent element: BucketLoggingStatus.LoggingEnabled

Naming rules for the objects storing access logs

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

In the naming rules, the TargetPrefix is specified by the user; YYYY, mm, DD, HH, MM, and SS give the year, month, day, hour, minutes, and seconds of the creation time in Arabic numerals (note the digits); and UniqueString is the string generated by OSS system. An example for the name of an object actually used to store OSS access logs is given as follows:

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

In the preceding example, “MyLog- “ is the Object prefix specified by the user; “ oss-example” is the name of the origin bucket; “2012-09-10-04-00-00” is the Object creation time (Beijing time); and “0000” is the string generated by OSS system.

Log file format

Name	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

Name	Example	Description
Request-URI	“GET /aliyun-logo.png HTTP/1.1 “	User-Requested URI (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
HostName	oss-example.regionid.example.com	Domain name for access request
Request ID	505B01695037C2AF032593A4	UUID used to uniquely identify this request
LoggingFlag	true	Whether the access logging function is enabled
Requester Aliyun ID	1657136103983691	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	1657136103983691	ID of the bucket owner
Delta DataSize	280	Bucket size variation, “- “ for no change
Sync Request	-	Whether this is an origin retrieval request from CND, “- “ for no
Reserved	-	Reserved field

Detail analysis

- The source bucket and target bucket must belong to the same user.
- In the preceding request syntax, “BucketName” refers to the bucket for which access logging is enabled; “TargetBucket” refers to the bucket into which access logs are saved; “TargetPrefix” refers to the name prefix of the object storing access logs and can be null.
- 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).
- To disable the access logging function for a bucket, you only must send an empty BucketLoggingStatus request. For a detailed method, see the following request example.
- All PUT Bucket Logging requests must be provided with signatures, because the anonymous access is not supported.
- If the initiator of a PUT Bucket Logging request is not the owner of the source bucket (BucketName in the request example), OSS returns error code 403.
- If the source bucket does not exist, OSS returns the error code: NoSuchBucket.
- If the initiator of a PUT Bucket Logging request is not the owner of the target bucket (indicated by TargetBucket in the request example), OSS returns Error 403. If the target bucket does not exist, OSS returns the error code: InvalidTargetBucketForLogging.
- The source bucket and target bucket must belong to the same data center. Otherwise, Error 400 with the error code: InvalidTargetBucketForLogging is returned.
- If a PUT Bucket Logging request has an invalid XML, the error code: MalformedXML is returned.
- The source bucket and target bucket can be the same bucket. You can save the logs of different source buckets into the same target bucket (note that you must set TargetPrefix to different values).
- 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.

- In the naming rules for log files generated by OSS, “UniqueString” is only a UUID that OSS generates for a file to uniquely identify the 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:

```
http :// oss - example . oss - cn - hangzhou . aliyuncs . com /
aliyun - logo . png
```

```
http :// oss - example . regionid . example . com / aliyun - logo .
png ? x - user = admin
```

- When OSS processes the preceding two requests, the results are the same. However , you can search access logs with “x-user=admin” to quickly locate the marked request.
- 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 to consider compatibility issues when developing log processing tools.
- 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.

Example

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
```

4.3 PutBucketWebsite

`PutBucketWebsite` is used to set a bucket to static website hosting mode and set 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 >
         < RedirectTy  pe > Mirror </ RedirectTy  pe >
         < PassQueryS  tring > true </ PassQueryS  tring >
         < MirrorURL > http :// www . test . com /</ MirrorURL >
         < MirrorPass  QueryStrin  g > true </ MirrorPass  QueryStrin
 g >
         < MirrorFoll  owRedirect > true </ MirrorFoll  owRedirect >
         < MirrorChec  kMd5 > false </ MirrorChec  kMd5 >
         < MirrorHead  ers >
           < 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 >
         </ MirrorHead  ers >
       </ Redirect >
     </ RoutingRul  e >
     < RoutingRul  e >
       < RuleNumber > 2 </ RuleNumber >
       < Condition >
         < KeyPrefixE  quals > abc /</ KeyPrefixE  quals >
         < HttpErrorC  odeReturne  dEquals > 404 </ HttpErrorC
 odeReturne  dEquals >
         < IncludeHea  der >
           < Key > host </ Key >
           < Equals > test . oss - cn - beijing - internal . aliyuncs .
 com </ Equals >
         </ IncludeHea  der >
       </ Condition >
       < Redirect >
         < RedirectTy  pe > AliCDN </ RedirectTy  pe >
         < Protocol > http </ Protocol >
         < HostName > www . test . com </ HostName >
         < PassQueryS  tring > false </ PassQueryS  tring >
         < ReplaceKey  With > prefix /${ key }. suffix </ ReplaceKey
 With >
         < HttpRedire  ctCode > 301 </ HttpRedire  ctCode >
       </ Redirect >
     </ RoutingRul  e >
   </ RoutingRul  es >
</ WebsiteCon  figuration >
```

Request syntax

```
PUT  /?  website   HTTP / 1 . 1
```

```
 Date :  GMT   Date
 Content - Length :  ContentLen  gth
 Content - Type :  applicatio  n / xml
 Host :  BucketName . oss - cn - hangzhou . aliyuncs . com
 Authorizat  ion :  SignatureV  alue

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

Request elements

Name	Type	Description	Required
`WebsiteConfiguration`	Container	Root node Parent node: None	Yes
`IndexDocument`	Container	Specifies the container for the default home page. Parent node: WebsiteConfiguration	Conditionally required. You must specify at least one of the following containers: IndexDocument, ErrorDocument, and RoutingRules.
`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 node: IndexDocument	Conditionally required. This element must be specified when its Parent node IndexDocument is specified.
`ErrorDocument`	Container	Specifies the container for the 404 page. Parent node: WebsiteConfiguration	Conditionally required. You must specify at least one of the following containers: IndexDocument, ErrorDocument, and RoutingRules.

`Key`	Container	404 page If this element is specified, access to an object that does not exist is redirected to the 404 page. Parent node: ErrorDocument	Conditionally required. This element must be specified when its Parent node ErrorDocument is specified.
`RoutingRules`	Container	Specifies the container for the RoutingRule. Parent node: WebsiteConfiguration	Conditionally required. You must specify at least one of the following containers: IndexDocument , ErrorDocument , and RoutingRules.
`RoutingRule`	Container	Specifies routing rules or mirroring back-to-origin rules. You can specify a maximum of five RoutingRules. Parent node: RoutingRules	No
`RuleNumber`	Positive integer	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. Parent node: RoutingRule	Conditionally required. This element must be specified when its Parent node RoutingRule is specified.
`Condition`	Container	Specifies the matching conditions. 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 . Parent node: RoutingRule	Conditionally required. This element must be specified when its Parent node RoutingRule is specified.
`KeyPrefixEquals`	String	Indicates that only objects that match the prefix can match the rule. Parent node: Condition	No

`HttpErrorCodeReturnedEquals`	HTTP status code	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. Parent node: Condition	No
`IncludeHeader`	Container	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. Parent node: Condition	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 node: IncludeHeader	Conditionally required. This element must be specified when its Parent node 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 node: IncludeHeader	Conditionally required. This element must be specified when its Parent node IncludeHeader is specified.
`Redirect`	Container	Specifies the actions to perform after the rule is matched. Parent node: RoutingRule	Conditionally required. This element must be specified when its Parent node RoutingRule is specified.

RedirectType	String	Specifies the redirecting type, which has the following available values: · Mirror (mirroring back-to-origin) · External (external redirection, that is, OSS returns a 3xx request which redirects the access to another IP address.) · 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.) · 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.) Parent node: Redirect	Conditionally required. This element must be specified when its Parent node Redirect is specified.
PassQueryString	Bool	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. For example, if the parameter "?a =b&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&c=d” and the redirecting type is mirroring back-to-origin, the parameter is also carried in the back-to-origin request. Default value: false Parent node: Redirect	No

`MirrorURL`	String	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. 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 `http :// www . test . com /`and the object to be accessed is "myobject", the back-to-origin URL is `http :// www . test . com / dir1 / myobject` . If MirrorURL is set to `http :// www . test . com / dir1 /`, the back-to-origin URL is `http :// www . test . com / dir1 / myobject` . Parent node: Redirect	Conditionally required. This element must be specified if the RedirectType is Mirror.
`MirrorPassQueryString`	Bool	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. Default value: false Parent node: Redirect	No

MirrorFollowRedirect	Bool	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. 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. Default value: true Parent node: Redirect	No
MirrorCheckMd5	Bool	Indicates whether OSS performs an MD5 check on the body of the response returned by the origin site. 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. Default value: false Parent node: Redirect	No

MirrorHeaders	Container	Specifies the header carried in the response returned by the origin site. This element takes effect only when the value of RedirectType is Mirror. Parent node: Redirect	No
PassAll	Bool	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. Default value: false Parent node: MirrorHeaders	No
Pass	String	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. Parent node: MirrorHeaders	No
Remove	String	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. Parent node: MirrorHeaders	No

`Set`	Container	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. Parent node: MirrorHeaders	No
`Key`	String	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. Parent node: Set	Conditionally required. This element must be specified when its Parent node Set is specified.
`Value`	String	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. Parent node: Set	Conditionally required. This element must be specified when its Parent node Set is specified.
`Protocol`	String	Indicates the protocol used for redirections. The available value of this element is http or https. For example, the Location header is `https :// www . test . com / test` if the requested object is test, the request is redirected to `www . test . com`, and the value of Protocol is https. This element takes effect only when the value of RedirectType is External or AliCDN. Parent node: Redirect	Conditionally required. This element must be specified when the value of RedirectType is not External or AliCDN.

`HostName`	String	Indicates the domain name used for redirections, which must comply with the specifications for domain names. For example, the Location header is `https :// www . test . com / test` if the requested object is test, the value of Protocol is https, and the Hostname is specified to `www . test . com`. This element takes effect only when the value of RedirectType is External or AliCDN. Parent node: Redirect	Conditionally required. This element must be specified when the value of RedirectType is not External or AliCDN.
`HttpRedirectCode`	HTTP status code	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. Parent node: Redirect	Conditionally required. This element must be specified when the value of RedirectType is not External or AliCDN.
`ReplaceKeyPrefixWith`	String	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. 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 `http :// www . test . com / def / test . txt`. This element takes effect only when the value of RedirectType is External or AliCDN. Parent node: Redirect	Conditionally required. This element must be specified when the value of RedirectType is not External or AliCDN.

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

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   qn6qrrqxo2  oawuk53otf  jbyc : KU5h8YMUC7
 8M30dXqf3J  xrTZHiA =

<?  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   a1nBNgkzzx  cQMf8u : 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 >
< RedirectTy  pe > Mirror </ RedirectTy  pe >
< PassQueryS  tring > true </ PassQueryS  tring >
< MirrorURL > http :// www . test . com /</ MirrorURL >
< MirrorPass  QueryStrin  g > true </ MirrorPass  QueryStrin  g >
< MirrorFoll  owRedirect > true </ MirrorFoll  owRedirect >
< MirrorChec  kMd5 > false </ MirrorChec  kMd5 >
< MirrorHead  ers >
< 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 >
</ MirrorHead  ers >
</ Redirect >
</ RoutingRul  e >
< RoutingRul  e >
< RuleNumber > 2 </ RuleNumber >
< Condition >
< KeyPrefixE  quals > abc /</ KeyPrefixE  quals >
< HttpErrorC  odeReturne  dEquals > 404 </ HttpErrorC  odeReturne
 dEquals >
< IncludeHea  der >
< Key > host </ Key >
< Equals > test . oss - cn - beijing - internal . aliyuncs . com </
 Equals >
</ IncludeHea  der >
</ Condition >
< Redirect >
< RedirectTy  pe > AliCDN </ RedirectTy  pe >
< Protocol > http </ Protocol >
< HostName > www . test . com </ HostName >
< PassQueryS  tring > false </ PassQueryS  tring >
< ReplaceKey  With > prefix /${ key }. suffix </ ReplaceKey  With >
< HttpRedire  ctCode > 301 </ HttpRedire  ctCode >
</ Redirect >
</ RoutingRul  e >
</ RoutingRul  es >
</ WebsiteCon  figuration >

 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
```

4.4 GetBucket(List Object)

The `GetBucket` operation can be used to list all of the object information in a bucket.

Request syntax

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

```
Authorizat ion : SignatureV alue
```

Request parameters

When you initiate a GetBucket (ListObject) request, you can use prefix, marker, delimiter, and max-keys to prescribe a limit to the list to return partial results. Besides, encoding-type can be used to encode the following elements in the returned results: delimiter, marker, prefix, NextMarker, and key.

Name	Data type	Required	Description
delimiter	string	No	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 - 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. If not specified, the default value is 100. The max-keys value cannot exceed 1000. Default value: 100
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
encoding - type	string	No	Specifies the encoding of the returned content and 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. Default value: None; Optional value: URL

Response elements

Name	Type	Description
Contents	container	Container used for saving every returned object meta. Parent node: ListBucketResult
CommonPrefixes	string	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. Parent node: ListBucketResult
Delimiter	string	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 - CommonPrefixes. Parent node: ListBucketResult
EncodingType	string	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. Parent node: ListBucketResult
DisplayName	string	Name of the object owner. Parent node: ListBucketResult.Contents.Owner
ETag	string	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 by 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 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. Parent node: ListBucketResult.Contents
ID	string	User ID of the bucket owner. Parent node: ListBucketResult.Contents.Owner

Name	Type	Description
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. Valid values: `true` and `false` Parent node: ListBucketResult
Key	string	Key of an object Parent node: ListBucketResult.Contents
LastModified	time	The latest modification time of an object. Parent node: ListBucketResult.Contents
ListBucket Result	container	Container for storing the results of the "Get Bucket" request subnodes: Name, Prefix, Marker, MaxKeys, Delimiter, IsTruncated, Nextmarker, and Contents Parent node: None
Marker	string	Marks the origin of the current Get Bucket (List Object) request. Parent node: ListBucketResult
MaxKeys	string	The maximum number of returned results in response to the request. Parent node: ListBucketResult
Name	string	Name of a bucket Parent node: ListBucketResult
Owner	container	Container used for saving the information about the bucket owner. subnodes: DisplayName and ID Parent node: ListBucketResult
Prefix	string	Starting prefix for the current results of query. Parent node: ListBucketResult
Size	string	Number of bytes of the object. Parent node: ListBucketResult.Contents
StorageClass	string	Indicates Object storage type. "Standard", "IA", and "Archive" types are available. (Currently, the "Archive" type is only available in some regions.) 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, or if you attempt to access a bucket which cannot be created because of standard naming rules are not followed when naming a bucket, Error 404 Not Found with the error code “NoSuchBucket” is returned.
- If you have no permission to access the bucket, the system returns Error 403 Forbidden with the error code “AccessDenied”.
- If listing cannot be completed at one time because of the max-keys setting, a `< NextMarker >` is appended to the returned result, prompting that this can be taken as a marker for continued listing. The value in NextMarker is still in the list result.
- During a condition query, even if the marker does not exist in the list actually, what is returned is printed starting from the next to what conforms to the marker letter sorting. If the max-keys value is less than 0 or greater than 1000, error 400 Bad Request is returned. The error code is “InvalidArgument”.
- If the prefix, marker, or delimiter parameters do not meet the length requirement, 400 Bad Request is returned. The error code is “InvalidArgument”.
- The prefix and marker parameters are used to achieve display by pages, and the parameter length must be less than 1024 bytes.
- Setting a prefix as the name of a folder lists the files starting with this prefix, recursively returning all files and subfolders in this folder. Additionally, if we set the Delimiter as “/ “, the returned values lists the files in the folder and the subfolders are returned in the CommonPrefixes section. Recursive files and folders in the subfolders are not displayed. For example, a bucket has the following three objects: fun/test.jpg, fun/movie/001.avi, and fun/movie/007.avi. If the prefix is set to “fun/ “, three objects are returned. If the delimiter is set to “/ “ additionally, file “fun/test.jpg” and prefix “fun/movie/ “ are returned. That is, the folder logic is achieved.

Scenario example

Four objects are available in the bucket “my_oss” and are named as:

- oss.jpg
- fun/test.jpg
- fun/movie/001.avi
- fun/movie/007.avi

Example

Request example:

```
 GET  /  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  kboO4M =
```

Return 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 containing 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  kboO4M =
```

Return 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 >
         < StorageCla  ss > Standard </ StorageCla  ss >
         < Owner >
             < ID > 0022012022  2 </ ID >
             < DisplayNam  e > user_examp  le </ 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_examp  le </ 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_examp  le </ DisplayNam  e >
        </ Owner >
    </ Contents >
</ ListBucket  Result >
```

Example of a request containing parameters prefix and delimiter:

```
 GET  /?  prefix = fun /& delimiter =/  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 : DNrnx7xHk3
 sgysx7I8U9  I9IY1vY =
```

Return 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 :  712
 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 / 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 >
```

4.5 GetBucketInfo

GetBucketInfo operation is used to view the bucket information.

The information includes the following:

- Create time
- Internet access endpoint
- Intranet access endpoint
- Bucket owner information
- Bucket ACL (AccessControlList)

Request syntax

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

Response elements

Name	Type	Description
BucketInfo	Container	The container that saves the bucket information content Sub-node: Bucket node Parent node: none
Bucket	Container	The container that saves the bucket specific information Parent node: BucketInfo node
CreationDa te	time	The creation time of the bucket. Time format: 2013-07-31T10:56:21.000Z Parent node: BucketInfo.Bucket

Name	Type	Description
`ExtranetEndpoint`	string	The Internet domain name that the bucket accesses Parent node: BucketInfo.Bucket
`IntranetEndpoint`	string	The intranet domain name for accessing the bucket from ECS in the same region Parent node: BucketInfo.Bucket
`Location`	string	The region of the data center that the bucket is located in Parent node: BucketInfo.Bucket
`Name`	string	The bucket name Parent node: BucketInfo.Bucket
`Owner`	container	Container used for saving the information about the bucket owner. Parent node: BucketInfo.Bucket
`ID`	string	User ID of the bucket owner. Parent node: BucketInfo.Bucket.Owner
`DisplayName`	string	Name of the bucket owner (the same as the ID currently). Parent node: BucketInfo.Bucket.Owner
`AccessControlList`	container	Container used for storing the ACL information Parent node: BucketInfo.Bucket
`Grant`	enumerative string	ACL permissions of the bucket. Valid values: `private`, `public-read`, and `public-read-write` Parent node: BucketInfo.Bucket.AccessControlList
`DataRedundancyType`	enumerative string	The data redundancy type of the bucket. Valid values: `LRS` and `ZRS` Parent node: BucketInfo.Bucket

Detail analysis

- If the bucket does not exist, error 404 is returned. Error code: NoSuchBucket.
- Only the owner of a bucket can view the information of the bucket. If other users attempt to access the location information, the error 403 Forbidden with the error code: AccessDenied is returned.
- The request can be initiated from any OSS endpoint.

Example

Request example:

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

Return example after 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 >
    < CreationDa  te > 2013 - 07 - 31T10 : 56 : 21 . 000Z </
 CreationDa  te >
    < ExtranetEn  dpoint > oss - cn - hangzhou . aliyuncs . com </
 ExtranetEn  dpoint >
    < IntranetEn  dpoint > oss - cn - hangzhou - internal . aliyuncs .
 com </ IntranetEn  dpoint >
    < Location > oss - cn - hangzhou </ Location >
    < Name > oss - example </ Name >
    < Owner >
      < DisplayNam  e > username </ DisplayNam  e >
      < ID > 2718347391  43143 </ ID >
    </ Owner >
    < AccessCont  rolList >
      < Grant > private </ Grant >
    </ AccessCont  rolList >
  </ Bucket >
</ BucketInfo >
```

Return example if the requested bucket information 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 > NoSuchBuck  et </ Code >
  < Message > The   specified   bucket   does   not   exist .</
 Message >
  < RequestId > 568D547F31  243C673BA1  4274 </ RequestId >
  < HostId > nosuchbuck  et . oss . aliyuncs . com </ HostId >
  < BucketName > nosuchbuck  et </ BucketName >
```

```
</ Error >
```

Return example if the requester has no access permission to the bucket information:

```
 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 > AccessDeni  ed </ Code >
  < Message > AccessDeni  ed </ Message >
  < RequestId > 568D5566F2  D0F89F5C0E  B66E </ RequestId >
  < HostId >  test . oss . aliyuncs . com  </ hostid >
</ Error >
```

4.6 DeleteBucketWebsite

`DeleteBucketWebsite` is used to disable the static website hosting mode and 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
 Authorizat  ion :  SignatureV  alue
```

Examples

Request example

```
 DELETE  /? website   HTTP / 1 . 1
 Host :  BucketName . oss - cn - hangzhou . aliyuncs . com
 Date :  Fri ,  24   Feb   2012   05 : 45 : 34   GMT
 Authorizat  ion :  OSS   qn6qrrqxo2  oawuk53otf  jbyc : LnM4AZ1OeI
 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   a1nBNgkzzx  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 code

Error code	HTTP status code	Description
NoSuchBucket	404 Not Found	The bucket that you want to delete 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.

4.7 PutBucketLifecycle

The bucket owner can set the lifecycle of a bucket with the `PutBucketLifecycle` request. After Lifecycle is enabled, OSS automatically deletes the objects or transitions the objects (to another storage class) corresponding the lifecycle rules on a regular basis.

Request syntax

```
 PUT  /? lifecycle   HTTP / 1 . 1
 Date :  GMT   Date
 Content - Length :  ContentLen  gth
 Content - Type :  applicatio  n / xml
 Authorizat  ion :  SignatureV  alue
 Host :  BucketName . oss . aliyuncs . com
<? xml   version =" 1 . 0 "  encoding =" UTF - 8 "?>
< LifecycleC  onfigurati  on >
  < Rule >
    < ID > RuleID </ ID >
    < Prefix > Prefix </ Prefix >
    < Status > Status </ Status >
    < Expiration >
      < Days > Days </ Days >
    </ Expiration >
    < AbortMulti  partUpload >
      < Days > Days </ Days >
    </ AbortMulti  partUpload >
  </ Rule >
</ LifecycleC  onfigurati  on >
```

Request elements

Name	Type	Required?	Description
CreatedBeforeDate	string	One from the two: Days and CreatedBeforeDate	Specify the time before which the rules go into effect. The date must conform to the ISO8601 format and always be UTC 00:00. For example: 2002-10-11T00:00:00.000Z, which means the objects with a last update time before 2002-10-11T00:00:00.000Z are deleted or transitioned to another storage class, and the objects updated after this time (including this time) are not deleted or transitioned. Parent node: Expiration or AbortMultipartUpload
Days	positive integer	One from the two: Days and CreatedBeforeDate	Specify how many days after the last object update until the rules take effect. Parent node: Expiration
Expiration	container	No	Specify the expiration attribute of the object. Sub-node: Days or CreatedBeforeDate Parent node: Rule
AbortMultipartUpload	container	No	Specify the expiration attribute of the unfulfilled Part rules. Sub-node: Days or CreatedBeforeDate Parent node: Rule
ID	string	No	The unique ID of a rule. An ID is composed of 255 bytes at most. When you fail to specify this value or this value is null, OSS generates a unique value for you. Sub-node: none Parent node: Rule

Name	Type	Required?	Description
LifecycleConfiguration	container	Yes	Container used for storing lifecycle configurations, which can hold a maximum of 1000 rules. Sub-node: Rule Parent node: none
Prefix	string	Yes	Specify the prefix applicable to a rule. Only those objects with a matching prefix can be affected by the rule. It cannot be overlapped. Sub-node: none Parent node: Rule
Rule	container	Yes	Express a rule Sub-nodes: ID, Prefix, Status, Expiration Parent node: LifecycleConfiguration
Status	string	Yes	If this value is Enabled, OSS runs this rule regularly. If this value is Disabled, then OSS ignores this rule. Parent node: Rule Valid value: `Enabled` , `Disabled`
StorageClass	string	Required if parent node transition is set	Specifies the type of target storage that the object is transition to the OSS. Value: `IA` , `Archive` Parent node: Transition
Transition	Container	No	Specifies when the object is transition to the IA or archive storage type during a valid life cycle.

Detail analysis

- Only the bucket owner can initiate a Put Bucket Lifecycle request. Otherwise, the message of 403 Forbidden is returned. Error code: AccessDenied.
- If no lifecycle has been set previously, this operation creates a new lifecycle configuration or overwrites the previous configuration.
- You can also set an expiration time for an object, or for the Part. Here, the Part refers to the unsubmitted parts for multipart upload.

Notes for storage types transition:

- Supports objects in Standard bucket transition to IA and Archive storage type. Standard bucket can simultaneously configure both transition to IA and archive storage type rules for one object. In this case, the time set to transition to archive must be longer than the time to transition to IA. For example, the days set for transition to IA is 30, then it must be greater than 30 days set for transition to archive. Otherwise, the invalidargument error is returned.

- The object setting must have an expiration time greater than the time converted to IA or archive. Otherwise, the invalidArgument error is returned.
- Supports objects transition to archive storage type in IA bucket.
- Archvie bucket creation is not supported.
- IA object convertion is not supported as standard.
- The archive object convertion is not supported for IA or standard.

Examples

Request example:

```
 PUT  /? lifecycle   HTTP / 1 . 1
 Host :  oss - example . oss . aliyuncs . com
 Content - Length :  443
 Date :  Mon ,  14   Apr   2014   01 : 08 : 38   GMT
 Authorizat  ion :  OSS   qn6qrrqxo2  oawuk53otf  jbyc : KU5h8YMUC7
 8M30dXqf3J  xrTZHiA =
<? 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 > delete   created   before   date </ ID >
    < Prefix > backup /</ Prefix >
    < Status > Enabled </ Status >
    < Expiration >
      < CreatedBef  oreDate > 2014 - 10 - 11T00 : 00 : 00 . 000Z </
 CreatedBef  oreDate >
    </ Expiration >
    < AbortMulti  partUpload >
      < CreatedBef  oreDate > 2014 - 10 - 11T00 : 00 : 00 . 000Z </
 CreatedBef  oreDate >
    </ AbortMulti  partUpload >
  </ Rule >
</ LifecycleC  onfigurati  on >
```

Response example:

```
 HTTP / 1 . 1   200   OK
 x - oss - request - id :  534B371674  E88A4D8906  008B
```

```
Date :  Thu  ,  8   Jun   2017   13 : 08 : 38   GMT
Content - Length :  0
Connection :  keep - alive
Server :  AliyunOSS
```

5 Multipart upload operations

5.1 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.

Name	Type	Description
encoding-type	String	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. Default value: None Optional value: url

Request header

Name	Type	Description
Cache - control	String	Specifies the Web page caching behavior when the object is downloaded. For more information, see RFC2616. Default value: None
Content - Dispositio n	String	Specifies the object name when the object is downloaded. For more information, see RFC2616. Default value: None
Content - Encoding	String	Specifies the content encoding format when the object is downloaded. For more information, see RFC2616. Default value: None
Expires	Integer	Specifies the expiration time in milliseconds. For more information, see RFC2616. Default value: None
x - oss - server - side - encryption	String	Specifies the server-side encryption algorithm used to upload each part of the object. OSS stores each uploaded part based on server-side encryption. Valid value: AES256 or KMS 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.

Name	Type	Description
`x-oss-storage-class`	String	Specifies the storage class of the object. Values: - `Standard` - `IA` - `Archive` Supported interfaces: PutObject, InitMultipartUpload, AppendObject, PutObjectSymlink, and CopyObject Note: - If the value of StorageClass is invalid, a 400 error is returned. Error code: InvalidArgument - 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.

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

Name	Type	Description
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
 Authorizat  ion :  OSS   qn6qrrqxo2  oawuk53otf  jbyc :/ cluRFtRwMT
 ZpC2hTj4F6  7AGdM4 =
```

Response example:

```
 HTTP / 1 . 1   200   OK
 Content - Length :  230
 Server :  AliyunOSS
 Connection :  keep - alive
 x - oss - request - id :  42c25703 - 7503 - fbd8 - 670a - bda01eaec6
 18
 Date :  Wed ,  22   Feb   2012   08 : 32 : 21   GMT
 Content - Type :  applicatio  n / xml
<?  xml   version =" 1 . 0 "  encoding =" UTF - 8 "? >
< InitiateMu  ltipartUpl  oadResult   xmlns =” http :// doc . oss - cn
 - hangzhou . aliyuncs . com ”>
    < Bucket >  multipart_  upload </ Bucket >
    < Key > multipart . data </ Key >
    < UploadId > 0004B9894A  22E5B1888A  1E29F8236E  2D </ UploadId >
</ InitiateMu  ltipartUpl  oadResult >
```

5.2 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
 Authorizat  ion :  SignatureV  alue
```

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
 Authorizat  ion :  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
```

5.3 UploadPartCopy

`UploadPartCopy` uploads a part by copying data from an existing object.

You can add an x-oss-copy-source header in the Upload Part request to call the Upload Part Copy interface. When copying a file larger than 1 GB, you must use the Upload Part Copy method. For the Upload Part Copy operation, the source bucket and the target bucket must be in the same region. If you want to copy a file that is less than 1 GB by a single operation, you can use the Copy Object 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
Authorizat  ion :  SignatureV  alue
x - oss - copy - source : / SourceBuck  etName / SourceObje  ctName
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	Copying range of the copied source object. For example, if the range is set to bytes = 0-9, the system 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 value provided by the user, the system performs the Copy Object operation; otherwise, the system returns the 412 Precondition Failed error. Default: None
`x-oss-copy-source-if-none-match`	String	If the source object has not been modified since the time specified by the user, the system performs the Copy Object operation; otherwise, the system 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 file, the system transfers the file normally, and returns 200 OK; otherwise, the system 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 since the time specified by the user, the system performs the Copy Object operation; otherwise, the system returns the 412 Precondition Failed error. Default: None

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 value provided by the user, the system performs the Copy Object operation; otherwise, the system returns the 412 Precondition Failed error. Default: None
`x - oss - copy - source - if - none - match`	String	If the source object has not been modified since the time specified by the user, the system performs the Copy Object operation; otherwise, the system 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 file, the system transfers the file normally, and returns 200 OK; otherwise, the system 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 since the time specified by the user, the system performs the Copy Object operation; otherwise, the system 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 Multipart Upload 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 Multipart Upload 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, the system returns Error 400 with the error code “OperationNotSupported”.

Example

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 >
```

6 Object operations

6.1 PutObject

`PutObject` is used to upload files.

Request syntax

```
PUT  / ObjectName   HTTP / 1 . 1
Content - Length :  ContentLen  gth
Content - Type :  ContentTyp  e
Host :  BucketName . oss - cn - hangzhou . aliyuncs . com
Date :  GMT   Date
Authorizat  ion :  SignatureV  alue
```

Request header

Parameter	Type	Description
Authorization	String	Indicates that the request is authorized. For more information, see RFC2616. Default value: none
Cache - control	String	Specifies the Web page caching behavior when the object is downloaded. For more information, see RFC2616. Default value: none
Content - Disposition	String	Specifies the name of the object when the object is downloaded. For more information, see RFC2616. Default value: none
Content - Encoding	String	Specifies the content encoding format when the object is downloaded. For more information, see RFC2616. Default value: none

Parameter	Type	Description
Content - Md5	String	As defined in RFC 1864, an MD5 value, which is a 128-bit number, is calculated based on the message content, rather than the header. This number is then Base64-encoded into a Content-MD5 value. This request header can be used to check the validity of a message. More specifically, the name can be used whether the message content is consistent with the sent content. Although this request header is optional, we recommend that you use this request header for end-to-end checks. Default value: none Restriction: none
Content - Length	String	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.
ETag	String	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. Default value: None
Expires	String	Specify the expiration time. For more information, see RFC2616. Default value: none Note: OSS does not limit and verify this value.

Parameter	Type	Description
`x - oss - server - side - encryption`	String	Specifies the server-side encryption algorithm when OSS creates an object. Valid value: `AES256` or `KMS` Note: 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.
`x - oss - server - side - encryption - key - id`	String	Specifies the primary key managed by KMS. This parameter is valid when the value of `x - oss - server - side - encryption` is set to KMS.
`x - oss - object - acl`	String	Specifies the access permission when OSS creates an object. Valid values: `public - read` , `private` , and `public - read - write`

Parameter	Type	Description
`x-oss-storage-class`	String	Specifies the storage class of the object. Valid values: - `Standard` - `IA` - `Archive` Supported interfaces: PutObject, InitMultipartUpload, AppendObject, PutObjectSymlink, and CopyObject Note: - The status code of 400 Bad Request is returned if the value of StorageClass is invalid. Error description: InvalidArgument. - 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.

Detail analysis

- For the object that you want to upload:
  - A status code 403 Forbidden error is returned if you do not have access to the bucket. Error description: AccessDenied.
  - If an object with the same name already exists and you have access to it, the existing object is overwritten by the uploaded object, and the status code 200 OK is returned.
  - The status code 404 Not Found is returned if the bucket does not exist. Error description: NoSuchBucket.
- The status code 400 Bad Request is returned if the length of the input object key exceeds 1023 bytes. Error description: InvalidObjectName.
- Content-Length
  - 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.

- The status code 400 Bad request is returned if the length of the uploaded object exceeds 5 GB. Error description: InvalidArgument.
- If the length is set, but the message body is not sent or the size of the sent body is smaller than the specified size, the server waits until timeout, and the status code 400 Bad Request is returned. Error description: RequestTimeout.

- HTTP header
  - 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 values set in the upload when the object is downloaded. For more information about the header fields, see *RFC2616*.
  - If the header is not encoded in the *chunked encoding* method and the Content-Length parameter is not added, a 411 Length Required error is returned. Error decription: MissingContentLength.
  - If you specify the x-oss-server-side-encryption header when you perform a PutObject operation, the value of this header must be set to AES256. Otherwise , the status code 400 Bad Request is returned. Error description: InvalidEnc ryptionAlgorithmError. After this header is specified, it is also included in the response header, and OSS encrypts the uploaded object by using the specified method. When this object is downloaded, x-oss-server-side-encryption is included in the response header, and the value of x-oss-server-side-encryption is set to the encryption algorithm of this object.
  - If the PutObject request carries a parameter with the x-oss-meta- prefix, the parameter is considered as user meta, for example, x-oss-meta-location. A single object can have multiple parameters with the x-oss-meta- prefix. However , the total size of all user meta cannot exceed 8 KB. User meta can contain alphanumeric characters, en dashes (–), spaces ( ), and double quotation marks ("). Other characters including underscores (_) are not supported.

Content-MD5 calculation error

According to the standard, the Content-MD5 value is calculated as follows: Calculate the MD5-encrypted 128-bit binary array, and then encode the binary array (but not the 32-bit string) with Base64.

For example, if the content you want to upload is `0123456789`, the Content-MD5 value of the string can be calculated as follows:

The correct calculation method can be implemented in Python as follows:

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

Note:

Correct calculation method: Use `hash . digest ()` to calculate the 128-bit binary array first. For example: `>>>  hash . digest () ' x \ x1e ^$] i \ xb5f \ x97 \ x9b \ x86 \ xe2 \ x8d #\ xf2 \ xc7 '`

A common error in calculations is to encode the calculated 32-bit string with Base64 to obtain the Content-MD5 value. For example, `hash . hexdigest ()` is used to calculate a visible 32-bit string. `>>>  hash . hexdigest () ' 781e5e245d 69b566979b  86e28d23f2  c7 '` If you encode the incorrect MD5 value with Base64, the result is as follows. `>>>  base64 . b64encode ( hash . hexdigest ()) ' NzgxZTVlMj  Q1ZDY5YjU2  Njk3OWI4Nm  UyOGQyM2Yy  Yzc ='`

Examples

- Example 1

  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  jbyc : kZoYNv66bs
  mc10 + dcGKw5x2PR  rk =
  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  299D
ETag : " D41D8CD98F  00B204E980  0998ECF842  7E "
x - oss - hash - crc64ecma :  0
Content - MD5 :  1B2M2Y8Asg  TpgAmY7PhC  fg ==
x - oss - server - time :  7
```

- Example 2

  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
Authorizat  ion :  OSS   qn6qrrqxo2  oawuk53otf  jbyc : kZoYNv66bs
mc10 + dcGKw5x2PR  rk =

[ 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  2F9A
x - oss - bucket - version :  1418321259

ETag : " A797938C31  D59EDD08D8  6188F6D5B8  72 "
```

- Note:

  For more example code for PutObject, see *Upload objects*.

6.2 CopyObject

`CopyObject` is used to copy objects within a bucket or between buckets in the same region.

The `CopyObject` interface sends a PUT request to OSS and adds the `x - oss - copy - source` element in the PUT request header to specify the source object. OSS recognizes the request as a copy operation and perform this operation on the server. If the copy operation is successful, the information about the target object is returned.

Request syntax

```
PUT  / DestObject  Name   HTTP / 1 . 1
Host :  DestBucket  Name . oss - cn - hangzhou . aliyuncs . com
Date :  GMT   Date
Authorizat  ion :  SignatureV  alue
x - oss - copy - source : / SourceBuck  etName / SourceObje  ctName
```

Request header

Name	Type	Description
x - oss - copy - source	String	Specifies the address of the source object. Default value: None.
x - oss - copy - source - if - match	String	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 HTTP error code (preprocessing failed) is returned. Default value: None.
x - oss - copy - source - if - none - match	String	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 HTTP error code (preprocessing failed) is returned. Default value: None.
x - oss - copy - source - if - unmodified - since	String	If the time specified in the received parameter 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 is returned. Default value: None.
x - oss - copy - source - if - modified - since	String	If the source object is modified after the time specified by the user, the copy operation is performed. Otherwise, a 304 HTTP error code (preprocessing failed) is returned. Default value: None.

Name	Type	Description
x-oss-metadata-directive	String	Specifies how to set the metadata of the target object. The valid values are COPY and REPLACE. · Copy (default): The metadata of the source object is copied to the target object. The x-oss-server-side-encryption of the source object is not copied. That is, server-side encryption is performed on the target object only if the x-oss-server-side-encryption header is specified in the COPY request. · REPLACE : 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. Note: 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 x-oss-metadata-directive .

Name	Type	Description
x-oss-server-side-encryption	String	Specifies the server-side entropy encoding encryption algorithm when OSS creates the target object. Valid values: · AES256 · KMS (You must enable KMS in the console before you can use the KMS encryption algorithm. Otherwise, a KmsServiceNotEnabled error code is returned.) Note: · If the x-oss-server-side-encryption 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. · If you specify the x-oss-server-side-encryption 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 x-oss-server-side-encryption 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 x-oss-server-side-encryption header, and the value of the header is the encryption algorithm of the target object.
x-oss-server-side-encryption-key-id	String	Indicates the primary key managed by KMS. This parameter is valid when the value of x-oss-server-side-encryption is KMS.

Name	Type	Description
`x - oss - object - acl`	String	Specifies the ACL for the target object when it is created. Valid values: · `public - read` · `private` · `public - read - write`

Name	Type	Description
x - oss - storage - class	String	Specifies the storage class of the object. Valid values: - Standard - IA - Archive Supported interfaces: PutObject, InitMultipartUpload, AppendObject, PutObjectSymlink, and CopyObject Note: - If the value of StorageClass is invalid, a 400 error message is returned with an error code: InvalidArgument. - 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. - 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. - 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. 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.

Response elements

Table 6-1: Response elements

Name	Type	Description
`CopyObjectResult`	String	Indicates the result of CopyObject. Default value: None.
`ETag`	String	Indicates the ETag of the target object. Parent element: CopyObjectResult
`LastModified`	String	Indicates the time when the target object is last modified. Parent element: CopyObjectResult

Detail analysis

- Limits
  - CopyObject only supports objects smaller than 1 GB. To copy objects larger than 1 GB, you must use MultipartUpload. For more information, see *UploadPartCopy*.
  - The requester 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 with 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.
- Predetermined request headers
  - You can include any number of the four predetermined request headers (`x-oss-copy-source-if-match`, `x-oss-copy-source-if-none-match`, `x-oss-copy-source-if-unmodified-since`,

and x - oss - copy - source - if - modified - since) in a request at the same time. For more information, see *Detail analysis* in GetObject.

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

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
Authorizat  ion :  OSS   qn6qrrqxo2  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
authorizat  ion :  OSS   qn6qrrqxo2  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 a CRC64 value.

6.3 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
PutObject	If you perform a PutObject operation on an existing appendable object, the appendable object is overwritten by a new normal object.
HeadObject	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.

Operations	Relationship
GetBucket	In the response to a GetBucket request, the x-oss-object-type of the appendable object is set to Appendable.
CopyObject	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 RFC2616. Default value: none
Content - Disposition	String	Specifies the name of the object when the object is downloaded. For more information, see RFC2616. Default value: none
Content - Encoding	String	Specifies the content encoding format of the object. For more information, see RFC2616. 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

Header	Type	Description
`Expires`	Integer	Specifies the expiration time. For more information, see *RFC2616*. Default value: none
`x-oss-server-side-encryption`	String	Specifies the server-side encryption algorithm. Valid values: `AES256` or `KMS` Note: You must enable KMS (Key Management Service) in the console before you can use the KMS encryption algorithm. Otherwise, a KmsServiceNotEnabled error is returned.
`x-oss-object-acl`	String	Specifies the ACL for the object. Valid values: `public-read`, `private`, and `public-read-write`
`x-oss-storage-class`	String	Specifies the storage class of the object. Values: · `Standard` · `IA` · `Archive` Supported interfaces: PutObject, InitMultipartUpload, AppendObject, PutObjectSymlink, and CopyObject Note: · The status code 400 Bad Request is returned if the value of StorageClass is invalid. Error description: InvalidArgument. · 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. · This header takes effect only if you specify it when you perform the AppendObject operation for the first time.

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 *ECMA-182*.

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_optima  l < 64 ,  0x42F0E1EB  A9EA3693UL  L
 ,  0xffffffff  ffffffffUL  L ,  0xffffffff  ffffffffUL  L ,  true
 ,  true >  boost_ecma ;

 uint64_t   do_boost_c  rc ( const   char * buffer ,  int   length
 )
{
     boost_ecma   crc ;
     crc . process_by  tes ( 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 - Dispositio  n :  attachment ; filename = oss_downlo  ad .
jpg
Date :  Wed ,  08   Jul   2015   06 : 57 : 01   GMT
```

```
 Content - Type :  image / jpg
 Content - Length :  1717
 Authorizat  ion :  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	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. Note: · 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. · 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.

6.4 HeadObject

`HeadObject` **is used to return the meta information of a certain object without returning the file content.**

Request syntax

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

Request header

Name	Type	Description
`If - Modified - Since`	String	If the specified time is earlier than the actual modification time, the system returns the 200 OK message and the object metadata; otherwise, the system returns the 304 Not Modified message. Default: None
`If - Unmodified - Since`	String	If the specified time is same as or later than the actual file modification time, the system returns the 200 OK message and the object metadata; otherwise, the system returns the 412 Precondition Failed message. Default: None

Name	Type	Description
`If - Match`	String	If the expected ETag that is introduced matches the ETag of the object, the system returns the 200 OK message and the object metadata; otherwise, the system returns the 412 Precondition Failed message. Default: None
`If - None - Match`	String	If the introduced ETag does not match the ETag of the object, the system returns the 200 OK message and the object metadata; otherwise, the system returns the 304 Not Modified message. Default: None

Detail analysis

- After the Head Object request is sent, no message body is returned even if the system returns the 200 OK message or an error message.
- The If-Modified-Since, If-Unmodified-Since, If-Match, and If-None-Match query conditions can be set in the header of the Head Object request. For the detailed setting rules, see the related fields in the Get Object request. If no modification is made, the system returns the 304 Not Modified message.
- If you upload the user meta prefixed with x-oss-meta- when sending a Put Object request, for example, x-oss-meta-location, the user meta is returned.
- If the file does not exist, the system returns Error 404 Not Found.
- If this object is entropy encrypted on the server, the system returns x-oss-server-side-encryption in the header of the response to the Head Object request. The value of x-oss-server-side-encryption indicates the server-side encryption algorithm of the object.
- If the file type is symbolic link, in the response header, `Content - Length` , `ETag` , and `Content - Md5` are metadata of the target file, `Last - Modified`

is the maximum value of the target file and symbolic link, and others are metadata of symbolic links.

- If the file type is symbolic link and the target file does not exist, the system returns Error 404 Not Found. The error code is "SymlinkTargetNotExist".
- If the file type is symbolic link and the target file type is symbolic link, the system returns Error 400 Bad request. The error code is "InvalidTargetType".
- If the bucket type is Archive and the Restore request has been submitted, the Restore state of Object is indicated by x-oss-restore in the response header.
    - If the Restore request is not submitted or times out, the field is not returned.
    - If the Restore request has been submitted and does not time out, the value of x-oss-restore returned is ongoing-request=" true".
    - If the Restore request has been submitted and completed, the value of x-oss-restore returned is ongoing-request=" false", expiry-date=" Sun, 16 Apr 2017 08:12:33 GMT". Where the expiry-date refers to the expiry date of the readable state of the restored file.

Example

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
Authorizat  ion :  OSS   qn6qrrqxo2  oawuk53otf  jbyc : JbzF2LxZUt
anlJ5dLA09  2wpDC / E =
```

Return example:

```
HTTP / 1 . 1   200   OK
x - oss - request - id :  559CC9BDC7  55F95A6448  5981
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  dnpI : KKxkdNrUBu  2t1kqlDh0M
LbDb99I =
```

Return example:

```
HTTP / 1 . 1   200   OK
x - oss - request - id :  58F71A1645  29F18D7F00  0045
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  dnpI : 21qtGJ + ykDVmdu6O6
FMJnn + WuBw =
```

Return example:

```
HTTP / 1 . 1   200   OK
x - oss - request - id :  58F7253445  29F18D7F00  0055
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
```

6.5 PostObject

The `PostObject` operation is used to upload 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_da  ta
 Content - Length : ContentLen  gth
 Content - Type :  multipart / form - data ;  boundary = 9431149156
 168
-- 9431149156  168
```

```
 Content - Dispositio  n :  form - data ;  name =" key "
 key
-- 9431149156  168
 Content - Dispositio  n :  form - data ;  name =" success_ac
 tion_redir  ect "
 success_re  direct
-- 9431149156  168
 Content - Dispositio  n :  form - data ;  name =" Content -
 Dispositio  n "
 attachment ; filename = oss_downlo  ad . jpg
-- 9431149156  168
 Content - Dispositio  n :  form - data ;  name =" x - oss - meta -
 uuid "
 myuuid
-- 9431149156  168
 Content - Dispositio  n :  form - data ;  name =" x - oss - meta -
 tag "
 mytag
-- 9431149156  168
 Content - Dispositio  n :  form - data ;  name =" OSSAccessK  eyId
 "
 access - key - id
-- 9431149156  168
 Content - Dispositio  n :  form - data ;  name =" policy "
 encoded_po  licy
-- 9431149156  168
 Content - Dispositio  n :  form - data ;  name =" Signature "
 signature
-- 9431149156  168
 Content - Dispositio  n :  form - data ;  name =" file ";  filename
 =" MyFilename . jpg "
 Content - Type :  image / jpeg
 file_conte  nt
-- 9431149156  168
 Content - Dispositio  n :  form - data ;  name =" submit "
 Upload  to  OSS
-- 9431149156  168 --
```

- **Request header**

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

Header	Type	Required?	Description
`policy`	String	Yes in some cases	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. Default value: none 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.

Header	Type	Required?	Description
`Signature`	String	Yes in some cases	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 Post Object request. For more information, see 5.7.4.2 Post Signature. Default value: none 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.
`Cache - Control , Content - Type , Content - Disposition , Content - Encoding , Expires`	String	No	HTTP request headers. For more information, see *PutObject*. Default value: none

Header	Type	Required?	Description
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_action_redirect	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		Specifies the status code returned to the client after the previous successful upload if success_action_redirect is not specified. Default value: none Valid values: 200, 201, and 204 (default) Note: · If the value of this field is set to 200 or 204, OSS returns an empty file and the 200 or 204 status code. · If the value of this field is set to 201, OSS returns an XML file and the 201 status code. · If this field is not specified or set to an invalid value, OSS returns an empty file and the 204 status code.
x-oss-meta-*	String	No	Specifies the user meta value set by the user. OSS does not check or use this value. Default value: none

Header	Type	Required?	Description
`x-oss-server-side-encryption`	String	No	Specifies the server-side encryption algorithm when OSS creates an object. Valid value: `AES256`
`x-oss-server-side-encryption-key-id`	String	No	Specifies the primary key managed by KMS. This parameter is valid when the value of `x-oss-server-side-encryption` is set to KMS.
`x-oss-object-acl`	String	No	Specifies the ACL for the created object. Valid values: `public-read`, `private`, and `public-read-write`

Header	Type	Required?	Description
x-oss-security-token	String	No	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. Default value: none

Response header

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

Response elements

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

Parameter	Type	Description
`ETag`	String	Specifies the entity tag (ETag) that is created when an object is generated. For an object created by Post Object, 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 Post Object 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 Post Object operation. Unlike Put Object, Post Object 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 Post Object 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 Post Object 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 Post Object 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  ImJ1Y2tldC  I6ImFoYWhh  In0sIHsiQS
 I6ICJhIn0s  eyJrZXkiOi  AiQUJDIn1d  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  2CC607C5A0  FE
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 Post Object 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 Post Object 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 Post Object 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.
success_ac tion_redir ect	Specifies the URL to which the client is redirected after successful upload. This condition supports the exact match and starts-with match modes.
success_ac tion_statu s	Specifies the status code returned after successful upload if success_action_redir ect 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 Post Object 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 Post Object 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 Post Object 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.

6.6 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.

Background

- APIs that support upload callback include: *PutObject*, *PostObject*, and *CompleteMultipartUpload*.
- Regions that support upload callback include: China North 2 (Beijing), China East 1 (Hangzhou), China North 1 (Qingdao), China East 2 (Shanghai), China East 2 (Finance Cloud), China South 1 (Finance Cloud), China South 1 (Shenzhen), Hong Kong, China North 5 (Hohhot), China North 3 (Zhangjiakou), Middle East 1 (Dubai), Asia Pacific NE 1 (Tokyo), EU Central 1 (Frankfurt), Asia Pacific SE 1 (Singapore), US East 1 (Virginia), US West 1 (Silicon Valley), Asia Pacific SE 2 (Sydney), and Asia Pacific SE 3 (Kuala Lumpur).
- 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	- 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 `HTTP / 1 . 1  200  OK` 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. - 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. - If no URL is configured or the value of this field is null, OSS determines that the callback function is not configured. - HTTPS IP addresses are supported. - To ensure that Chinese characters can be correctly processed, the callbackUrl must be encoded. For example, if the value of callbackUrl is `http :// example . com / Chinese  characters . php ? key = value & Chinese  Name = Chinese  Value`, it must be encoded into a JSON string, such as `http :// example . com /% E4 % B8 % AD % E6 % 96 % 87 . php ? key = value &% E4 % B8 % AD % E6 % 96 % 87 % E5 % 90 % 8D % E7 % A7 % B0 =% E4 % B8 % AD % E6 % 96 % 87 % E5 % 80 % BC`.	Yes

Field	Description	Required
callbackHost	- Indicates the value of the Host header in the callback request. This field is valid only when the callbackUrl is specified. - 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.	No
callbackBody	- Indicates the value of the callback request body, for example, as key=$(key)&etag=$(etag)&my_var=$(x:my_var). - 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.	Yes
callbackBodyType	- 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. - 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.	No

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

```
{
" callbackUr  l ":" 121 . 101 . 166 . 30 / test . php ",
" callbackHo  st ":" oss - cn - hangzhou . aliyuncs . com ",
" callbackBo  dy ":"{\" mimeType \":${ mimeType },\" size \":${ size
 }}",
" callbackBo  dyType ":" applicatio  n / 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 `application/x-www-form-urlencoded` or `application/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=[CallBackVar]` 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=[CallBackVar]` 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 :  eyJ4Om15X3  ZhciI6ImZv  ci1jYWxsYm
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
Zvcm1hdH0m  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  aen5cY4 =
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
     LjMwIiwiY2  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
     LjMwIiwiY2  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:

  ```
  authorizat  ion  =  base64_enc  ode ( rsa_sign ( private_ke  y ,
  url_decode ( path ) +  query_stri  ng  + ‘\ 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
  authorizat  ion :  kKQeGTRccD  KyHB3H9vF + xYMSrmhMZj  zzl2 /
  kdD1ktNVgb  WEfYTQG0G2  SU / RaHBovRCE8  OkQDjC3uG3  3esH2txA ==
  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_stri  ng  + '\ n ' +  body ),  base64_dec  ode ( authorizat
  ion ))
  ```

  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_dec  ode ( 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_dec  ode ( authorizat  ion   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_stri  ng  + '\ 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 OkQDjC3uG3 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   httplib
import   base64
import   md5
import   urllib2
from   BaseHTTPSe  rver   import   BaseHTTPRe  questHandl  er ,
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 . getsocknam  e ()
        csock . close ()
        return   addr
    except   socket . error :
        return  ""
class   MyHTTPRequ  estHandler ( BaseHTTPRe  questHandl  er ):
   '''
    def   log_messag  e ( self ,  format , * args ):
        return
   '''
    def   do_POST ( self ):
       # get   public   key
        pub_key_ur  l  = ''
        try :
            pub_key_ur  l_base64  =  self . headers [' x - oss -
pub - key - url ']
            pub_key_ur  l  =  pub_key_ur  l_base64 . decode ('
base64 ')
            if   not   pub_key_ur  l . startswith (" http ://
gosspublic . alicdn . com /")  and   not   pub_key_ur  l .
startswith (" https :// gosspublic . alicdn . com /"):
                self . send_respo  nse ( 400 )
                self . end_header  s ()
                return
            url_reader  =  urllib2 . urlopen ( pub_key_ur  l )
```

```
           # you   can   cache   it
            pub_key  =  url_reader . read ()
        except :
            print  ' pub_key_ur  l  : ' +  pub_key_ur  l
            print  ' Get   pub   key   failed !'
            self . send_respo  nse ( 400 )
            self . end_header  s ()
            return
       # get   authorizat  ion
        authorizat  ion_base64  =  self . headers [' authorizat
ion ']
        authorizat  ion  =  authorizat  ion_base64 . decode ('
base64 ')
       # get   callback   body
        content_le  ngth  =  self . headers [' content - length ']
        callback_b  ody  =  self . rfile . read ( int ( content_le
ngth ))
       # compose   authorizat  ion   string
        auth_str  = ''
        pos  =  self . path . find ('?')
        if  - 1  ==  pos :
            auth_str  =  urllib2 . unquote ( self . path ) + '\ n '
+  callback_b  ody
        else :
            auth_str  =  urllib2 . unquote ( self . path [ 0 : pos
]) +  self . path [ pos :] + '\ n ' +  callback_b  ody
        print   auth_str
       # verify   authorizat  ion
        auth_md5  =  md5 . new ( auth_str ). digest ()
        bio  =  BIO . MemoryBuff  er ( pub_key )
        rsa_pub  =  RSA . load_pub_k  ey_bio ( bio )
        try :
            result  =  rsa_pub . verify ( auth_md5 ,  authorizat
ion , ' md5 ')
        except :
            result  =  False
        if   not   result :
            print  ' Authorizat  ion   verify   failed !'
            print  ' Public   key  : % s ' % ( pub_key )
            print  ' Auth   string  : % s ' % ( auth_str )
            self . send_respo  nse ( 400 )
            self . end_header  s ()
            return
       # do   something   according   to   callback_b  ody
       # response   to   OSS
        resp_body  = '{" Status ":" OK "}'
        self . send_respo  nse ( 200 )
        self . send_heade  r (' Content - Type ', ' applicatio  n /
json ')
        self . send_heade  r (' Content - Length ',  str ( len (
resp_body )))
        self . end_header  s ()
        self . wfile . write ( resp_body )
class   MyHTTPServ  er ( HTTPServer ):
    def   __init__ ( self ,  host ,  port ):
        HTTPServer . __init__ ( self , ( host ,  port ),
MyHTTPRequ  estHandler )
if  ' __main__ ' ==  __name__ :
    server_ip  =  get_local_  ip ()
server_por  t  =  23451
server  =  MyHTTPServ  er ( server_ip ,  server_por  t )
```

```
server.serve_forever()
```

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.

6.7 PutSymlink

`PutSymlink` is used to create a symbolic link directing to the TargetObject on OSS. You can use the symbolic link to access the TargetObject.

Request syntax

```
PUT  / ObjectName ?  symlink   HTTP / 1 . 1
Host :  BucketName . oss - cn - hangzhou . aliyuncs . com
Date :  GMT   Date
Authorizat  ion :  SignatureV  alue
x - oss - symlink - target :  TargetObje  ctName
```

Request header

Name	Type	Description
`x - oss - symlink - target`	String	Indicates the target object that a symbolic link directs to. Valid value: The naming conventions are the same as those for objects.

Name	Type	Description
x-oss-storage-class	String	Specifies the storage class of the target object. Values: · `Standard` · `IA` · `Archive` Supported interfaces: PutObject, InitMultipartUpload, AppendObject, PutObjectSymlink, and CopyObject Note: · If the value of StorageClass is invalid, a 400 error is returned. Error code: InvalidArgument · 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. · 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.

Detail analysis

- Similar to ObjectName, TargetObjectName must be URL-encoded.
- The target object that a symbolic link directs to cannot be a symbolic link.
- 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.

Example

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 "
```

6.8 SelectObject

`SelectObject` is used to query an object that you have the read permission on.

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 :  ContentLen  gth
 Content - MD5 :  MD5Value
 Authorizat  ion :  Signature

<? xml    version =" 1 . 0 "   encoding =" UTF - 8 "?>
< SelectRequ  est >
 < Expression > base64   encode ( Select  *  from   OSSObject
 where  ...)</ Expression >
 < InputSeria  lization >
  < Compressio  nType > None | GZIP </ Compressio  nType >
  < CSV >
   < FileHeader  Info >
     NONE | IGNORE | USE
   </ FileHeader  Info >
   < RecordDeli  miter > base64   encode </ RecordDeli  miter >
   < FieldDelim  iter > base64   encode </ FieldDelim  iter >
   < QuoteChara  cter > base64   encode </ QuoteChara  cter >
   < CommentCha  racter > base64   encode </ CommentCha  racter >
   < Range > line - range = start - end | split - range = start -
 end </ Range >
  </ CSV >
 </ InputSeria  lization >
 < OutputSeri  alization >
                < CSV >
   < RecordDeli  miter > base64   encode </ RecordDeli  miter >
   < FieldDelim  iter > base64   encode </ FieldDelim  iter >

  </ CSV >
         < KeepAllCol  umns > false | true </ KeepAllCol  umns >
         < OutputRawD  ata > false | true </ OutputRawD  ata >
              < EnablePayl  oadCrc > true </ EnablePayl  oadCrc >
         < OutputHead  er > false </ OutputHead  er >
 </ OutputSeri  alization >
 < Options >
     < SkipPartia  lDataRecor  d > false </ SkipPartia
 lDataRecor  d >
     < MaxSkipped  RecordsAll  owed >
   max   allowed   number   of   records   skipped
     < MaxSkipped  RecordsAll  owed >
 </ 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	Specifies the container that saves the SelectObject request. Child nodes: Expression, InputSerialization, and OutputSerialization Parent node: None
Expression	String	Specifies the base64-coded SQL statements. Child node: None Parent node: SelectRequest
InputSerialization	Container	(Optional) Specifies the input serialization parameters. Child nodes: CompressionType, CSV, and JSON Parent node: SelectRequest

Element	Type	Description
OutputSerialization	Container	(Optional) Specifies the output serialization parameters. Child nodes: CSV, JSON, and OutputRawData Parent node: SelectRequest
CSV(InputSerialization)	Container	(Optional) Specifies the format parameter for the input CSV file. Child nodes: FileHeaderInfo, RecordDelimiter, FieldDelimiter, QuoteCharacter, CommentCharacter, and Range Parent node: InputSerialization
CSV(OutputSerialization)	Container	(Optional) Specifies the format parameter for the output CSV file. Child nodes: RecordDelimiter and FieldDelimiter Parent node: OutputSerialization
JSON(InputSerialization)	Container	Specifies the format parameter for the input JSON file. Child 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. Child node: RecordDelimiter
OutputRawData	Bool (false by default)	(Optional) Specifies the output data as raw data, which is not the frame-based format. Child node: None Parent node: OutputSerialization
CompressionType	Enumeration	Specifies the compression type of the object: None|GZIP Child node: None Parent node: InputSerialization

Element	Type	Description
FileHeaderInfo	Enumeration	(Optional) Specifies the header information about the CSV file. Valid values: - Use: 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. - Ignore: 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. - None: Indicates that the CSV file does not contain header information. This is the default value. Child node: None Parent node: CSV (input)
RecordDelimiter	String	(Optional) Specifies the delimiter, which is base64-encoded and `\ n` by default. The value of this element before being encoded can be the ANSI value of two characters in maximum. For example, `\ n` is used to indicate a line break in Java code. Child node: None Parent node: CSV (input and output) and JSON (output)
FieldDelimiter	String	(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 `,` by default. For example, `,` is used to indicate a comma in Java code. Child node: None Parent node: CSV (input and output)

Element	Type	Description
QuoteCharacter	String	(Optional) Specifies the quote characters used in the CSV file. The value of this element is base64-encoded and is `\”` 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, `\”` is used to indicate a quote character in Java code. Child node: None Parent node: CSV (input)
CommentCharacter	String	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.
Range	String	(Optional) Specifies the query range. The following two query methods are supported: - Query by rows: line-range=start-end - Query by splits:split-range=start-end 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. This parameter is valid only when the document is in CSV format or the JSON Type is LINES. Child node: None Parent nodes: CSV (input) and JSON (input)

Element	Type	Description
KeepAllColumns	Bool	(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: `select _5 , _1 from ossobject .` 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: Value of 1st column,,,,Value of 5th column,\n Child node: None Parent node: OutputSerialization (CSV)
EnablePayloadCrc	Bool	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. Child node: None Parent node: OutputSerialization
Options	Container	Specifies other optional parameters. Child node: SkipPartialDataRecord and MaxSkippedRecordsAllowed Parent node: SelectRequest
OutputHeader	Bool	Indicates that the header information about the CSV file is included in the beginning of the returned result. Default value: false Child node: None Parent node: OutputSerialization

Element	Type	Description
SkipPartialDataRecord	Bool	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. Default value: false Child node: None Parent node: Options
MaxSkippedRecordsAllowed	Integer	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. Note: 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. Default value: 0 Child node: None Parent node: Options

Element	Type	Description
ParseJsonNumberAsString	Bool	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. 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. Default value: false Child node: None Parent node: JSON

- 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 SelectObject 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------>	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. 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.

- Error messages

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

  ```
  ErrorCodes . DetailMess  age
  ```

  The ErrorCodes part includes a single ErrorCode or multiple ErrorCodes separated by commas. The ErrorCodes and DetailMessage part are sepearated 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 :
     Authorizat  ion :  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 "?>
    < SelectRequ  est >
     < Expression > c2VsZWN0IG  NvdW50KCop  IGZyb20gb3  Nzb2JqZWN0
     IHdoZXJlIF  80ID4gNDU =
     </ Expression >
     < InputSeria  lization >
      < Compressio  n > None </ Compressio  n >
      < CSV >
       < FileHeader  Info > Ignore </ FileHeader  Info >
       < RecordDeli  miter > Cg ==</ RecordDeli  miter >
       < FieldDelim  iter > LA ==</ FieldDelim  iter >
       < QuoteChara  cter > Ig ==</ QuoteChara  cter >
       < CommentCha  racter > Iw ==</ CommentCha  racter />
      </ CSV >
     </ InputSeria  lization >
     < OutputSeri  alization >
      < CSV >
       < RecordDeli  miter > Cg ==</ RecordDeli  miter >
       < FieldDelim  iter > LA ==</ FieldDelim  iter >
       < QuoteChara  cter > Ig ==</ QuoteChara  cter >
      </ CSV >
      < KeepAllCol  umns > false </ KeepAllCol  umns >
             < OutputRawD  ata > false </ OutputRawD  ata >
     </ OutputSeri  alization >
    </ SelectRequ  est >
    ```
  - Example request (JSON)

    ```
    POST  / oss - select / sample_jso  n . 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_lis  t   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 indicates 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 >
```

```
</ JsonMetaRe  quest >
```

- Request elements

Element	Type	Description
CsvMetaRequest	Container	Specifies the container that saves the Select csv Meta request. Child node: InputSerialization Parent node: None
JsonMetaRequest	Container	Specifies the container that saves the Select json Meta request. Child node: InputSerialization Parent node: None
InputSerialization	Container	(Optional) Specifies the input serialization parameters. Child 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. Child node: None Parent node: CsvMetaRequest and JsonMetaRequest
CompressionType	Enumeration	(Optional) Specifies the compression type of the object. Only None is supported currently. Child node: None Parent node: InputSerialization
RecordDelimiter	String	(Optional) Specifies the delimiter, which is base64-encoded and `\ n` by default. The value of this element before being encoded can be the ANSI value of two characters in maximum. For example, `\ n` is used to indicate a line break in Java code. Child node: None Parent node: CSV

Element	Type	Description
FieldDelimiter	String	(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 `,` by default. For example, `,` is used to indicate a comma in Java code. Child node: None Parent node: CSV (input and output)
QuoteCharacter	String	(Optional) Specifies the quote characters used in the CSV file. The value of this element is base64-encoded and is `\”` 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, `\”` is used to indicate a quote character in Java code. Child node: None Parent node: CSV (input)
CSV	Container	Specifies the format of the input CSV file. Child node: RecordDelimiter, FieldDelimiter, and QuoteCharacter Parent node: InputSerialization
JSON	Container	Specifies the format of the input JSON file. Child node: Type Parent node: InputSerialization
Type	Enumeration	Specifies the type of the input JSON file. Valid value: LINES

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>	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. cols_count: A 4-bit integer that indicates the total number of columns. 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.

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 :
 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 "?>
< 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
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

Format	Description
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
ISO8601-0	year-month-day T hour:minute+hour :minute, or year-month-day T hour: minute-hour:minute "+" 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 "+".

Format	Description
ISO8601-1	year-month-day T hour:minute+hour :minute, or year-month-day T hour: minute-hour:minute "+" 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.
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
InvalidSqlParameter	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
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

ErrorCode	Description	HTTP status code	Http status code in end frame
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
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 `line - range =` or `split - range =`, 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

ErrorCode	Description	HTTP status code	Http status code in end frame
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
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

ErrorCode	Description	HTTP status code	Http status code in end frame
SqlInvalid LimitValue	Indicates that the number after the Limit statement is smaller than 1.	400	None
SqlExceeds MaxWildCardCount	Indicates that the number of wildcards ("*" or "%") exceeds the limit in the LIKE statement.	400	None
SqlExceeds MaxConditi onCount	Indicates that the number of conditiona l expressions in the Where statement exceeds the limit.	400	None
SqlExceeds MaxConditi onDepth	Indicates that the depth of the conditiona l tree in the Where statement exceeds the limit.	400	None
SqlOneColu mnCastToDi fferentTypes	Indicates that a column is casted to different types in the SQL statement.	400	None
SqlOperati onAppliedT oDifferentTypes	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 `_col1 > 3` is a string.	400	None
SqlInvalid ColumnName	Indicates that a column name used in the SQL statement is not included in the header of the CSV file.	400	None
SqlNotSupp ortedTimes tampFormat	Indicates that the timestamp format specified in the CAST statement is not supported.	400	None
SqlNotMatc hTimestampFormat	Indicates that the timestamp format specified in the CAST statement does not match the timestamp string.	400	None
SqlInvalid TimestampValue	Indicates that no timestamp format is specified in the CAST statement and the provided timestamp string cannot be casted into a timestamp.	400	None

ErrorCode	Description	HTTP status code	Http status code in end frame
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
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

ErrorCode	Description	HTTP status code	Http status code in end frame
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
SqlComparerOperandTypeMismatch	Indicates that the SQL statement compares two objects of different types.	400	None
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

ErrorCode	Description	HTTP status code	Http status code in end frame
ExceedsMaxNestedColumnDepth	Indicates that the nested levels of the JSON file in the SQL statement exceeds the limit.	400	None
NestedColumnNotSupportInCsv	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
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: `select s . a . b [*] from ossobject where a . c [*] > 0` .	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 LiveChannel-related operations

7.1 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.

7.2 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 valued 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 : /BucketName/ChannelName

Parameter	Description
`Canonicali zedParams`	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.

7.3 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/1.1Date: GMT dateHost: BucketName.oss-cn-hangzhou.aliyuncs.comAuthorization: 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 LivaChannel, 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
 Authorizat  ion :  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
```

7.4 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  / ChannelNam  e ? live   HTTP / 1 . 1
 Host :  BucketName . oss - cn - hangzhou . aliyuncs . com
 Date :  GMT   date
 Content - Length :  Size
 Authorizat  ion :  SignatureV  alue
<? xml   version =" 1 . 0 "  encoding =" UTF - 8 "?>
< LiveChanne  lConfigura  tion >
  < Descriptio  n > ChannelDes  cription </ Descriptio  n >
  < Status > ChannelSta  tus </ Status >
  < Target >
     < Type > HLS </ Type >
     < FragDurati  on > FragDurati  on </ FragDurati  on >
     < FragCount > FragCount </ FragCount >
     < PlaylistNa  me > PlaylistNa  me </ PlaylistNa  me >
  </ Target >
  < Snapshot >
    < RoleName > Snapshot   ram   role </ RoleName >
    < DestBucket > Snapshot   dest   bucket </ DestBucket >
    < NotifyTopi  c > Notify   topic   of   MNS </ NotifyTopi  c >
    < Interval > Snapshot   interval   in   second </ Interval >
  </ Snapshot >
</ 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
`Type`	Enumerated string	Specifies the format that the uploaded data is stored as. Sub-node: None Parent node: Target Valid value: `HLS`	Yes

Element	Type	Description	Required
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
Snapshot	Container	Specifies the container used to store the Snapshot (high-frequent snapshot operation) options. Sub-node: RoleName, DestBucket, NotifyTopic, Interval, and PornRec Parent node: Snapshot	No
RoleName	String	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. Sub-node: None Parent node: Snapshot	No

Element	Type	Description	Required
`DestBucket`	String	Specifies the bucket where the snapshots are stored. The DestBucket and the current bucket must be owned by the same user. Sub-node: None Parent node: Snapshot	No
`NotifyTopic`	String	Specifies the topic of the MNS used to notify the user of the result of high-frequent snapshot operations. Sub-node: None Parent node: Snapshot	No
`Interval`	Numeric	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. Sub-node: None Parent node: Snapshot Value range: [1, 100]	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 with in a time peroid (calculated by max(2*FragDuration, 60s)), a new ts file is generated, which results lag in audio or video playing.

Response element

Element	Type	Description
`CreateLiveChannelResult`	Container	Specifies the container used to store the response fo the CreateLiveChannel request. Sub-nodes: PublishUrls and PlayUrls Parent node: None
`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
Authorizat  ion :  OSS   YJjHKOKWDW  INLKXv : hvwOZJRh8t  oAj3DZvtsu
Pgf + agA =
<? xml   version =" 1 . 0 "  encoding =" utf - 8 "?>
< LiveChanne  lConfigura  tion >
    < Descriptio  n />
    < Status > enabled </ Status >
    < Target >
        < Type > HLS </ Type >
        < FragDurati  on > 2 </ FragDurati  on >
        < FragCount > 3 </ FragCount >
    </ Target >
    < Snapshot >
        < RoleName > role_for_s  napshot </ RoleName >
        < DestBucket > snapshotde  st </ DestBucket >
        < NotifyTopi  c > snapshotno  tify </ NotifyTopi  c >
        < Interval > 1 </ Interval >
     </ Snapshot >
</ LiveChanne  lConfigura  tion >
```

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 :  applicatio  n / xml
<? xml   version =" 1 . 0 "  encoding =" UTF - 8 "?>
< CreateLive  ChannelRes  ult >
  < PublishUrl  s >
    < Url > rtmp :// test - bucket . oss - cn - hangzhou . aliyuncs .
 com / live / test - channel </ Url >
  </ PublishUrl  s >
  < PlayUrls >
    < Url > http :// test - bucket . oss - cn - hangzhou . aliyuncs .
 com / test - channel / playlist . m3u8 </ Url >
  </ PlayUrls >
</ CreateLive  ChannelRes  ult >
```

7.5 GetVodPlaylist

Queries for the playlist generated by the streams pushed to a specified LiveChannel in a specified time period.

Request syntax

```
 GET  / ChannelNam  e ? 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

ChannelNam e	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. Note: 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 - TARGETDURA  TION : 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 ,
 1543895706468.ts
#EXTINF:5.960,
 1543895706538.ts
#EXTINF:6.520,
 1543895706561.ts
#EXT-X-ENDLIST
```

7.6 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
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
Authorizat  ion :  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
```

7.7 GetLiveChannelStat

Obtains the stream pushing status of a specified LiveChannel.

Request syntax

```
GET  / ChannelNam  e ? live & comp = stat   HTTP / 1 . 1
Date :  GMT   date
Host :  BucketName . oss - cn - hangzhou . aliyuncs . com
Authorizat  ion :  SignatureV  alue
```

Response element

Element	Type	Description
LiveChanne lStat	Container	Specifies the container used to store the response to the GetLiveChannelStat request. Sub-node: Status, ConnectedTime, Video, and Audio Parent node: None

Element	Type	Description
`Status`	Enumerated string	Indicates the current stream pushing status of the LiveChannel. Sub-node: None Parent node: LiveChannelStat Valid value: `Disabled` , `Live` , and `Idle`
`Connnected Time`	String	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. Sub-node: None Parent node: LiveChannelStat
`RemoteAddr`	String	If the value of Status is Live, this parameter indicates the IP address of the current client that pushes streams. Sub-node: None Parent node: LiveChannelStat
`Video`	Container	If the value of Status is Live, this parameter specifies the container that stores the infomration about the video stream. Sub-node: Width, Heigth, FrameRate, Bandwidth, and Codec Parent node: LiveChannelStat
`Width`	String	Indicates the width (in pixels) of the current video stream. Sub-node: None Parent node: Video

Element	Type	Description
`Height`	String	Indicates the height (in pixels) of the current video stream Sub-node: None Parent node: Video
`FrameRate`	String	Indicates the frame rate of the current video stream. Sub-node: None Parent node: Video
`Bandwidth`	String	Indicates the bit rate (bit/s) of the current video stream. Sub-node: None Parent node: Video
`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

Element	Type	Description
`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 exampe 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
 Authorizat  ion :  OSS   YJjHKOKWDW  INLKXv : fOzwkAgVTV  SO1VKLPIIn
 Q0JYyOA =
```

Response exmample 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 :  applicatio  n / xml
<? xml   version =" 1 . 0 "  encoding =" UTF - 8 "?>
< LiveChanne  lStat >
  < Status > Idle </ Status >
</ LiveChanne  lStat >
```

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
 Authorizat  ion :  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 :  applicatio  n / xml
<? xml   version =" 1 . 0 "  encoding =" UTF - 8 "?>
< LiveChanne  lStat >
  < Status > Live </ Status >
  < ConnectedT  ime > 2016 - 08 - 25T06 : 25 : 15 . 000Z </
 ConnectedT  ime >
  < 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 >
</ LiveChanne  lStat >
```

7.8 GetLiveChannelInfo

Obtains the configuration information about a specified LiveChannel.

Request syntax

```
 GET  / ChannelNam  e ? live   HTTP / 1 . 1
 Date :  GMT   date
 Host :  BucketName . oss - cn - hangzhou . aliyuncs . com
 Authorizat  ion :  SignatureV  alue
```

Response element

Element	Type	Description
LiveChanne lConfigura tion	Container	Specifies the container that stores the response to the GetLiveChannelInfo request. Sub-node: Description, Status, and Target Parent node: None

Element	Type	Description
`Description`	String	Specifies the description of the LiveChannel. Sub-node: None Parent node: LiveChannelConfiguration
`Status`	Enumerated string	Indicates the status of the LiveChannel. Sub-node: None Parent node: LiveChannelConfiguration Valid value: `enabled` and `disabled`
`Target`	Container	Specifies the container used to store the settings for storing uploaded data. Sub-node: Type, FragDuration, FragCount, and PlaylistName Parent node: LiveChannelConfiguration
`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

Element	Type	Description
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 YJjHKOKWDWINLKXv:D6bDCRXKht58hin1BL83
wxyGvl0=
```

Response example

```
HTTP/1.1 200
content-length: 475
server: AliyunOSS
connection: close
x-oss-request-id: 57BE87A8B92475920B002098
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>
```

7.9 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
```

```
Authorizat ion : SignatureV alue
```

Response element

Element	Type	Description
`LiveChannelHistory`	Container	\Specifies the container that stores the response to the GetLiveChannelHistory request. Sub-node: LiveRecord Parent node: None
`LiveRecord`	Container	Specifies the container that stores a stream pushing record. Sub-node: StartTime, EndTime, and RemoteAddr Parent node: LiveChannelHistory
`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
Authorizat  ion :  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 :  applicatio  n / xml
<? xml   version =" 1 . 0 "  encoding =" UTF - 8 "?>
< LiveChanne  lHistory >
  < 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 >
</ LiveChanne  lHistory >
```

7.10 ListLiveChannel

Lists specified LiveChannels.

Request syntax

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

```
Authorization : SignatureValue
```

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
`Prefix`	String	Specifies the prefix of the query result. Sub-node: None Parent node: ListLiveChannelResult

Element	Type	Description
`Marker`	String	Indicates that the LiveChannels after the marker in alphabetical order are returned. Sub-node: None Parent node: ListLiveChannelResult
`MaxKeys`	String	Specifies the maximum number of returned LiveChannels in the response. Sub-node: None Parent node: ListLiveChannelResult
`IsTruncated`	String	Indicates whether all results are returned. The value `true` indicates that not all results are returned, and value `false` indicates that all results are returned. Sub-node: None Parent node: ListLiveChannelResult
`NextMarker`	String	If not all results are returned, this element is included in the response to indicates the value of Marker for the next request. Sub-node: None Parent node: ListLiveChannelResult

Element	Type	Description
LiveChannel	Container	Specifies the container that stores the information about a returned LiveChannel. Sub-node: Name, Description, Status, LastModified, PublishUrls, and PlayUrls Parent node: ListLiveChannelResult
Name	String	Indicates the name of the returned LiveChannel. Sub-node: None Parent node: LiveChannel
Description	String	Specifies the description of the returned LiveChannel. Sub-node: None Parent node: LiveChannel
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

Element	Type	Description
`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
`Url`	String	Specifies the URL used to play the stream pushed to the LiveChannel. Sub-node: None Parent node: PlayUrls

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
 Authorizat  ion :  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 >
  </ LiveChanne  l >
```

7.11 DeleteLiveChannel

Deletes the specified LiveChannel.

Request syntax

```
DELETE  / ChannelNam  e ? live   HTTP / 1 . 1
Date :  GMT   date
Host :  BucketName . oss - cn - hangzhou . aliyuncs . com
Authorizat  ion :  SignatureV  alue
```

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
Authorizat  ion :  OSS   YJjHKOKWDW  INLKXv : ZbfvQ3XwmY  EE8O9CX8kw
VQYNbzQ =
```

Response example

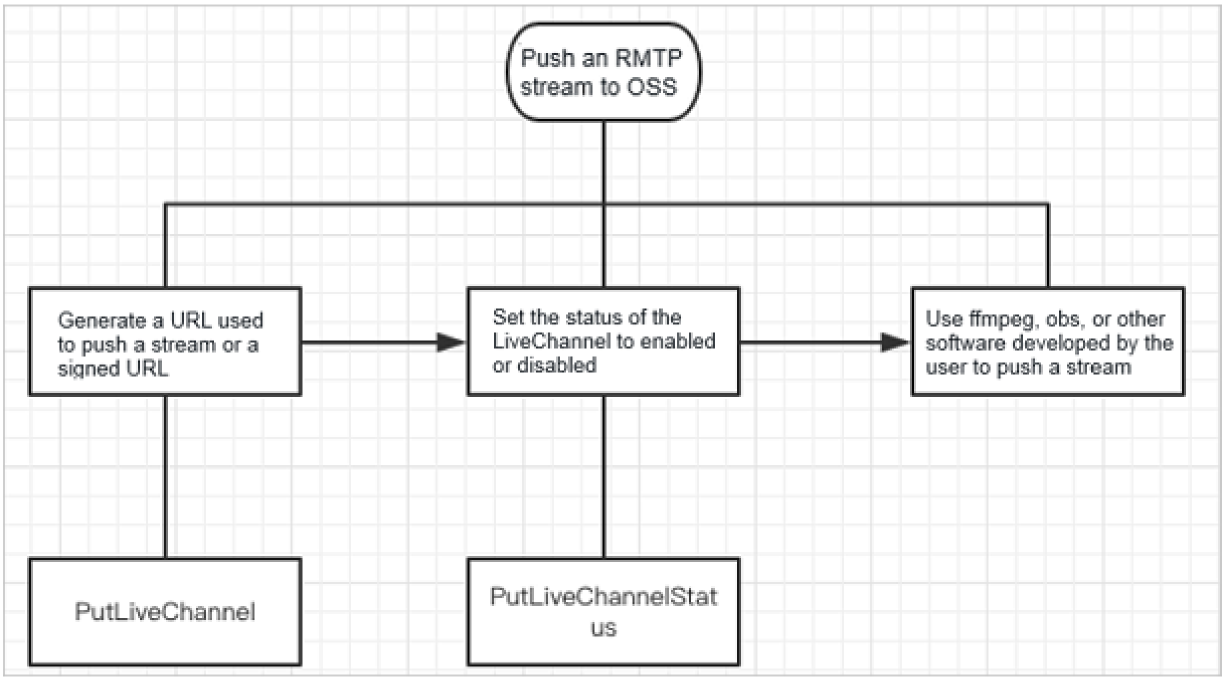
```
HTTP / 1 . 1   204
content - length :  0
server :  AliyunOSS
connection :  close
x - oss - request - id :  57BE9F0AB9  2475920B00  23E0
date :  Thu ,  25   Aug   2016   07 : 32 : 26   GMT
```

7.12 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.


Push an RMTP stream to OSS
Generate a URL used to push a stream or a signed URL
Set the status of the LiveChannel to enabled or disabled
Use ffmpeg, obs, or other software developed by the user to push a stream
PutLiveChannel
PutLiveChannelStatus

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 `PostVodPla ylist` 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 & OSSAccessK  eyId =
LTAlujianb  6C9z & Signature = qwh31xQsan  mao6ygCFJg  ovNIg % 3D &
playlistNa  me = 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=LTAlujianb6C9z&Signature=qwh31xQsanmao6ygCFJgovNIg%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 `FragDurati on`, OSS generates a new `ts` file when receiving the next key frame. If OSS does not receive the next key frame with in a time period (calculated by `max ( 2 * FragDurati on , 60s )`), a new ts file is generated, which results 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.