

Alibaba Cloud

Object Storage Service Quick Start

Document Version: 20211217

Legal disclaimer

Alibaba Cloud reminds you to carefully read and fully understand the terms and conditions of this legal disclaimer before you read or use this document. If you have read or used this document, it shall be deemed as your total acceptance of this legal disclaimer.

1. You shall download and obtain this document from the Alibaba Cloud website or other Alibaba Cloud-authorized channels, and use this document for your own legal business activities only. The content of this document is considered confidential information of Alibaba Cloud. You shall strictly abide by the confidentiality obligations. No part of this document shall be disclosed or provided to any third party for use without the prior written consent of Alibaba Cloud.
2. No part of this document shall be excerpted, translated, reproduced, transmitted, or disseminated by any organization, company or individual in any form or by any means without the prior written consent of Alibaba Cloud.
3. The content of this document may be changed because of product version upgrade, adjustment, or other reasons. Alibaba Cloud reserves the right to modify the content of this document without notice and an updated version of this document will be released through Alibaba Cloud-authorized channels from time to time. You should pay attention to the version changes of this document as they occur and download and obtain the most up-to-date version of this document from Alibaba Cloud-authorized channels.
4. This document serves only as a reference guide for your use of Alibaba Cloud products and services. Alibaba Cloud provides this document based on the "status quo", "being defective", and "existing functions" of its products and services. Alibaba Cloud makes every effort to provide relevant operational guidance based on existing technologies. However, Alibaba Cloud hereby makes a clear statement that it in no way guarantees the accuracy, integrity, applicability, and reliability of the content of this document, either explicitly or implicitly. Alibaba Cloud shall not take legal responsibility for any errors or lost profits incurred by any organization, company, or individual arising from download, use, or trust in this document. Alibaba Cloud shall not, under any circumstances, take responsibility for any indirect, consequential, punitive, contingent, special, or punitive damages, including lost profits arising from the use or trust in this document (even if Alibaba Cloud has been notified of the possibility of such a loss).
5. By law, all the contents in Alibaba Cloud documents, including but not limited to pictures, architecture design, page layout, and text description, are intellectual property of Alibaba Cloud and/or its affiliates. This intellectual property includes, but is not limited to, trademark rights, patent rights, copyrights, and trade secrets. No part of this document shall be used, modified, reproduced, publicly transmitted, changed, disseminated, distributed, or published without the prior written consent of Alibaba Cloud and/or its affiliates. The names owned by Alibaba Cloud shall not be used, published, or reproduced for marketing, advertising, promotion, or other purposes without the prior written consent of Alibaba Cloud. The names owned by Alibaba Cloud include, but are not limited to, "Alibaba Cloud", "Aliyun", "HiChina", and other brands of Alibaba Cloud and/or its affiliates, which appear separately or in combination, as well as the auxiliary signs and patterns of the preceding brands, or anything similar to the company names, trade names, trademarks, product or service names, domain names, patterns, logos, marks, signs, or special descriptions that third parties identify as Alibaba Cloud and/or its affiliates.
6. Please directly contact Alibaba Cloud for any errors of this document.

Document conventions

Style	Description	Example
 Danger	A danger notice 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.
 Warning	A warning notice 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 restart an instance.
 Notice	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	 Notice: If the weight is set to 0, the server no longer receives new requests.
 Note	A note indicates supplemental instructions, best practices, tips, and other content.	 Note: You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click Settings > Network > Set network type .
Bold	Bold formatting is used for buttons, menus, page names, and other UI elements.	Click OK .
<code>Courier font</code>	Courier font is used for commands	Run the <code>cd /d C:/window</code> command to enter the Windows system folder.
<i>Italic</i>	Italic formatting is used for parameters and variables.	<code>bae log list --instanceid</code> <i>Instance_ID</i>
[] or [a b]	This format is used for an optional value, where only one item can be selected.	<code>ipconfig [-all -t]</code>
{ } or {a b}	This format is used for a required value, where only one item can be selected.	<code>switch {active stand}</code>

Table of Contents

1. Get started with OSS	05
2. OSS console	06
2.1. Operations in the OSS console	06
2.2. Create buckets	06
2.3. Upload objects	08
2.4. Download objects	10
2.5. Share objects	11
2.6. Use a custom domain name to access OSS resources	13
3. ossutil	15
4. ossbrowser	18
5. OSS SDK for Java	20
6. Advanced usage	24

1. Get started with OSS

Alibaba Cloud Object Storage Service (OSS) provides you with network-based data storage and access services. OSS enables you to store and retrieve a variety of objects, such as text, images, audio files, and videos over networks anytime.

Use the OSS console

You can create a bucket and upload objects to the bucket in the OSS console. After you upload objects to a bucket, you can download the objects to local disks or generate signed URLs to share the objects with third parties for downloads or previews. For more information, see [Operations in the OSS console](#).

Use ossutil

ossutil is a tool that allows you to use command lines to manage OSS data and supports the following operating systems: Windows, Linux, and macOS. ossutil provides simple commands for OSS users to efficiently manage buckets and objects. For more information, see [ossutil](#).

Use ossbrowser

ossbrowser is a graphical object management tool of OSS. This tool supports Windows, Linux, and macOS. You can use ossbrowser to manage buckets, upload and download objects and directories, and grant permissions to users based on policies in the GUI. For more information, see [ossbrowser](#).

ossbrowser is a graphical desktop tool whose transmission speeds and performance are not as good as those of ossutil.

Use API operations and SDKs

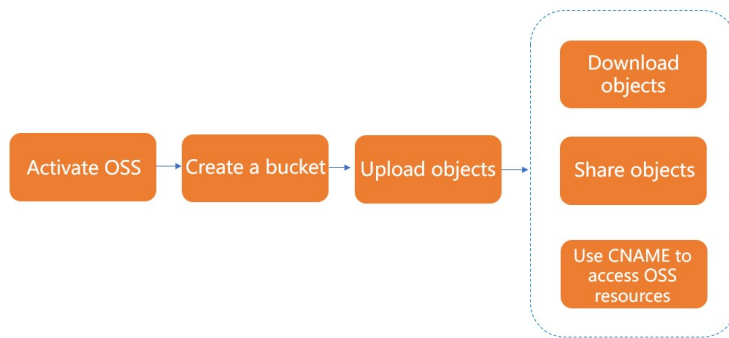
OSS provides API operations and SDK packages in a variety of programming languages such as Java, Python, PHP, and Go to facilitate secondary development. For demos of OSS SDKs for a variety of programming languages, see [Overview](#). For more information about the OSS API operations, see [Description](#).

2.OSS console

2.1. Operations in the OSS console

You can perform basic operations in the Object Storage Service (OSS) console, such as creating buckets, uploading objects, and downloading objects.

The following figure shows how to use the OSS console.



1. [Activate OSS](#)
2. [Create buckets](#)
3. [Upload objects](#)

After objects are uploaded to the specified bucket, you can perform the following operations:

- Download the objects to local disks. For more information, see [Download objects](#).
- Generate signed URLs for the objects to share the objects with third parties for downloads or previews. For more information, see [Share objects](#).
- Map custom domain names to the bucket in which the objects are stored and use the custom domain names to access the objects. For more information, see [Use a custom domain name to access OSS resources](#).

2.2. Create buckets



A bucket is a container for objects stored in Object Storage Service (OSS). You must create a bucket before you upload an object to OSS. This topic describes how to create a bucket in the OSS console.

Prerequisites

OSS is activated. For more information, see [Activate OSS](#).

Procedure

1. Log on to the [OSS console](#).
2. In the left-side navigation pane, click **Buckets**. On the Buckets page, click **Create Bucket**.
3. In the **Create Bucket** panel, configure the required parameters described in the following table. You can keep the default settings for other parameters or configure the parameters after the bucket is created.

Parameter	Description
Bucket Name	<p>Set the name of the bucket. The name of a bucket cannot be changed after the bucket is created.</p> <p>The bucket name must comply with the following conventions:</p> <ul style="list-style-type: none"> ◦ The name of a bucket must be unique in OSS in an Alibaba Cloud account. ◦ The name can contain only lowercase letters, digits, and hyphens (-). ◦ The name must start and end with a lowercase letter or a digit. ◦ The name must be 3 to 63 characters in length.
Region	<p>Select the region where the bucket is located. The region of a bucket cannot be changed after the bucket is created.</p> <p>To access the bucket from an Elastic Compute Service (ECS) instance over the internal network, select the region in which the ECS instance is located. For more information, see OSS domain names.</p> <div>  Notice If the bucket that you want to create is located in a region in mainland China, you must complete real-name registration by submitting your information on the Real-name Registration page. </div>
Zone-redundant storage	<p>OSS provides zone-redundant storage (ZRS) to replicate user data across three zones within the same region. Even if one zone becomes unavailable, the data is still accessible.</p> <ul style="list-style-type: none"> ◦ Enable: If you enable ZRS for the bucket, objects in the bucket are stored by using ZRS. For example, if the storage class of the bucket is Standard, the objects in the bucket are Standard ZRS objects by default. For more information, see ZRS. <div>  Notice <ul style="list-style-type: none"> ■ ZRS is supported only in the regions described in . ■ You can enable ZRS for a bucket only when you create the bucket. ZRS cannot be disabled after you enable it for a bucket. Exercise caution when you enable this feature. </div> <ul style="list-style-type: none"> ◦ Disable: By default, ZRS is disabled for the bucket. If ZRS is disabled for a bucket to be created, objects in the bucket are stored by using locally redundant storage (LRS). For example, if the storage class of the bucket is Standard, the objects in the bucket are Standard LRS objects by default.

4. Click OK.

Other implementation methods

Operation	Implementation method
	ossutil

Operation	Implementation method
Create buckets	ossbrowser
	API operations
	Java SDK
	Python SDK
	Go SDK
	C++ SDK
	PHP SDK
	C SDK
	.NET
	Node.js
	Android
	iOS

What's next

[Upload objects](#)

2.3. Upload objects

You can upload objects up to 5 GB in size in the Object Storage Service (OSS) console.


Prerequisites

A bucket is created. For more information, see [Create buckets](#).

Procedure

1. Log on to the [OSS console](#).
2. In the left-side navigation pane, click **Buckets**. On the Buckets page, click the name of the bucket to which you want to upload objects.
3. In the left-side navigation pane, click the **Files** tab. On the page that appears, click **Upload**.
4. On the **Upload** page, configure the parameters described in the following table.

Parameter	Description
-----------	-------------

Parameter	Description
Upload To	<p>Set the directory to which you want to upload the objects.</p> <ul style="list-style-type: none"> ◦ Current: Objects are uploaded to the current directory. ◦ Specified: Objects are uploaded to a specified directory. You must enter the directory name. If the entered directory does not exist, OSS automatically creates the directory and uploads the objects to the directory.
File ACL	<p>Select the access control list (ACL) of the objects that you want to upload.</p> <ul style="list-style-type: none"> ◦ Inherited from Bucket: The ACL of the uploaded objects is the same as that of the bucket. ◦ Private: Only the object owner or authorized users of this bucket can read and write the objects to upload. Other users, including anonymous users, cannot access the objects without authorization. We recommend that you set the File ACL parameter to this value. ◦ Public Read: Only the owner or authorized users of this bucket can write the objects to upload. Other users, including anonymous users, can only read the objects. However, if you set the File ACL parameter to this value, the objects may be unexpectedly accessed, which results in out-of-control costs. ◦ Public Read/Write: All users, including anonymous users, can read and write the objects to upload. If you set the File ACL parameter to public read/write, the objects may be unexpectedly accessed, which results in out-of-control costs. If a user uploads prohibited data or information, your legitimate interests and rights may be infringed. Therefore, we recommend that you do not set the File ACL parameter to public read/write except in special cases. <p>For more information about object ACLs, see Object ACL.</p>
Files to Upload	<p>Select the files or directories that you want to upload.</p> <p>You can click Select Files to select a local file or click Select Folders to select a directory. You can also drag the required local file or directory to the Files to Upload section.</p> <p>If you select an unnecessary object, click Remove in the Actions column that corresponds to the object to remove the object.</p> <div>  Notice <ul style="list-style-type: none"> ◦ If one of the objects to upload has the same name as an existing object in the bucket, the existing object is overwritten. ◦ If you drag a directory to the Files to Upload section to upload it, the files and subdirectories in this directory are all uploaded to the bucket. ◦ Do not refresh or close the upload page when objects are being uploaded. Otherwise, the upload tasks are interrupted, and the list of upload tasks is cleared. </div>

5. Click **Upload**.

You can view the upload progress of each object in the **Upload Tasks** panel. After the objects are uploaded, you can view the names, sizes, and storage classes of the uploaded objects in the destination directory.

Other implementation methods

Operation	Implementation method
Upload objects	ossutil
	ossbrowser
	API operations
	Java SDK
	Python SDK
	Go SDK
	C++ SDK
	C SDK
	PHP SDK
	.NET SDK
	Node.js SDK
	Browser.js
	Android SDK
	iOS SDK

What's next

- You can download uploaded objects to the default download path of your browser or to a specified local path. For more information, see [Download objects](#).
- You can share the URLs of uploaded objects with third parties for downloads or previews. For more information, see [Share objects](#).
- After objects are uploaded to OSS, you can use upload callback to send a callback request to a specified application server. For more information, see [Upload callback](#).

2.4. Download objects

After you upload objects to a bucket, you can download the objects to the default download path of your browser or a specified local path. This topic describes how to download objects in the OSS console.

Prerequisites

Archive or Cold Archive objects are restored.

Procedure

1. Log on to the [OSS console](#).
2. In the left-side navigation pane, click **Buckets**. On the Buckets page, click the name of the bucket in which the object you want to download is stored.
3. In the left-side navigation pane, click **Files**. Then, download a single object or multiple objects.
 - Download a single object

Method 1: Choose **More > Download** in the Actions column that corresponds to the object that you want to download.

Method 2: Click the name of the object that you want to download, or click **View Details** in the Actions column that corresponds to the object you want to download. In the **View Details** panel, click **Download**.
 - Download multiple objects

Select the objects that you want to download. Then, choose **Batch Operation > Download**. You can batch download up to 100 objects in the OSS console.

Other implementation methods

Operation	Implementation method
Download objects	ossutil
	ossbrowser
	API operations
	OSS SDK for Java
	OSS SDK for Python
	OSS SDK for PHP
	OSS SDK for Go
	OSS SDK for C++
	OSS SDK for C
	OSS SDK for Node.js
	OSS SDK for Browser.js
	OSS SDK for Android
	OSS SDK for iOS

2.5. Share objects

After you upload objects to a bucket, you can share the URLs of the objects with third parties for downloads or previews. This topic describes how to share an object in the OSS console.

Procedure

1. Log on to the [OSS console](#).
2. In the left-side navigation pane, click **Buckets**. On the Buckets page, click the name of the bucket in which the object you want to share is stored.
3. In the left-side navigation pane, click **Files**. Then, click the name of the object that you want to share, or click **View Details** in the Actions column that corresponds to the object you want to share.
4. In the **View Details** panel, click **Copy File URL**.

If the access control list (ACL) of the object that you want to share is private, you must configure **Validity Period (Seconds)** during which the URL is valid. The default validity period of a URL is 3,600 seconds (one hour). The maximum validity period is 32,400 seconds (nine hours). To obtain a URL with a longer validity period, we recommend that you use [ossutil](#), [ossbrowser](#), or [OSS SDKs](#).

- Preview an object by using the object URL

To ensure that the object is previewed but not downloaded when third parties use the object URL that you share to access the object, you must map a custom domain name to your bucket and add a CNAME record. For more information, see [Use a custom domain name to access OSS resources](#).

- Download an object by using the object URL

To ensure that the object is downloaded when third parties use the object URL that you share to access the object, you must set the Content-Disposition field in the HTTP headers of the object to `attachment`. For more information, see [Configure object metadata](#).

Other implementation methods

Operation	Implementation method
Share objects	API operations
	OSS SDK for Java
	OSS SDK for Python
	OSS SDK for PHP
	OSS SDK for Go
	OSS SDK for C++
	OSS SDK for C
	OSS SDK for Node.js
	OSS SDK for Browser.js

2.6. Use a custom domain name to access OSS resources

After you upload objects to a bucket, Object Storage Service (OSS) automatically generates URLs that include the public endpoint of the bucket for the uploaded objects. You can use these URLs to access the objects. If you want to access the objects by using a custom domain name, you must map the custom domain name to the bucket in which the objects are stored.

Prerequisites

The ICP filing for the custom domain name that you want to map is complete. For more information, see [Alibaba Cloud ICP Filing System](#).


Procedure

1. Map a custom domain name to a bucket.
 - i. Log on to the [OSS console](#).
 - ii. In the left-side navigation pane, click **Buckets**. On the Buckets page, click the name of the bucket to which you want to map the custom domain name.
 - iii. In the left-side navigation pane, choose **Transmission > Domain Names**.
 - iv. Click **Bind Custom Domain Name**.
 - v. In the **Bind Custom Domain Name** panel, enter the domain name that you want to map in the **Custom Domain Name** field.

If a domain name conflict message appears, the domain name is already mapped to another bucket. To resolve this issue, you can use another domain name or verify the ownership of the domain name and forcibly map the domain name to the bucket. This operation removes the mapping between the domain name and the previous bucket. For more information, see [Verify the ownership of a domain name](#).

2. Add a CNAME record

- o If the domain name is managed by your Alibaba Cloud account, perform the following steps to automatically add a Canonical Name (CNAME) record.
 - a. In the **Bind Custom Domain Name** panel, turn on **Add CNAME Record Automatically**.

 **Notice** If the domain name has an existing CNAME record, the existing record is updated to the new CNAME record.

- b. Click **Submit**.
- o If the domain name is not managed by your Alibaba Cloud account, manually add a CNAME record.

If the domain name is not hosted by Alibaba Cloud, you must add a CNAME record to the Domain Name System (DNS) of your DNS provider.

The following example shows how to use Alibaba Cloud DNS to manually add a CNAME record for a domain name that does not belong to an Alibaba Cloud account:

- a. Log on to the [Alibaba Cloud DNS console](#).

- b. On the Manage DNS page, click **Configure** in the Actions column that corresponds to the domain name to which you want to add a CNAME record.
- c. On the DNS Settings page, click **Add Record**. In the Add Record dialog box, configure parameters listed in the following table.

Parameter	Description
Type	Select the type of the record. In this example, select CNAME .
Host	<p>Enter the host record based on the prefix of the domain name.</p> <ul style="list-style-type: none"> ■ To add a top-level domain such as <code>aliyun.com</code>, enter <code>@</code>. ■ To add a second-level domain, enter the prefix of the second-level domain. Example: If the domain is <code>help.aliyun.com</code>, enter <code>help</code>. ■ To map all second-level domains to the public endpoint of the bucket, enter <code>*</code>.
ISP Line	Select the ISP line used to resolve the domain name. To allow the system to select the optimal line, we recommend that you select Default .
Value	<p>Enter the public endpoint of the bucket. The public endpoint of a bucket is in the <code>BucketName.Endpoint</code> format. For example, the public endpoint of the China (Hangzhou) region is <code>oss-cn-hangzhou.aliyuncs.com</code>. If you create a bucket named <code>examplebucket</code> in the China (Hangzhou) region, the public endpoint of the bucket is <code>examplebucket.oss-cn-hangzhou.aliyuncs.com</code>.</p>
TTL	Select the update interval of the record. In this example, keep the default value.

- d. Click **OK**.

A new CNAME record takes effect immediately. A modified CNAME record requires up to 72 hours to take effect.

3. Use the custom domain name to access OSS resources

After you map a custom domain name to a bucket, the URLs of the objects in the bucket are in the following format: `https://YourDomainName/ObjectName`.

For example, you create a bucket named `examplebucket` in the China (Hangzhou) region, store an object named `exampleobject.jpg` in the bucket, and then map the domain name `example.com` to the bucket. In this case, you can access `exampleobject.jpg` by using the following URL: `https://example.com/exampleobject.jpg`.

3.ossutil

This topic describes how to use ossutil to create a bucket, upload a local file to the bucket, download an object to the local computer, and generate a signed URL to share an object with third parties for downloads or previews.

Prerequisites

ossutil is installed. For more information, see [Download and installation](#).

Usage notes

Each sample command line in this topic is based on the 64-bit Linux system. For other systems, replace **./ossutil64** of the command with the corresponding binary name. For example, for the 64-bit Windows system, replace **./ossutil64** with **ossutil64.exe**. The following table lists the binary names corresponding to each system.

System	Binary name
64-bit Linux	./ossutil64
32-bit Linux	./ossutil32
64-bit Windows	ossutil64.exe
32-bit Windows	ossutil32.exe
64-bit macOS	./ossutilmac64
32-bit macOS	./ossutilmac32
64-bit ARM	./ossutilarm64
32-bit ARM	./ossutilarm32

Create a bucket

- Command syntax

```
./ossutil64 mb oss://bucket
```

- Examples

You can run the following command to create a bucket named examplebucket:

```
./ossutil64 mb oss://examplebucket
```

If a similar result is displayed, the bucket named examplebucket is created.

```
0.668238(s) elapsed
```

For more information about how to create buckets, see [mb \(create buckets\)](#).

Upload objects

- Command syntax

```
./ossutil64 cp local_file oss://bucket
```

- Examples

- You can run the following command to upload an object named `examplefile.txt` to `examplebucket`:

```
./ossutil64 cp examplefile.txt oss://examplebucket
```

- You can upload an object named `examplefile.txt` to `examplebucket` and rename the object `exampleobject.txt`.

```
./ossutil64 cp examplefile.txt oss://examplebucket/exampleobject.txt
```

If a similar result is displayed, the object is uploaded to the bucket.

```
0.720812(s) elapsed
```

For more information about how to upload objects, see [Upload objects](#).

Download objects

- Command syntax

```
./ossutil64 cp cloud_url local_file
```

- Examples

You can run the following command to download an object named `examplefile.txt` from `examplebucket` to a local directory named `localfolder`:

```
./ossutil64 cp oss://examplebucket/examplefile.txt localfolder/
```

You can run the following command to download an object named `examplefile.txt` from `examplebucket` to a local directory named `localfolder` and rename the object `exampleobject.txt`:

```
./ossutil64 cp oss://examplebucket/examplefile.txt localfolder/exampleobject.txt
```

If a similar result is displayed, the object is downloaded to the specified local directory.

```
0.720812(s) elapsed
```

For more information about how to download objects, see [Download objects](#).

Generate a signed URL for an object

- Command syntax

```
./ossutil64 sign cloud_url [--timeout <value>]
```

- Examples

You can run the following command to generate a signed URL for the object `oss://examplebucket/exampleobject.txt` and set the validity period of the URL to 3,600 seconds:

```
./ossutil64 sign oss://examplebucket/exampleobject.txt --timeout 3600
```


If the following results are displayed, the signed URL is generated.

```
https://examplebucket.ss-cn-hangzhou.aliyuncs.com/exampleobject.txt?Expires=1608282224&OSSAccessKeyId=LTAI4G33piUmgRN1DXx9****&Signature=jo4%2FGykfuc1A4fvyvKRpRyymYH****  
0.368676(s) elapsed
```

For more information about how to generate signed URLs, see [sign \(generate signed object URLs\)](#).

4.ossbrowser

This topic describes how to use ossbrowser. ossbrowser is a graphical management tool developed by Alibaba Cloud. This tool provides features similar to Windows Explorer. You can use ossbrowser to manage your objects and buckets.


Prerequisites

ossbrowser is installed, and you are logged on to ossbrowser. For more information, see [Install and log on to ossbrowser](#).

Operations related to buckets and objects

ossbrowser supports the same operations related to buckets and objects as the Object Storage Service (OSS) console. You can follow the instructions of ossbrowser to manage your buckets and objects.

Operation	Description
Bucket-related operations	<ul style="list-style-type: none">• Create a bucket A bucket is a container for objects stored in OSS. Before you upload an object to OSS, you must create a bucket. For more information about how to specify the name, region, access control list (ACL), and storage class of a bucket when you create the bucket, see Create buckets.• Delete a bucket If you no longer need a bucket, you can delete it to avoid incurring unnecessary charges. For more information, see Delete buckets.

Operation	Description
Object-related operations	<p>ossbrowser supports operations such as upload, download, preview, move, and copy objects as well as generate object URLs. When you use ossbrowser to perform object-related operations, take note of the following items:</p> <ul style="list-style-type: none">• By default, ossbrowser uses multipart upload and resumable upload to upload objects. The object to upload cannot exceed 48.8 TB in size. If an upload is interrupted before the object is completely uploaded, the uploaded portion is stored as parts in an OSS bucket. To avoid unnecessary charges, we recommend that you use the following methods to delete these parts that you no longer need:<ul style="list-style-type: none">◦ Manually delete parts. For more information, see Manage parts.◦ Configure lifecycle rules to automatically delete parts. For more information, see Configure lifecycle rules. <div> Notice When the uploaded object has the same name as an existing object in the bucket, the existing object is overwritten.</div> <ul style="list-style-type: none">• The object that you can move or copy by using ossbrowser cannot exceed 5 GB in size. To move or copy objects that are larger than 5 GB, we recommend that you use ossutil.• After the object is uploaded to the bucket, you can share the object URL with third parties for downloads or previews. For more information, see Share objects. <p>For more information about other object-related operations, see OSS Console User Guide.</p>

5.OSS SDK for Java

This topic describes how to use OSS SDK for Java to perform routine operations, such as creating buckets, uploading objects, and downloading objects.

Prerequisites

OSS SDK for Java is installed. For more information, see [Installation](#).

Sample projects

OSS SDK for Java provides sample projects for Maven and Ant. You can compile and run the sample projects on local devices or develop your own applications based on the sample projects. For more information about how to compile and run a project, see README.md in the project directory.

- Sample project for Maven: [aliyun-oss-java-sdk-demo-mvn.zip](#)
- Sample project for Ant: [aliyun-oss-java-sdk-demo-ant.zip](#)

Create buckets

A bucket is a global namespace in OSS. A bucket is a container for objects stored in OSS. The following code provides an example on how to create a bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "https://oss-cn-hangzhou.aliyuncs.com";
// Security risks may arise if you use the AccessKey pair of an Alibaba Cloud account to log on to OSS because the account has permissions on all API operations. We recommend that you use your RAM user's credentials to call API operations or perform routine operations and maintenance. To create your RAM user, log on to the RAM console.
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Create a bucket.
ossClient.createBucket(bucketName);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

For more information about bucket naming conventions, see the "Naming conventions" section in [Terms](#). For more information about how to create a bucket, see [Create buckets](#).

For more information about endpoints, see [Regions and endpoints](#).

Upload objects

The following code provides an example on how to upload an object to OSS:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "https://oss-cn-hangzhou.aliyuncs.com";
// Security risks may arise if you use the AccessKey pair of an Alibaba Cloud account to log on to OSS because the account has permissions on all API operations. We recommend that you use your RAM user's credentials to call API operations or perform routine operations and maintenance. To create your RAM user, log on to the RAM console.
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// <yourObjectName> indicates the complete path of the object you want to upload to OSS, and must include the file extension of the object. Example: abc/efg/123.jpg.
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Upload the object to a specified bucket and save it with the specified object name.
String content = "Hello OSS";
ossClient.putObject(bucketName, objectName, new ByteArrayInputStream(content.getBytes()));
// Shut down the OSSClient instance.
ossClient.shutdown();
```

For more information about how to upload objects, see [Upload objects](#).

Download objects

The following code provides an example on how to download an object:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "https://oss-cn-hangzhou.aliyuncs.com";
// Security risks may arise if you use the AccessKey pair of an Alibaba Cloud account to log on to OSS because the account has permissions on all API operations. We recommend that you use your RAM user's credentials to call API operations or perform routine operations and maintenance. To create your RAM user, log on to the RAM console.
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// <yourObjectName> indicates the complete path of the object you want to download from OSS. The path must include the file extension of the object. For example, you can set <yourObjectName> to abc/efg/123.jpg.
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Use the ossClient.getObject method to obtain an OSSObject instance. The OSSObject instance contains the content and metadata of the object.
OSSObject ossObject = ossClient.getObject(bucketName, objectName);
// Use the ossObject.getObjectContent method to obtain an input stream of the object. Read the input stream to obtain the content of the object.
InputStream content = ossObject.getObjectContent();
if (content != null) {
    BufferedReader reader = new BufferedReader(new InputStreamReader(content));
    while (true) {
        String line = reader.readLine();
        if (line == null) break;
        System.out.println("\n" + line);
    }
    // You must close the connection after each use to prevent connection leaks. Otherwise, requests may be unable to establish connections and the program cannot run properly.
    content.close();
}
// Shut down the OSSClient.
ossClient.shutdown();
```

For more information about how to download objects, see [Download objects](#).

List objects

The following code provides an example on how to list objects in a specified bucket. By default, up to 100 objects are listed.

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "https://oss-cn-hangzhou.aliyuncs.com";
// Security risks may arise if you use the AccessKey pair of an Alibaba Cloud account to log on to OSS because the account has permissions on all API operations. We recommend that you use your RAM user's credentials to call API operations or perform routine operations and maintenance. To create your RAM user, log on to the RAM console.
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Use the ossClient.listObjects method to obtain an ObjectListing instance. The ObjectListing instance contains the response to the ListObject request.
ObjectListing objectListing = ossClient.listObjects(bucketName);
// Use the objectListing.getObjectSummaries method to obtain the descriptions of all objects.
for (OSSObjectSummary objectSummary : objectListing.getObjectSummaries()) {
    System.out.println(" - " + objectSummary.getKey() + "  " +
        "(size = " + objectSummary.getSize() + ")");
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

For more information about how to list objects, see [List objects](#).

Delete objects

For the complete code used to delete objects, visit [GitHub](#).

The following code provides an example on how to delete an object:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "https://oss-cn-hangzhou.aliyuncs.com";
// Security risks may arise if you use the AccessKey pair of an Alibaba Cloud account to log on to OSS because the account has permissions on all API operations. We recommend that you use your RAM user's credentials to call API operations or perform routine operations and maintenance. To create your RAM user, log on to the RAM console.
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// <yourObjectName> indicates the complete path of the object you want to delete, and must include the file extension of the object. Example: abc/efg/123.jpg.
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Delete an object.
ossClient.deleteObject(bucketName, objectName);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

For more information about how to delete objects, see [Delete objects](#).

6.Advanced usage

After you are familiar with basic Object Storage Service (OSS) operations such as uploading and downloading objects, you can use the advanced features provided by OSS.

The following table lists the common advanced features of OSS.

Feature	Description
Enable pay-by-requester	When pay-by-requester is enabled for a bucket, requesters pay the request and traffic fees that are incurred when the requesters access objects in the bucket. The bucket owner is still charged for the storage fees of the objects. You can enable pay-by-requester to share your data in OSS without having to pay for additional fees on your own.
Lifecycle rules	After you configure lifecycle rules for a bucket, OSS converts the storage class of objects in the bucket to Infrequent Access (IA), Archive, Cold Archive, or deletes expired objects and parts to save storage costs on a regular basis.
Static website hosting	Static websites are websites in which all web pages consist only of static content, including scripts such as JavaScript code running on the client. You can use the static website hosting feature to host your static website in an OSS bucket and use the endpoint of the bucket to access the website.
Versioning	OSS allows you to configure versioning for a bucket to protect objects stored in the bucket. After you enable versioning for a bucket, objects that are overwritten or deleted in the bucket are saved as previous versions. You can use versioning to recover a previous version of an object that is accidentally overwritten or deleted.
Access control	OSS provides you with the following access control methods to manage access to objects in buckets: bucket policies, access control list (ACL), Resource Access Management (RAM) policies, Security Token Service (STS)-based temporary access authorization, and hotlink protection. Bucket policies and ACLs are implemented based on resources. RAM policies are implemented based on users. Hotlink protection is implemented by configuring whitelists.
Data encryption	<p>Server-side encryption: When you upload an object to a bucket for which server-side encryption is enabled, OSS encrypts the object and stores the encrypted object. When you download the encrypted object from OSS, OSS automatically decrypts the object and returns the decrypted object to you. A header is added in the response to indicate that the object is encrypted on the OSS server.</p> <p>Client-side encryption: Before you upload an object to a bucket, the object is encryption on the local client.</p>

Feature	Description
Cross-region replication	Cross-region replication (CRR) provides automatic and asynchronous (near real-time) replication of objects across buckets in different OSS regions. Operations such as creating, overwriting, and deleting objects can be synchronized from a source bucket to a destination bucket. CRR can meet your requirements on geo-disaster recovery and data replication.