Alibaba Cloud

Data Online Migration
Migrate data from Amazon
Simple Storage Service
Inventory (AWS S3 Inventory)
to OSS

Document Version: 20220628

(-) Alibaba Cloud

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.

- You shall download and obtain this document from the Alibaba Cloud website or other Alibaba Cloudauthorized 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	
<u> Danger</u>	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.	
<u> </u>	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.		
Courier font	Courier font is used for commands	Run the cd /d C:/window command to enter the Windows system folder.	
<i>lt alic</i>	Italic formatting is used for parameters and variables.	bae log listinstanceid Instance_ID	
[] or [a b]	This format is used for an optional value, where only one item can be selected.	ipconfig [-all -t]	
{} or {a b}	This format is used for a required value, where only one item can be selected.	switch {active stand}	

Table of Contents

1.Background information	05
2.Preparations	06
3.Migrate data	09
4.Manage migration jobs	17
5.Regions and endpoints	19

1.Background information

This topic describes how to migrate data from Amazon Simple Storage Service (Amazon S3) to Alibaba Cloud Object Storage Service (OSS).

Alibaba Cloud Data Online Migration is a data channel between different storage services. You can use Data Online Migration to migrate data from third-party data stores to OSS or between OSS buckets.

When you use Data Online Migration, you need only to log onto the console, specify a source data address and a destination OSS data address, and then create a migration job. After the migration job starts, you can manage the job in the console. For example, you can view the progress and traffic information of the job. You can also generate a migration report to check the list of migrated files and the list of files that fail to be migrated.

Notice

- When you read data from the source data address during a migration job, a fee is incurred
 for the outbound Internet traffic. You are charged by the storage service provider of the
 source data address.
- By default, Data Online Migration does not support cross-border data migration. For
 example, you cannot migrate data from a bucket that is deployed in the China (Beijing)
 region to a bucket that is deployed in the US (Silicon Valley) region. Before you create a
 migration job to migrate data across borders, you must submit a ticket to apply for the
 permissions that are required for creating cross-border migration jobs. You must commit that
 your business is legitimate, data transit conforms to local rules and regulations, and your
 data does not contain illegal information.

This topic includes the following sub-topics:

- Preparations
- Migrate data
- Manage migration jobs

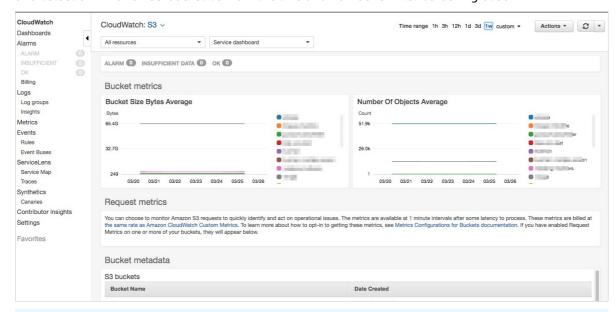
2.Preparations

This topic describes what you need to prepare before migration.

Amazon Simple Storage Service (S3)

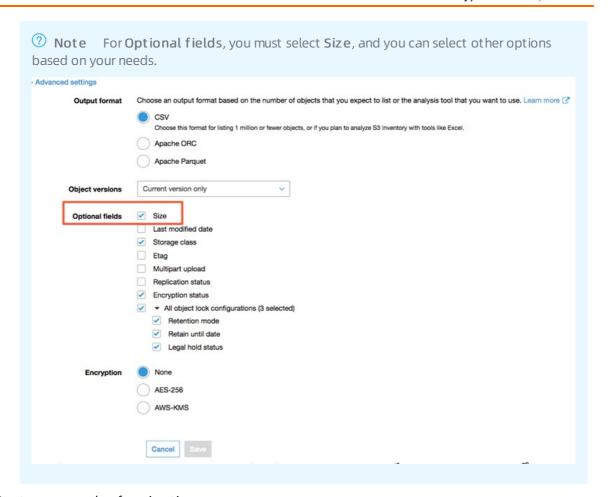
• Estimate the amount of data to be migrated.

Estimate the size and number of files to be migrated. Log on to the Amazon CloudWatch console, and select an Amazon S3 bucket to view the size and number of files to be migrated.



Note To ensure a successful migration, you must enter an appropriate size and number of files when creating a migration job.

- Create an AWS S3 inventory.
 - i. Click the bucket for which you want to create an AWS S3 inventory.
 - ii. Choose Management > Inventory, and click Add New.
 - iii. Follow the instructions on the page to create an AWS S3 inventory.



• Create an access key for migration.

On the IAM page in the AWS console, create a user, grant the user the permission, and then create an access key.

AmazonS3ReadOnlyAccess

Access keys are required for accessing the AWS S3 bucket and the AWS S3 inventory. You can use one account to create one access key for accessing both the AWS S3 bucket and the AWS S3 inventory. You can also use two different accounts to create two access keys separately.



AWS S3 whitelists are not supported by Data Transport. If a whitelist is configured, delete it or submit a ticket.

Alibaba Cloud Object Storage Service (OSS)

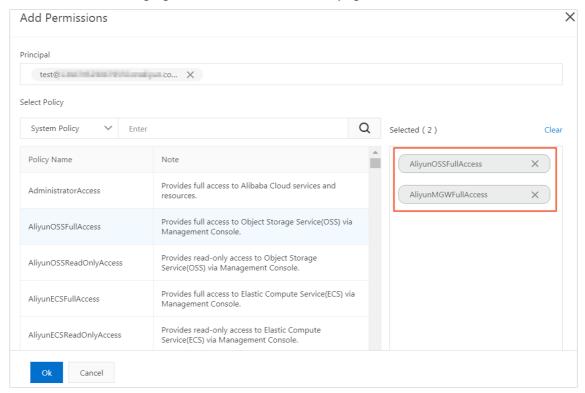
• Create an OSS bucket

Create a destination OSS bucket to store the migrated data. For more information, see Create a bucket.

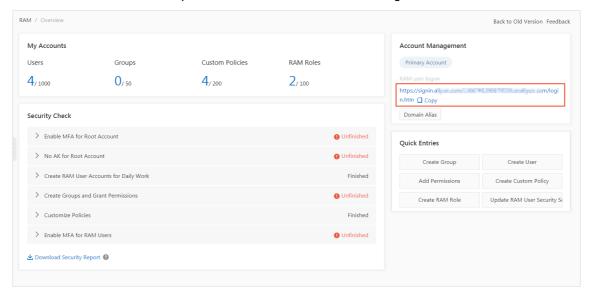
- Create and authorize a RAM user
 - i. Log on to the RAM console.
 - ii. Choose Identities > Users > Create User.
 - iii. Select Console Password Logon and Programmatic Access, and then enter the required

RAM user information.

- iv. Click OK to save the generated RAM username, password, AccessKey ID, and AccessKey Secret.
- v. Find the RAM user, and click **Add Permissions** to grant the OSS read/write permission (AliyunOSSFullAccess) and Data Transport management permission (AliyunMGWFullAccess) to the RAM user. The following figure shows the authorization page.



vi. In the left-side navigation pane, select **Overview**, click the link in the **RAM user logon** section, and enter the username and password of the new RAM user to log on to the console.



3. Migrate data

This topic describes how to migrate data by using Data Transport.

Usage notes

When you perform an online migration, take note of the following items:

- A migration job occupies the network resources of the source and destination data addresses. To ensure business continuity, we recommend that you specify a rate limit for your migration job or run your migration job during off-peak hours.
- Before an online migration job starts, the system checks the files at the source data address and the destination data address. If the source and destination have files with the same name, and the last modification time of the source file is later than the last modification time of the destination file, the destination file is overwritten. If both files are important and contain different information, we recommend that you change the name of one file or back up the destination file.
- Data Online Migration allows you to migrate only the data of a single bucket per job. You cannot migrate all data that belongs to your account at a time.

Step 1: Create a source data address

- 1. Log on to the Alibaba Cloud Data Transport console.
- 2. In the left-side navigation pane, choose **Data Online Migration > Data Address**. On the page that appears, click **Create Data Address**.
- 3. In the Create Data Address panel, configure the following parameters and click OK.

Parameter	Required	Description	
Data Type	Yes	Select AWS S3 Inventory.	
Data Name	Yes	Enter a name. The name must be 3 to 63 characters in length. Special characters are not supported, except for hyphens (-) and underscores (_).	
Endpoint	Yes	Enter the endpoint for accessing AWS Simple Storage Service (S3). For more information, see Regions and endpoints.	
Bucket	Yes	The name of the AWS S3 bucket. The bucket name cannot contain invalid characters, such as spaces, line breaks, and tab characters.	
Access Key Id	Yes		
Secret Access Key	Yes	Specify the key pair that is used to access the AWS S3 bucket. After the migration is complete, delete the key pair.	

Parameter	Required	Description	
Inventory Endpoint	Yes	Enter the endpoint for accessing AWS S3 Inventory. For more information, see Regions and endpoints.	
Inventory AccessKey Id	Yes	Specify the key pair that is used to access AWS S3 Inventory. After the migration is complete, delete the key pair.	
Inventory Secret AccessKey	Yes		
InventoryAddress	Yes	Enter the URL of the AWS S3 inventory lists, such as s3://{bucket}/{ObjectKey} . In this example, bucket indicates the name of the bucket where the inventory lists are located, and ObjectKey is the path of the manifest.json file.	

- 4. (Optional)If the system prompts that this feature is in public preview, click **Application** to apply to use this feature.
- 5. (Optional)Enter the required information and submit the application for the feature in public preview. After the application is approved, the system sends a text message to notify you.

Step 2: Create a destination data address

- 1. In the left-side navigation pane, choose **Data Online Migration > Data Address**. On the page that appears, click **Create Data Address**.
- 2. In the Create Data Address panel, configure the following parameters and click OK.

Parameter	Required	Description	
Data Type	Yes	Select OSS.	
Data Name	Yes	Enter a name. The name must be 3 to 63 characters in length. Special characters are not supported, except for hyphens (-) and underscores (_).	
Data Region	Yes	Select the region where the destination data address is located.	

Parameter	Required	Description	
Enable Transfer Acceleration	No	For Data Online Migration to use the transfer acceleration feature provided by Object Storage Service (OSS), you must enable the transfer acceleration feature for buckets. The transfer acceleration feature takes effect within 30 minutes after it is enabled. After you enable the feature, wait for 30 minutes before you create a migration job.	
		Notice If you use the transfer acceleration feature to access your OSS buckets, you are charged additional fees for transfer acceleration. For more information, see Transfer acceleration.	
		Select an endpoint in the region where your data is stored. For more information, see Regions and endpoints. http://oss-cn-endpoint.aliyuncs.com: indicates that you use an HTTP-based endpoint to access OSS over the Internet.	
OSS Endpoint	Yes	 https://oss-cn-endpoint.aliyuncs.com: indicates that you use an HTTPS-based endpoint to access OSS over the Internet. 	
		Note When you migrate data from third-party cloud services to OSS, you must access OSS from a public endpoint over the Internet.	
AccessKey Id	Yes	Specify the AccessKey pair that is used to migrate	
AccessKey Secret	Yes	data. For more information, see Preparations.	
OSS Bucket	Yes	Select a bucket to store the migrated data.	

Parameter	Required	Description
OSS Prefix No		An OSS prefix cannot start with a forward slash (/) but must end with a forward slash (/). For example, you can specify data/to/oss/ as the OSS prefix. Do not specify this parameter if you want to migrate data to the root directory of the specified bucket.
	No	Notice If the name of a source file starts with a forward slash (/), you must specify an OSS prefix when you configure the destination data address. If no OSS prefix is specified, the migration job fails. For example, if the name of a file that you want to migrate is /test/test.png, you must specify an OSS prefix, such as oss/. After the migration job is complete, the name of the file changes from /test/test.png to oss //test/test.png.

Step 3: Create a migration job

- 1. In the left-side navigation pane, choose **Data Online Migration > Migration Jobs**. On the page that appears, click **Create Job**.
- 2. In the Create Job panel, read the terms of the migration service and select I understand the above terms and conditions, and apply for opening data migration service. Then, click Next.
- 3. In the Fee Reminder dialog box, click Yes, Go Ahead.
- 4. In the Job Config step, configure the following parameters and click Next.

Parameter	Required	Description	
Job Name	Yes	Enter a job name. The name must be 3 to 63 characters in length and can contain only lowercase letters, digits, and hyphens (-). It cannot start or end with a hyphen (-).	
Source Data Address	Yes	Select the source data address that you created.	
Destination Data Address	Yes	Select the destination data address that you created.	

Parameter	Required	Description	
Migration Type	Yes	Full: The system runs a full migration job. After all data is migrated, a migration job ends. If the data at the source data address changes after the migration is complete, you can submit another job to migrate all data. In this case, the system migrates only the data that changes.	
		Notice Before you start a full migration job, the system compares files at the source data address with those at the destination data address. If a source file has the same name as a destination file, the destination file is overwritten when one of the following conditions is met:	
		 The Content-Type property values of the source file and the destination file are different. The last modification time of the 	
		source file is later than that of the destination file.	
		 The size of the source file is different from that of the destination file. 	

Parameter	Required	Description
		The method that is used to process the source file whose name is the same as a destination file. Valid values:
		 LastModified: If a source file has the same name as a destination file, the system compares the last modification time indicated by the LastModified property of the files.
		If the last modification time of the source file is later than that of the destination file, the source file is migrated and the destination file is overwritten.
		If the last modification time of the source file is earlier than that of the destination file, the source file is skipped during the migration.
	Yes	If the two files have the same last modification time, the system compares the Size and Content-Type property values of the files.
File Overwrite Method		If the files have the same property values, the source file is skipped in the migration. If the values of at least one property are different, the source file is migrated and the destination file is overwritten.
		 Condition: If a source file has the same name as a destination file, the system compares the values of the LastModified, Size, and Content- Type properties of the files.
		If all the property values are the same, the source file is skipped during the migration.
		If the values of at least one property are different, the source file is migrated and the destination file is overwritten.
		 All: If a source file has the same name as a destination file, the system performs no checks and directly overwrites the destination file with the source file.
		 No: If a source file has the same name as a destination file, the system performs no checks and directly skips the source file during the migration.

5. On the **Performance** tab, navigate to the **Data Prediction** section and configure the **Data Size** and **File Count** parameters.

- Note To ensure a successful migration, we recommend that you estimate the amount of data to be migrated as accurately as possible. For more information, see Estimate the amount of data to be migrated.
- 6. (Optional) On the **Performance** tab, navigate to the **Flow Control** section, specify the **Time Range** and **Max Flow(MB/s)** parameters, and then click **Add**.
 - Note To ensure business continuity, we recommend that you configure the Time Range and Max Flow parameters based on the traffic fluctuations.
- 7. Click Create and wait until the migration job is complete.

4. Manage migration jobs

This topic describes several subsequent operations that you can perform after you create a migration job.

View the status of a migration job

After you create a migration job, one of the following states is displayed for the job:

- Migrating: Data is being migrated. Wait until the migration job is completed.
- Create Failed: The migration job has failed to be created. You can view the cause of the failure and create another migration job.
- Finished: The migration job is completed. You can view the migration report.
- Failed: The migration job has failed. You can view the migration report and migrate the files that have failed to be migrated.

Modify the throttling settings

During migration, you can modify the throttling settings of a migration job based on your needs.

- 1. Log on to the Data Transport console.
- 2. Choose **Data Online Migration > Migration Jobs**. On the migration job list, find a migration job and click **Manage**.
- 3. Click **Stop** and verify that the job is stopped.
- 4. On the Flow Control Time Schedule chart, click Reset.
 - To add a throttling setting, select an appropriate time range and maximum flow and then click Add.
 - To delete a throttling setting, click in next to the throttling setting.
 - To modify a throttling setting, delete the current setting and then add a new throttling setting.
- 5. Click **Submit** and then click **Start** to rerun the migration job.

View a migration report

- 1. On the migration job list, find the migration job and click Manage.
- 2. Click **Generate Migration Report**. After a report is generated, click **Export** to export the migration report.

In a migration report, the following files appear in the File Lists section:

- The file whose name ends with total list. This file lists all files to be migrated.
- The file whose name ends with __completed_list . This file lists the files that have been migrated.
- The file whose name ends with __error_list . This file lists the files that have failed to be migrated.
- 3. In the Object Storage Service (OSS) console, find the automatically generated folder *aliyun_mgw_i mport_report/*. The folder includes the three files that appear in the migration report. You can download these files and view the detailed list that is included in each file. We recommend that you use the ossbrowser tool to view these files.

Each list consists of the following columns:

- The columns of the file whose name ends with _completed_list include the file name, the source version ID, and the destination version ID. The columns also display whether the job version is the latest at the source data address and whether the job version is deleted at the source data address. The last four columns display the file size (measured in bytes), CRC-64 checksum, time when the migration job was completed, and whether the migration was skipped.
 - ? Note Skip migration: indicates whether the file that has the same name at the source data address and the destination data address has been skipped during migration. Valid values: 1 and 0. The value 1 indicates that the file has been skipped during migration. The value 0 indicates that the file has not been skipped during migration. The value of this field depends on the value of the File Overwrite Method parameter that you specify when you create the migration job.
- The columns of the file whose name ends with _error_list include the file name, the source version ID, and the destination version ID. The columns also display whether the job version is the latest at the source data address and whether the job version is deleted at the source data address. The last three columns display the time when the migration job started, the time when the migration job ended, and the error description.
 - **Note** The following four fields apply only if multi-version migration is enabled:
 - Source version ID: the version ID of the file at the source data address.
 - Destination version ID: the version ID of the file at the destination data address.
 - Latest at source data address: indicates whether the current version is the latest version of the file at the source data address. Valid values: true and false.
 - Deleted at source data address: indicates whether the current version is deleted at the source data address. Valid values: true and false.

Rerun a failed migration job

If a migration job fails, you can check the generated file whose name ends with _error_list to identify the cause of the failure and resolve the issue. Then, on the migration job list, find the failed migration job, click Manage, and click Retry to migrate the failed files.

5. Regions and endpoints

The following table lists the regions and endpoints supported by Amazon Simple Storage Service (Amazon S3).

Region	Code	Endpoint	Protocol
US East (Ohio)	us-east-2	http://s3.us-east- 2.amazonaws.com http://s3-us-east- 2.amazonaws.com	HTTP/HTTPS
US East (N. Virginia)	us-east-1	http://s3.us-east- 1.amazonaws.com http://s3-us-east- 1.amazonaws.com	HTTP/HTTPS
US West (N. California)	us-west-1	http://s3.us-west- 1.amazonaws.com http://s3-us-west- 1.amazonaws.com	HTTP/HTTPS
US West (Oregon)	us-west-2	http://s3.us-west- 2.amazonaws.com http://s3-us-west- 2.amazonaws.com	HTTP/HTTPS
Canada (Central)	ca-central-1	http://s3.ca-central- 1.amazonaws.com http://s3-ca-central- 1.amazonaws.com	HTTP/HTTPS
Asia Pacific (Seoul)	ap-northeast-2	http://s3.ap-northeast- 2.amazonaws.com http://s3-ap- northeast- 2.amazonaws.com	HTTP/HTTPS
Asia Pacific (Osaka- Local)	ap-northeast-3	http://s3.ap-northeast- 3.amazonaws.com http://s3-ap- northeast- 3.amazonaws.com	HTTP/HTTPS

Region	Code	Endpoint	Protocol
Asia Pacific (Singapore)	ap-southeast-1	http://s3.ap- southeast- 1.amazonaws.com http://s3-ap- southeast- 1.amazonaws.com	HTTP/HTTPS
Asia Pacific (Sydney)	ap-southeast-2	http://s3.ap- southeast- 2.amazonaws.com http://s3-ap- southeast- 2.amazonaws.com	HTTP/HTTPS
Asia Pacific (Tokyo)	ap-northeast-1	http://s3.ap-northeast- 1.amazonaws.com http://s3-ap- northeast- 1.amazonaws.com	HTTP/HTTPS
China (Beijing)	cn-north-1	http://s3.cn-north- 1.amazonaws.com.cn	HTTP/HTTPS
China (Ningxia)	cn-northwest-1	http://s3.cn- northwest- 1.amazonaws.com.cn	HTTP/HTTPS
EU (Frankfurt)	eu-central-1	http://s3.eu-central- 1.amazonaws.com http://s3-eu-central- 1.amazonaws.com	HTTP/HTTPS
EU (Ireland)	eu-west-1	http://s3.eu-west- 1.amazonaws.com http://s3-eu-west- 1.amazonaws.com	HTTP/HTTPS
EU (London)	eu-west-2	http://s3.eu-west- 2.amazonaws.com http://s3-eu-west- 2.amazonaws.com	HTTP/HTTPS

> Document Version: 20220628

Region	Code	Endpoint	Protocol
EU (Paris)	eu-west-3	http://s3.eu-west- 3.amazonaws.com http://s3-eu-west- 3.amazonaws.com	HTTP/HTTPS
South America (São Paulo)	sa-east-1	http://s3.sa-east- 1.amazonaws.com http://s3-sa-east- 1.amazonaws.com	HTTP/HTTPS