

# Alibaba Cloud

Data Online Migration  
Migrate data between NAS file  
systems

Document Version: 20220610

# 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
 <b>Danger</b>	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 <b>Danger:</b> Resetting will result in the loss of user configuration data.
 <b>Warning</b>	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 <b>Warning:</b> Restarting will cause business interruption. About 10 minutes are required to restart an instance.
 <b>Notice</b>	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	 <b>Notice:</b> If the weight is set to 0, the server no longer receives new requests.
 <b>Note</b>	A note indicates supplemental instructions, best practices, tips, and other content.	 <b>Note:</b> You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click <b>Settings</b> > <b>Network</b> > <b>Set network type</b> .
<b>Bold</b>	Bold formatting is used for buttons, menus, page names, and other UI elements.	Click <b>OK</b> .
<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. Background information .....	05
2. Prepare for data migration .....	06
3. Manage migration jobs .....	08

# 1. Background information

This topic describes how to migrate data between Network Attached Storage (NAS) file systems.

Alibaba Cloud Data Transport is used as a data channel between various data stores. With Data Transport, you can migrate data between NAS file systems.

With Data Transport, you only need to log on to the console, specify a data source address and a destination OSS endpoint, and then create a migration job. After starting a migration job, you can perform management tasks for the job such as viewing the progress and status of the job. Additionally, you can view the list of successful migration files and the list of failed migration files.

This guide includes the following topics:

- [Prerequisites](#)
- [Create a migration job](#)
- [Manage migration jobs](#)

## 2. Prepare for data migration

If you want to migrate data between Apsara File Storage NAS file systems, Data Online Migration needs to have access to the source and destination NAS file systems. Make sure that the source and destination NAS file systems can be accessed in the same virtual private cloud (VPC).

### Precautions

If the source and destination NAS file systems belong to different Alibaba Cloud accounts, we recommend that you log on to the [Data Transport console](#) by using the account that owns the source NAS file system.

### Preparations for NAS file systems that do not reside in VPCs

If the source and destination NAS file systems do not reside in Alibaba Cloud VPCs, mount the two file systems to a VPC. This way, the two file systems can be accessed within the same VPC.

- Apsara File Storage NAS
  - Mount the source and destination NAS file systems to a VPC. For more information, see [Usage notes](#).
  - If you have configured permission groups for the source and destination NAS file systems, you must configure the NAS file systems to allow access from all IP addresses in the VPC. For more information, see [Manage a permission group](#).
- Third-party NAS services
  - You can use one of the following methods to mount the source and destination NAS file systems to a VPC:
    - Mount the NAS file systems to the VPC by using the Express Connect circuit. For more information, contact Alibaba Cloud technical support.
    - Mount the NAS file systems to the VPC over the VPN network.
  - If you have configured permission groups for the source and destination NAS file systems, you must configure the NAS file systems to allow access from all IP addresses in the VPC.


### Preparations for NAS file systems that reside in the same VPC

If the source and destination NAS file systems already reside in the same VPC, communication between the file systems is enabled by default. If you have configured permission groups for the source and destination NAS file systems, you must configure the NAS file systems to allow access from all IP addresses in the VPC.

### Preparations for NAS file systems that reside in different VPCs

- If two NAS file systems reside in different VPCs, you must connect these VPCs by using Cloud Enterprise Network (CEN).
  - If the source and destination NAS file systems reside in different VPCs that belong to the same account and region, you can use CEN to connect these VPCs. For more information, see [Connect network instances created by the same account and in the same region](#).
  - If the source and destination NAS file systems reside in different VPCs that belong to the same account but different regions, you can use CEN to connect these VPCs. For more information, see [Connect network instances created by the same account but in different regions](#).

- If the source and destination NAS file systems reside in different VPCs that belong to the same region but different accounts, you can use CEN to connect these VPCs. For more information, see [Connect network instances created in the same region but by different accounts](#).
- If the source and destination NAS file systems reside in different VPCs that belong to different accounts and regions, you can use CEN to connect these VPCs. For more information, see [Connect network instances created by different accounts and in different regions](#).

 **Note** The CEN bandwidth may affect your data migration efficiency. We recommend that you determine the required bandwidth based on the actual amount of data that you want to migrate and the expected migration duration. The CEN bandwidth must be at least 10 Mbit/s.

- If you have configured permission groups for the source and destination NAS file systems, you must configure the NAS file systems to allow access from all IP addresses in the VPCs.

## Create and authorize a RAM user

1. Log on to the [Resource Access Management \(RAM\) console](#).
2. In the left-side navigation pane, choose **Identities > Users**.
3. On the **Users** page, click **Create User**.
4. On the **Create User** page, specify Logon Name and Display Name in the User Account Information section.
5. In the Access Mode section, select Console Access and OpenAPI Access. Then, save the generated logon name, password, AccessKey ID, and AccessKey secret.
  - Console Access: If you select this option, you must configure the console password, password reset settings, and multi-factor authentication settings.
  - OpenAPI Access: If you select this option, an AccessKey pair is automatically created for the RAM user. The RAM user can call API operations or use other development tools to access Alibaba Cloud resources.
6. After the RAM user is created, return to the **Users** page. Find the RAM user and click **Add Permissions** in the Actions column. In the panel that appears, select the AliyunNASFullAccess and AliyunMGWFullAccess policies and click OK. This way, the RAM user is granted the permissions to read and write files from Apsara File Storage NAS and to perform online data migration.
7. In the left-side navigation pane, click **Overview**.
8. On the page that appears, navigate to the Account Management section and click the link under RAM user logon. On the page that appears, enter the logon name and password of the RAM user to log on to the Alibaba Cloud Management Console.

## 3. Manage migration jobs

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

These operations depend on the type of the migration job. You can manage migration jobs of different types by performing the following steps.

### Manage full migration and incremental migration jobs


- View the status of a full or incremental 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 of a migration job

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

- i. In the [Data Transport console](#), choose **Data Online Migration > Migration Jobs**. On the Migration Jobs page, find the migration job and click **Manage**.
- ii. Click **Stop** and confirm that the job is stopped.
- iii. 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  next to the throttling setting.
  - To modify a throttling setting, you must delete the current setting. Then, you can add a new throttling setting.
- iv. Click **OK** and then click **Start** to restart the job.

- View a migration report

- i. On the Migration Jobs page, find the migration job and click **Manage**.
- ii. Click **Generate Migration Report**. After a report is generated, click **Export** to export the 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 that need to be migrated.
  - The file whose name ends with `_completed_list`. This file lists the files that are migrated.
  - The file whose name ends with `_error_list`. This file lists the files that failed to be migrated.
- iii. At the destination NAS data address, find the generated folder `aliyun_mgw_import_report/`. The folder includes the three files listed in the migration report. You can download the files and view the detailed list included in each file.




Each list consists of the following columns:

- The columns of the file name that ends with `_total_list` include the source data address, file name, source version ID, and destination version ID. The columns also display whether the job version is latest at source data address and whether the job version is deleted at source data address. The last two columns display the file size (measured in bytes) and time when the file was last modified. The format of a source data address is `nas://<the name of a mount point>:<prefix>/<objectName>`, for example, `nas://0a28888892-afr82.cn-hangzhou.nas.aliyuncs.com:/myprefix/testfile.txt`.
- The columns of the file name ends with `_completed_list` include the file name, source version ID, destination version ID. The columns also display whether the job version is latest at source data address and whether the job version is deleted at 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 was skipped during migration. Valid values: 1 and 0. The value 1 indicates that the file was skipped during migration. The value 0 indicates that the file was migrated. The value of this field depends on the value of the **File Overwrite Method** parameter.

- The columns of the file name ends with `_error_list` include the file name, source version ID, destination version ID. The columns also display whether the job version is latest at source data address and whether the job version is deleted at source data address. The last three columns display the time when the migration job started, time when the migration job ended, and error description.

 **Note** The following four fields apply only when the migration job has multiple versions.

- 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.

- Retry a job after a migration failure

If a migration job fails, you can check the generated file whose name ends in `_error_list` to identify the cause of failure and resolve the issue. On the Migration Jobs page, find the failed job, click **Manage**, and click **Retry** to migrate the files of the job again. For more information, see [Common causes of a migration failure and solutions](#).

## Manage synchronization jobs

- View the status of a migration job

A migration job enters one of the following states after being created:

- Migrating. This state indicates that the migration job is in progress.

- Stopped. If you click **Manage** next to a job and then click **Stop** on the Migration Report page, the status of the job changes to Stopped. This state indicates that the job stops after the current files are synchronized.
- Create Failed. This state indicates that the migration job fails to be created. You can view the cause of failure and create a migration job again.
- Manage migration jobs
  - View the details of a migration job: On the Migration Jobs page, click **Manage** to view the job details in the **Basic**, **Schedule**, and **Flow Control Time Schedule** sections.
  - Stop or start a migration job: On the **Migration Report** page, you can stop or start a migration job at any time.
  - View the history of a job: On the Migration Jobs page, find the job and click **Check History** to view the job history.

After a migration job is completed, it enters one of the following states:

- Scanning. This state indicates that the files of the source data address are being scanned. The number of scanned files is displayed in the File Count column.
- Scan Finished. This state indicates that a scan is complete. The total number and size of files are displayed in the File Count and File Size columns.
- Success. This state indicates that a synchronization job is completed. The number of synchronized files is displayed. You can click next to



to download the list of files that have been synchronized.

- Failed: An error may occur when you run a synchronization job. Click **Retry** to synchronize the files that fail to be synchronized again. You can click



next to **Failed** to download the list of files that failed to be synchronized. You can view the details of the files and identify the failure cause. For example, one or more source files were deleted or lost during synchronization.