

Object Storage Migration Service

FAQs

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1 Question Summary

Product Consulting

- [How Does Migration Affect My Source Data? What Are the Impacts on Migration If the Source Data Changes?](#)
- [How Do I Change the Storage Path of a Migrated Object?](#)
- [How Do I Migrate Incremental Source Data and How Does OMS Ensure Data Consistency?](#)
- [How Does OMS Ensure Data Consistency Between the Source and Destination Buckets?](#)
- [How Does the Migration Affect Data in the Destination Bucket?](#)

Migration Constraints

[What Are the Constraints on Migrating Data to a Parallel File System with OMS?](#)

Migration Duration

- [How Can I Learn the Speed of a Migration Task?](#)

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- [How Do I Fix the Error "Destination bucket must be in the same region as OMS. Select a bucket that is located in region xxx, or change the OMS region to xxx" When I Create a Migration Task?](#)
- [What Can I Do If a Migration Task Fails?](#)
- [What Can I Do If a Migration Task Group Fails to Be Executed?](#)
- [What Can I Do If the Migration Task Failed Due to an Archive Data Read Failure?](#)
- [What Problems May I Encounter If CDN Is Enabled at the Source?](#)

2 Product Consulting

2.1 When Do I Need to Perform Pre-migration Evaluation Before Creating Migration Tasks?

If there is more than 3 TB of data or 5 million objects in the source bucket, you are advised to [create a migration task group](#) to migrate the data. The system automatically divides objects into multiple migration tasks based on the size and quantity of objects in the bucket to improve migration efficiency and reduce migration time.

2.2 How Do I Migrate OBS Bucket Data from One Region to Another?

If you need to migrate OBS bucket data from one region to another, for example, from CN South-Guangzhou to CN North-Beijing1, you can [create a migration task](#).

 **CAUTION**

The destination bucket and OMS must be in the same region.

2.3 How Do I Migrate the OBS Bucket Data from One Account to Another?

If you need to migrate the OBS bucket data from account A to account B, perform the following operations:

1. Log in to the management console using account B.
2. Click **Service List**. Under **Migration**, click **Object Storage Migration Service**. The **Object Storage Migration Service** page is displayed.

3. In the upper right corner, click **Create Migration Task**.
Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The page for creating a migration task is displayed.
4. Enter the AK and SK of account A in the **Select Source** area, and enter the AK and SK of account B in the **Select Destination** area.

For instructions about how to configure the other parameters, see [Creating a Migration Task](#).

 **NOTE**

For details about how to migrate OBS bucket data from one region to another, see [How Do I Migrate OBS Bucket Data from One Region to Another?](#)

2.4 How Do I Migrate Data from Multiple Source Buckets to a Single OBS Bucket on Huawei Cloud?

If you want to migrate data in source buckets A and B to Huawei Cloud OBS bucket H, you can perform the following operations:

1. Create one migration task to migrate data from source bucket A to Huawei Cloud OBS bucket H.
2. Create another migration task to migrate data from source bucket B to Huawei Cloud OBS bucket H.

If source buckets A and B have objects with the same name, the object migrated from source bucket A will be overwritten. For objects with the same name, objects migrated earlier will be overwritten by objects migrated later.

2.5 How Do I Migrate Data in the Root Directory?

There are two migration methods you can use to migrate data in the root directory: File/Folder and Object name prefix.

- File/Folder
 - a. When creating a task, select **File/Folder** for **Migration Method**.
 - b. Click **Select**. In the displayed dialog box, select the data to be migrated in the root directory (displayed by default) and click **OK**.
 - c. Set advanced parameters and create a task to migrate the selected root directory data.
- Object Name Prefix
 - a. When creating a task, select **Object name prefix** for **Migration Method**.
 - b. Enter the prefix of the target objects to be migrated, including those in the root directory, and click **Add**.
You can add multiple prefixes to migrate objects with different prefixes.
 - c. Set advanced parameters and create a task to migrate the selected root directory data.

2.6 How Does Migration Affect My Source Data? What Are the Impacts on Migration If the Source Data Changes?

No Impact on Source Data

- Data in the source bucket is not modified during the migration.
- Data in the source bucket is not locked during the migration.
- Data in the source bucket is not deleted after the migration.

Impacts on Services on Source Platforms

- A fast migration may generate additional fees, for instance, CDN fees, or affect other services on the source platform. You are advised to limit the migration speed based on your service requirements. For details, see "Traffic Limit" described in [Creating a Migration Task](#).
- You may be unaware of the migration fees generated on the source platform, and this may cause your account to fall into arrears, which can affect your services. For details about migration costs on the destination platform, see [Pricing Details](#).

Impacts Caused by Source Data Changes

- Data addition
By default, objects are migrated based on the selected prefixes, in alphabetical order. During the migration, if any data is added to the source bucket before OMS finishes listing source objects, the new data will be migrated, but data added after that point will not.
- Data modification
To ensure reliability, OMS migrates large objects in parts and, after the migration, compares the sizes and modification times of the source object with the paired destination object. If a part is modified during the migration and both of the following conditions are met, data inconsistency occurs:
 - The object size is the same before and after the modification.
 - The source object is last modified more recently than the destination object.
- Data deletion
After migration, if some data in the source bucket is deleted, the corresponding data in the destination bucket will not be affected.

2.7 How Do I Change the Storage Path of a Migrated Object?

Choose a method based on how many objects there are to migrate:

- Few objects
Use the OBS Browser+ tool provided by Huawei Cloud OBS to move the data.
 - a. Download OBS Browser+. For details, see [Downloading OBS Browser+](#).
 - b. Log in to OBS Browser+, click the bucket from which you want to move the target objects (directories or files), and right-click the file or folder and choose **Copy** from the shortcut menu.
 - c. Select a path to save the target objects. Right-click the path and choose **Paste** from the shortcut menu.
- Many objects
Use the obsutil tool to change the object path.
 - a. Download obsutil and initialize it. For details, see [Downloading and Installing obsutil](#) and [Initializing the Configuration](#).
 - b. Use commands to move the objects.
The following uses Windows as an example:
 - Run **obsutil mv obs://src_bucket/key obs://dsc_bucket/dsc_path** to move a single object.
 - Run **obsutil mv obs://src_bucket/prefix obs://dsc_bucket/dsc_path -f -r** to move objects in batches.For batch operations, **prefix** indicates the name prefix of the objects. The tool moves all the migrated objects matching that name prefix.
For more information about the obsutil commands, see [Moving an Object](#).

2.8 How Do I Migrate Incremental Source Data and How Does OMS Ensure Data Consistency?

This problem can be described in the following two cases:

1. Migrating new source data
For details, see [Migrating Incremental Data](#).
2. Synchronizing changed source data
Perform a full migration again. OMS automatically identifies any changed source objects and migrates them to the destination bucket. Any existing objects in the destination bucket will be overwritten. For details about the overwriting conditions, see [How Does the Migration Affect Data in the Destination Bucket?](#).

2.9 How Do I Obtain Required Permissions for the Source and Destination Platform Accounts?

Source Permissions

NOTE

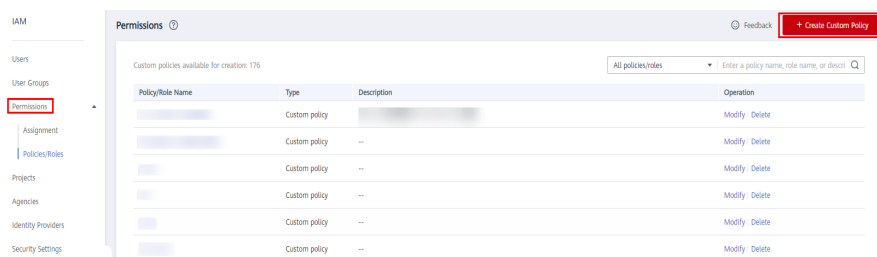
The following uses an OBS bucket on Huawei Cloud as the source bucket. If your source bucket is on another cloud platform, contact engineers of the cloud platform.

The source platform account needs the permissions for:

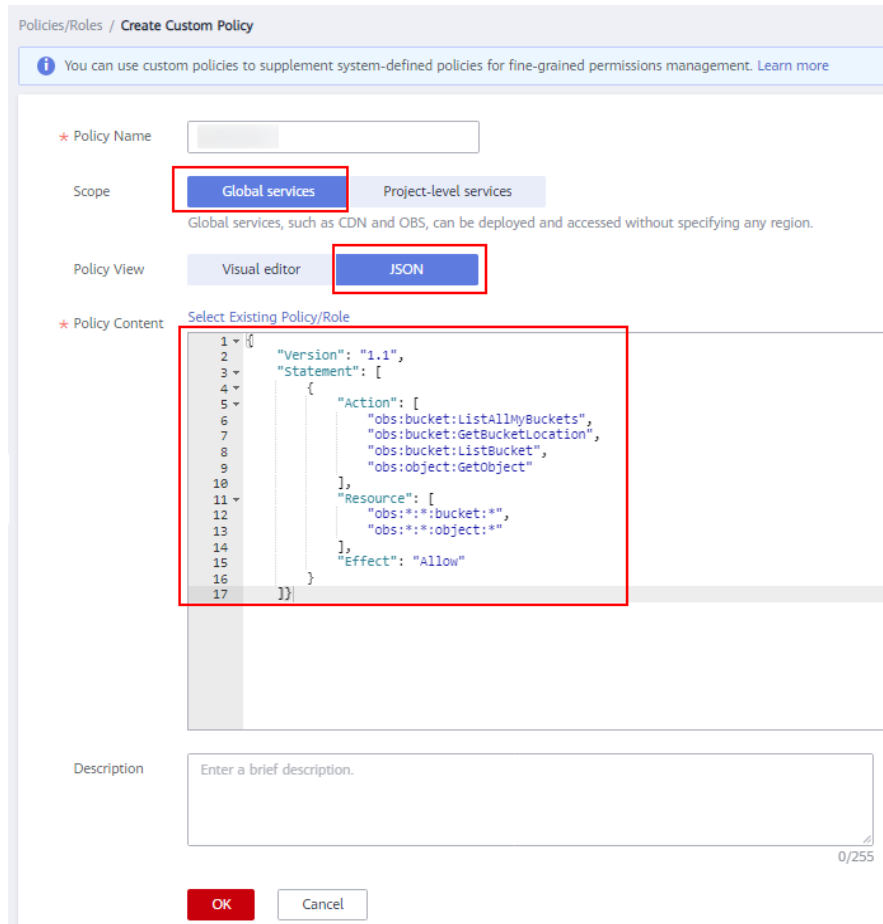
- Listing all buckets
- Obtaining bucket locations
- Listing objects
- Obtaining object metadata
- Obtaining object content

You can use either of the following methods to obtain required permissions for the source platform account:

- Use system-defined policy **OBS Administrator**. For details, see [Creating a User Group and Assigning Permissions](#).
- Create a custom policy that defines the permissions to list all buckets, obtain bucket location, list objects, obtain object metadata, and obtain object content.
 - a. Log in to Huawei Cloud and click **Console** in the upper right corner.
 - b. On the management console, hover the mouse pointer over the username in the upper right corner, and choose **Identity and Access Management** from the drop-down list.
 - c. In the navigation pane on the left, choose **Permissions > Policies/Roles**.
 - d. Click **Create Custom Policy** in the upper right corner.



- e. Specify a policy name, and set **Scope** to **Global services** and **Policy View** to **JSON**.
- f. Copy the following content to the box next to **Policy Content** and click **OK**.



```
{
  "Version": "1.1",
  "Statement": [
    {
      "Action": [
        "obs:bucket:ListAllMyBuckets",
        "obs:bucket:GetBucketLocation",
        "obs:bucket:ListBucket",
        "obs:object:GetObject"
      ],
      "Resource": [
        "obs:*:bucket:*",
        "obs:*:object:*"
      ],
      "Effect": "Allow"
    }
  ]
}
```

After the custom policy is created, perform the following operations to obtain the permissions defined by the custom policy:

- If you have joined a user group, assign the custom policy to the user group, and you will obtain the permissions defined by the custom policy. For details, see [Assigning Permissions to a User Group](#).
- If you have not joined a user group, perform the following steps:
 - a. Create a user group and assign the custom policy to it. For details, see [Creating a User Group and Assigning Permissions](#).

- b. Add yourself to the user group. You will have the permissions of the user group. For details, see [Adding Users to a User Group](#).

CAUTION

- You must be able to access Huawei Cloud through both the programmatic and management console access methods.
- It takes 15 to 30 minutes for the authorization to take effect.

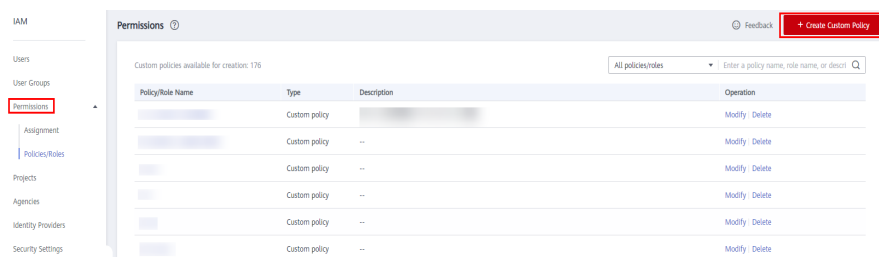
Destination Permissions

The destination platform account needs the permissions for:

- Listing objects in a bucket
- Obtaining bucket locations
- Listing buckets
- Obtaining object metadata
- Modifying object metadata
- Obtaining object content
- Uploading an object
- Listing multipart uploads
- Restoring archive objects

You can use either of the following methods to obtain required permissions for the destination platform account:

- Use system-defined policy **OBS Administrator**. For details, see [Creating a User Group and Assigning Permissions](#).
- Create a custom policy.
 - a. Log in to Huawei Cloud and click **Console** in the upper right corner.
 - b. On the management console, hover the mouse pointer over the username in the upper right corner, and choose **Identity and Access Management** from the drop-down list.
 - c. In the navigation pane on the left, choose **Permissions > Policies/Roles**.
 - d. Click **Create Custom Policy** in the upper right corner.



- e. Specify a policy name, and set **Scope** to **Global services** and **Policy View** to **JSON**.
- f. Copy the following content to the box next to **Policy Content** and click **OK**.

```
{
  "Version": "1.1",
```

```
"Statement": [
  {
    "Effect": "Allow",
    "Action": [
      "obs:bucket:GetBucketLocation",
      "obs:bucket:ListBucketMultipartUploads",
      "obs:object:RestoreObject",
      "obs:object:GetObject",
      "obs:object:ModifyObjectMetaData",
      "obs:bucket:ListBucket",
      "obs:object:PutObject"
    ],
    "Resource": [
      "OBS:*:bucket:*",
      "OBS:*:object:*"
    ]
  },
  {
    "Effect": "Allow",
    "Action": [
      "obs:bucket:ListAllMyBuckets"
    ]
  }
]
```

After the custom policy is created, perform the following operations to obtain the permissions defined by the custom policy:

- If you have joined a user group, assign the custom policy to the user group, and you will obtain the permissions defined by the custom policy. For details, see [Assigning Permissions to a User Group](#).
- If you have not joined a user group, perform the following steps:
 - a. Create a user group and assign the custom policy to it. For details, see [Creating a User Group and Assigning Permissions](#).
 - b. Add yourself to the user group. You will have the permissions of the user group. For details, see [Adding Users to a User Group](#).

⚠ CAUTION

- You must be able to access Huawei Cloud through both the programmatic and management console access methods.
 - It takes 15 to 30 minutes for the authorization to take effect.
-

2.10 How Do I Review the Objects Migrated in a Migration Task?

You can perform the following steps to view details about a migration task and obtain the list of objects migrated in the task.

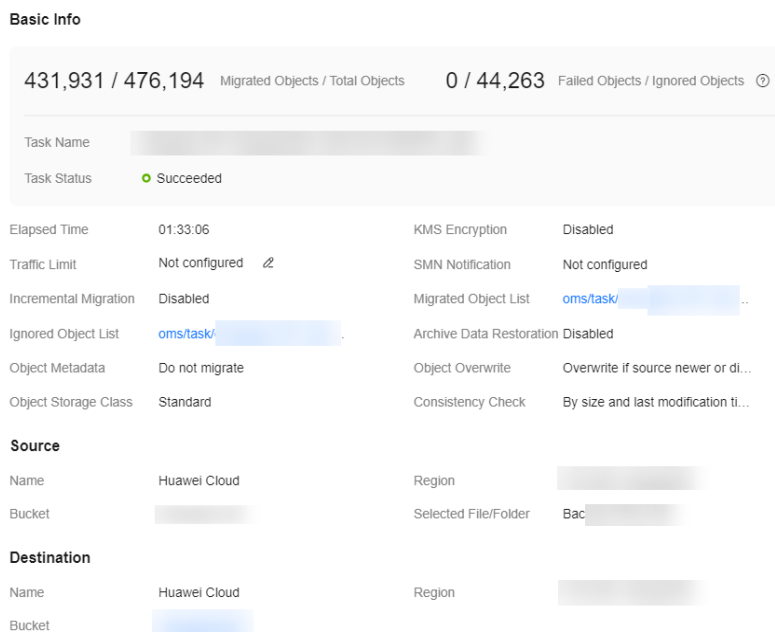
Step 1 Log in to the management console.

Step 2 In the service list on the left, choose **Object Storage Migration Service**.

Step 3 On the displayed **Migration Tasks** page, click the task name. The task details are displayed on the right, as shown in [Figure 2-1](#). You can view the total number of

objects, the number of migrated objects, the number of ignored objects, and the number of failed objects.

Figure 2-1 Migration task details



Step 4 View the object lists.

If...	Then...
The number of migrated objects is greater than 0	<p>On the task details page, click the link next to Migrated Object List to download the .txt file that lists migrated objects.</p> <p>NOTE The path of list is oms/task/Task name/success_object_lists/Timestamp.success_list.txt.</p>
The number of ignored objects is greater than 0	<p>On the task details page, click the link next to Ignored Object List to download the .txt file that lists ignored objects.</p> <p>NOTE The path of the list is oms/task/Task name/skip_object_lists/Timestamp.skip_list.txt.</p>
The number of failed objects is greater than 0	<p>On the task details page, click the link next to Failed Object List to download the .txt file that lists failed objects.</p> <p>NOTE The path of the list is oms/task/Task name/failed_object_lists/Timestamp.failed_list.txt.</p> <p>For details about the error codes in a failed object list, see Viewing the List of Failed Objects.</p>

----End

2.11 How Do I Review the Objects Migrated in a Migration Task Group?

You can perform the following steps to view details about a migration task group and obtain the list of objects migrated in the task group.

Step 1 Log in to the management console.

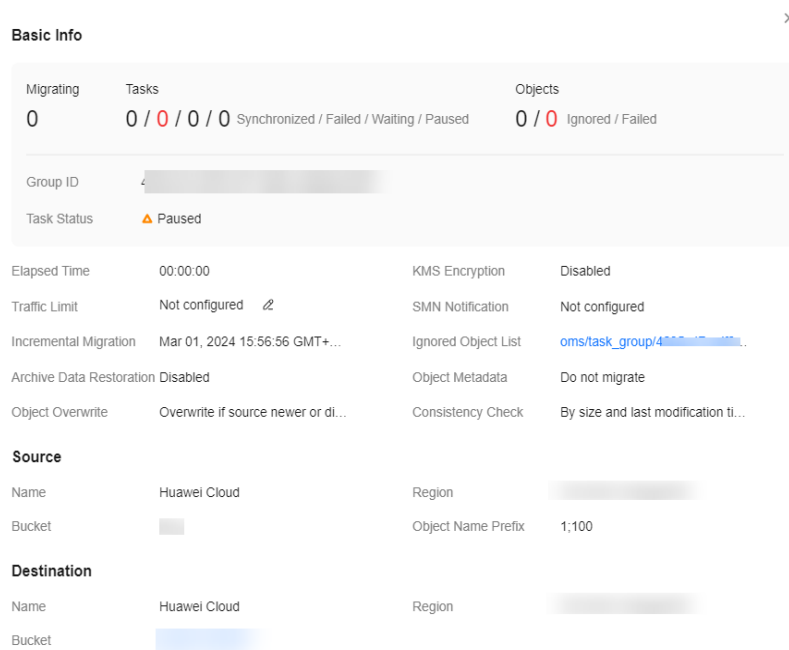
Step 2 In the service list on the left, choose **Object Storage Migration Service**.

Step 3 In the navigation tree, click **Migration Task Groups**.

The **Migration Task Groups** page is displayed.

Step 4 Click the ID of the migration task group you want to view. The group information is displayed on the right, as shown in **Figure 2-2**. You can view the numbers of tasks in the **Migrating**, **Failed**, **Waiting**, **Suspended**, and **Successful** state, as well as the numbers of ignored and failed objects.

Figure 2-2 Migration task group details



Step 5 View the object lists.

If...	Then...
The number of migrated objects is greater than 0	<p>On the task group details page, click the path link next to Migrated Object Storage Path to download the list of migrated objects in the .txt format.</p> <p>NOTE The path for storing a migrated object list is in the oms/task_group/Task group ID/success_object_lists/Task name/Timestamp.success_list.txt format.</p>
The number of ignored objects is greater than 0	<p>On the task group details page, click the path link next to Ignored Object Storage Path to download the list of ignored objects in the .txt format.</p> <p>NOTE The path for storing an ignored object list is in the oms/task_group/Task group ID/skip_object_lists/Task name/Timestamp.skip_list.txt.</p>
The number of failed objects is greater than 0	<p>On the task group details page, click the path link next to Failed Object Storage Path to download the list of failed objects in the .txt format.</p> <p>NOTE The path for storing a failed object list is in the oms/task_group/Task group ID/failed_object_lists/Task name/Timestamp.failed_list.txt.</p> <p>For details about the error codes in a failed object list, see Viewing the List of Failed Objects.</p>

Step 6 View the list of all source objects to be migrated.

Log in to OBS Console and access the `/oms/taskgroup/Task group ID/` path in the destination bucket.

 **NOTE**

You can view the task group ID on the **Migration Task Group** page.

----End

2.12 Can OMS Only Migrate the Data Generated After a Specified Time?

OMS allows you to filter data to be migrated by time using the **Selective Migration** option.

- If you do not need to filter source data by time, set this option to **No**.
- If you need to filter source data by time, set this option to **Yes**. Then only source data modified after the specified time will be migrated.

 **CAUTION**

The specified time cannot be later than the start time of the migration task. Otherwise, no data will be migrated.

For details, see [Creating a Migration Task](#) and [Creating a Migration Task Group](#).

2.13 Can OMS Filter the Data to Be Migrated by Suffix?

No.

OMS allows you to use prefixes to filter the data to be migrated. For details, see [Creating a Migration Task](#) and [Creating a Migration Task Group](#).

2.14 What Is the Storage Class of Archive Data Migrated to the Archive Destination Bucket?

Migrated data has the same storage class as the destination bucket. For example, if the destination bucket is the Archive storage class, the data migrated to the destination bucket is also in the Archive storage class.

You can change the storage class for the destination bucket as needed.

For details about how to migrate archived data, see [Migrating Archived Data](#).

2.15 What Are the Application Scenarios of Migration Tasks and Migration Task Groups?

Migration Task

If there is less than 3 TB of data or less than 5 million objects in a source bucket, you can create a migration task to quickly migrate the source data. For details, see [Creating a Migration Task](#).

Migration Task Group

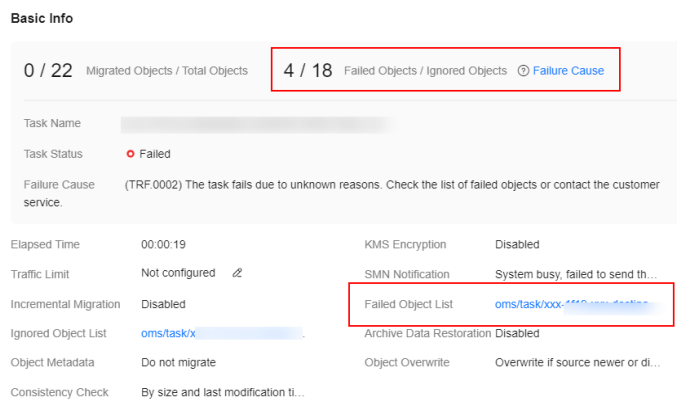
If there is more than 3 TB of data or more than 5 million objects to migrate in a source bucket, you can create a migration task group to migrate the source data quickly. The system will group the source objects into multiple sub-tasks for concurrent migrations. These sub-tasks are managed in groups, including progress query, resumption, and restart. For details, see [Creating a Migration Task Group](#).

 **NOTE**

Compared with a migration task, a migration task group provides a faster and more reliable migration, to help you easily identify failed objects and quickly migrate them again.

2.16 How Does OMS Ensure Data Consistency Between the Source and Destination Buckets?

During the migration, whenever an object is migrated, OMS performs a consistency check on the object. If a source object is inconsistent with its corresponding destination one, the object is recorded as failed. OMS records all objects that fail to be migrated in the task. You can view the statistics in the task details.



If a source object does not meet any of the following criteria, the object fails the consistency check and is recorded as failed:

- After being uploaded to the destination bucket, the object has a same encryption attribute as the migration task. If the encryption attribute is different, handle this issue by referring to [What Do I Do If a Migration Task Fails Due to an Inconsistent Encryption Attribute?](#)
- The source object has the same size as its paired destination object.
- The last modification time of the source object is earlier than or equal to that of its paired destination object.

2.17 Why Is the Total Number or Size of Objects in the Destination Bucket Inconsistent with Those in the Source Bucket After the Migration?

- Total number or size of source objects > Total number or size of destination objects
 - a. Total number of objects
Possible causes: New objects are added to the source bucket or the scanning result of source objects is wrong.
Identification method: Create a migration task for the bucket again to perform an incremental migration. Check whether the number of objects scanned in the source bucket is the same as that collected by OMS during the last migration. If the numbers are inconsistent, filter the newly added source objects using the object list. If the numbers are consistent, the source object scanning result is wrong.

Solutions: Perform an incremental migration to migrate the new objects to the destination bucket, or submit a service ticket to handle the abnormal scanning.

b. Total size of objects

Possible causes and their solutions are:

- There are file fragments in the source bucket.
OMS cannot migrate file fragments.
- There are objects of multiple versions in the source bucket.
By default, the OMS migrates only objects of the latest version. You need to manually migrate objects of older versions.

- Some cloud vendors use different rules for calculating object size from Huawei Cloud.

For objects smaller than 64 KB, Huawei Cloud calculates their actual size, while some cloud vendors calculate them as 64 KB. Check the calculation rules of the source cloud vendor and whether there are source objects smaller than 64 KB.

• Total number or size of source objects < Total number or size of destination objects

a. Total number of objects

Possible causes and their solutions are:

- There may be a delay in calculation of object quantity by OMS and source object storage service. Please wait.
- There are newly added objects (such as those generated after service cutover) and object lists uploaded by OMS in the destination bucket.

b. Total size of objects

Possible causes and their solutions are:

- OMS stores the configuration files of the migration task in the destination bucket.
You can delete these configuration files. The migration reports cannot be restored if these files are deleted.
- For paused or failed tasks, OMS stores migrated file fragments in the destination bucket for future migration by default.
You can delete these fragments from the destination bucket.

2.18 How Does the Migration Affect Data in the Destination Bucket?

The impacts of migration on existing data in destination buckets depend on whether objects with the same name exist in the source and destination buckets.

- If no object with the same name exists, the migration has no impacts on the existing data in the destination bucket.

- Data in the destination bucket is not modified during the migration.
- Data in the destination bucket is not deleted after the migration.
- If objects with the same name exist, whether these objects are overwritten by those migrated from the source bucket depends on the overwriting policy you configure for the migration task or task group. For details about the policies, see [Table 2-1](#).

Table 2-1 Policies for overwriting objects with the same name in the destination bucket

Policy	Description
Overwrite if source newer or different size	If a source object is not as large as or was last modified more recently than its paired destination object, the source object will overwrite the destination object.
Never overwrite	The system always skips source objects and keeps their paired destination objects.
Always overwrite	The system always allows source objects to overwrite their paired destination objects.

2.19 Why Are the Migration Progress and the Transmitted Data Volume 0 After the Migration Is Complete?

Symptom

The migration was complete, but the migration progress was 0%, and the transmitted capacity is 0 KB.

Possible Causes

This symptom usually happens in incremental migrations. Assume that you have created a migration task to migrate incremental data in your source bucket and set **Object Metadata to Migrate** for the task. If the metadata of source objects changes but the object content and sizes do not, the system migrates only the changed object metadata. The migration progress will be 0% and the transmitted data volume will be 0 KB after the migration is complete.

2.20 How Do I Choose Storage Classes?

To meet various performance and cost requirements, cloud service providers provide a range of storage levels that are different in **access frequency and latency, minimum storage time and unit, and data reliability and availability**. OBS provides the following storage classes:

- **Standard**
This storage class features low latency and high throughput. It is therefore good for storing frequently (multiple times per month) accessed files or small files (less than 1 MB). Its application scenarios include big data analytics, mobile apps, hot videos, and social apps.
- **Infrequent Access**
This storage class is for storing data that is infrequently (less than 12 times per year) accessed, but when needed, the access has to be fast. It can be used for file synchronization, file sharing, enterprise backups, and many other scenarios.
- **Archive**
This storage class is most suitable for archiving rarely-accessed (averagely once a year) data. Potential application scenarios include data archiving and long-term data retention for backup. This storage class is secure, durable, and inexpensive, so it can be used to replace tape libraries. To keep costs low, it may take minutes or hours to restore data from the Archive storage class.

For more information, see [OBS Storage Classes](#).

Storage Class Conversion for Reserving the Source Storage Class

If you choose **Reserve source storage type** for the destination storage policy, see [Table 2-2](#). The numbers in parentheses indicate the monthly price per GB | the price per 10,000 read requests | the price per 10,000 write requests | the restoration price per GB (not applicable to standard storage) in turn. The prices in the table below are for reference only. The actual prices may vary depending on cloud service providers.

NOTE

- The regions used for reference in the following table are: Beijing, China for Huawei Cloud, Baidu Cloud, Alibaba Cloud, Tencent Cloud, and Kingsoft Cloud; Hong Kong, China for Google Cloud and AWS; East Asia for Microsoft Azure; and the Chinese mainland for Qiniu Cloud and UCloud. For capacity-based billing, the highest pricing tier is referenced. For AZ-based billing, if a cloud service provider offers multi-AZ storage but does not name it explicitly on the website, the pricing tier for single-AZ storage is referenced. The unit of measurement is CNY.
- For any cloud service providers that are not mentioned in the following table, the destination storage class will be Standard.

Table 2-2 Storage class conversion between cloud service providers and Huawei Cloud

Source	OBS Standard (0.099 0.01 0.01)	OBS Infrequent Access (0.08 0.1 0.1 0.0325)	OBS Archive (0.033 0.1 0.1 0.06)	OBS Deep Archive (0.014 0.5 0.5 0.12)
Amazon S3	<ul style="list-style-type: none"> S3 Standard (0.172 0.0275 0.3441) S3 Outposts (no billing details on the website) S3 Intelligent-Tiering (by assigned access tier 0.0275 0.0344) Reduced Redundancy (no billing details on the website) 	<ul style="list-style-type: none"> S3 Standard-IA (0.095 0.0688 0.6882 0.6882) S3 One Zone-IA (0.0757 0.0688 0.6882 0.6882) S3 Glacier Instant Retrieval (0.0344 0.6882 1.3764 2.0645) 	S3 Glacier Flexible Retrieval (0.031 0.0275 2.4774 0.8258)	S3 Glacier Deep Archive (0.0138 0.0275 4.1291 1.6516)
Baidu Cloud BOS	Standard Storage (0.119 0.01 0.01)	<ul style="list-style-type: none"> Infrequent Storage (0.08 0.05 0.05 0.03) Cold Storage (0.032 0.1 0.1 0.06) 	Archive (0.015 0.5 0.5 0.12)	-

Source	OBS Standard (0.099 0.01 0.01)	OBS Infrequent Access (0.08 0.1 0.1 0.0325)	OBS Archive (0.033 0.1 0.1 0.06)	OBS Deep Archive (0.014 0.5 0.5 0.12)
Tencent Cloud COS	<ul style="list-style-type: none"> MAZ_Standard (0.15 0.01 0.01) Standard (0.118 0.01 0.01) MAZ_Intelligent Tiering (no billing details on the website) Intelligent Tiering (by the converted storage class 0.01 0.01) 	<ul style="list-style-type: none"> MAZ_Standard_IA (0.1 0.05 0.05 0.02) Standard_IA (0.08 0.05 0.05 0.02) 	Archive (0.033 0.01 0.01 0.06)	Deep Archive (0.01 0.5 0.5 0.14)
Qiniu Cloud Kodo	Standard (0.098 0.01 0.01)	Infrequent Access (0.06 0.1 0.1 0.03)	Archive (0.028 0.1 0.1 0.06)	Deep Archive (0.012 0.5 0.5 0.12)
Kingsoft Cloud KS3	Standard (0.12 0.01 0.01)	Infrequent Access (0.08 0.1 0.1 0.04)	Archive (0.033 0.1 0.1 0.06)	-
Alibaba Cloud OSS	Standard (0.12 0.01 0.01)	Infrequent Access (0.08 0.1 0.1 0.0325)	Archive (0.033 0.1 0.1 0.06)	Cold Archive (0.015 0.1 0.1 0.2)
UCloud US3	Standard (0.12 0.01 0.01)	Infrequent Access (0.06 0.1 0.1 0.03)	Archive (0.024 0.1 0.1 0.06)	-
Azure Blob Storage	Hot tier (0.165 0.0344 0.4469)	Cool tier (0.0756 0.0894 0.8937 0.0687)	Archive tier (0.0137 78.0989 1.5675 0.2406)	-

3 Migration Constraints

3.1 What Are the Constraints on Migrating Data to a Parallel File System with OMS?

The constraints are as follows:

- If an object name ends with a slash (/), the object size must be zero. Otherwise, the object cannot be migrated.
- Each object name cannot contain consecutive slashes (/), for example, test//test.
- At the same level, a file cannot have the same name as a folder.

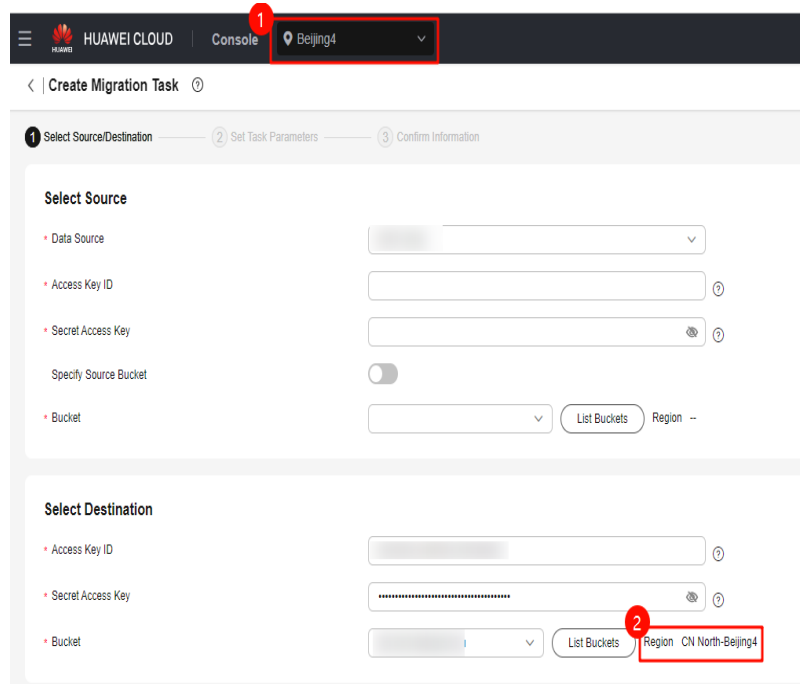
3.2 What Are the Restrictions on Migrating Data in a Parallel File System?

If the hierarchies of files to be migrated are too deep, you are advised to create a migration task group to migrate the data. If you create a migration task for migration, listing objects may time out. As a result, the migration will be interrupted.

3.3 How Do I Fix the Error "Destination bucket must be in the same region as OMS. Select a bucket that is located in region xxx, or change the OMS region to xxx" When I Create a Migration Task?

To maximize the migration speed, create a migration task in the region where the destination OBS bucket is located.

As shown in the following figure, ensure the regions selected in areas 1 and 2 are the same.



4 Migration Duration

4.1 How Can I Learn the Speed of a Migration Task?

Generally, OMS can migrate 10 TB to 20 TB of data per day. However, the speed depends on the number and size of source objects and the network transmission distance between the source and destination buckets. You are advised to create a migration task to test the migration speed. The maximum migration speed is five times the average speed of a single task because up to five tasks can be executed concurrently in a region.

- You can view the real-time migration speed of a single migration task on the **Migration Task** page.
- You can view the real-time migration speed of a task group on the **Migration Task Group** page.

 **NOTE**

The migration speeds displayed on the OMS console are estimates only.

4.2 Why Is the Migration Progress Not Changing Even Though the Transferred Volume Is Increasing?

How OMS calculates the migration progress depends on the migration method you select.

- If you select the migration method **File/Folder** or **Object name prefix**, the migration progress is calculated based on how much data has been migrated.
- If you select the migration method **Object list** or **URL list**, the migration progress is calculated based on the number of transmitted objects.

If you select the migration method **Object list** or **URL list**, the amount of transmitted data may increase, even though the reported migration progress does not increase.

4.3 Why Is the Migration Speed Slow Sometimes?

The maximum migration speed of OMS is **500 Mbit/s**.

The migration speed is influenced by many factors, such as the sizes of the source objects, the number of objects being migrated, and the network transmission speed. If the migration network is normal, it may be that:

- There are a large number of small objects.

A fixed maximum number of objects can be concurrently migrated in a migration task. Before migration, OMS lists the objects in the source bucket. After an object is migrated, OMS checks whether the object in the source bucket is consistent with that in the destination bucket. Compared with migration of large objects, for any given amount of data, it takes longer to list, compare, and migrate a larger number of smaller objects.

In this case, you can create a migration task group to intelligently split the source objects into multiple subtasks for concurrent migration. This can improve the migration speed.

- There are a small number of large objects.

A separate thread is used to migrate each object. If there are just a few very large objects, for example, less than 50, the migration thread concurrency is low, which slows down the migration.

In this case, wait patiently.

NOTE

- Large objects are uploaded in parts. Only the data volume of uploaded parts is counted as part of the migrated data volume. Therefore, the migration speed may fluctuate.
- The migration speed is recalculated every 5 seconds. If it takes more than 5 seconds to upload any individual part, the instantaneous speed is zero.
- Archive data restoration is used when archive data is migrated.
A fixed maximum number of objects can be migrated concurrently in a migration task. If you do not restore the archive data in advance and rely on the archive data restoration function of OMS fully, the migration speed will be slow.
In this case, you can batch restore the archived data on the source platform before the migration. For details, see [Migrating Archived Data](#).
- A large number of objects do not need to be migrated and are ignored during the migration.

During the migration, the system compares source objects with destination objects and determines which objects need to be migrated. If a large number of objects do not need to be migrated, they will be ignored, but identifying them still takes time, so the migration is slow.

In this case, wait patiently.

5 Exception Recovery

5.1 What Can I Do If Migration Tasks Fail To Be Created After Evaluation?

The number of **Creation failures** is displayed in the upper left corner of the migration task list.

You can perform the following steps to recreate migration tasks:

1. Click **Retry** in the upper left corner of the task list.
The **Re-create Migration Task** dialog box is displayed.
2. Select the task to be recreated, enter the AKs and SKs of the source and destination platform accounts, and click **OK**.

5.2 What Can I Do If the Migration Fails Because the Frequency of Accessing the Source Object Storage Exceeded the Upper Limit?

To ensure a fast migration, OMS invokes the source object storage API at a high frequency during the migration task execution. Some source cloud vendors have set an upper limit on the frequency of accessing their object storage. If the access frequency exceeded the upper limit, the migration task fails.

Solution:

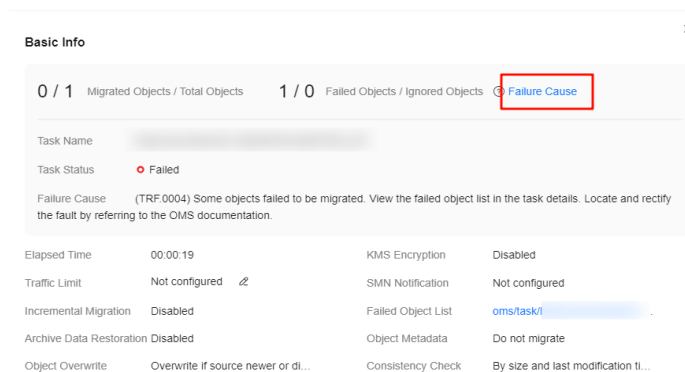
- Contact the source cloud vendor to change the frequency upper limit to meet migration requirements.
- Create a task using the API and specify a smaller value for **thread_num** (number of threads used by the migration task) to reduce the access frequency of the migration threads.

5.3 What Can I Do If a Migration Task Fails?

The following methods can help you handle the exceptions.

Method 1: Viewing Error Messages on the OMS Console

In the task list, select a failed task and click the task name to view the failure cause in the task details displayed on the right. If a file link is displayed after **Failed Object List** in the task details, rectify the fault by following the instructions provided in [Method 2](#).



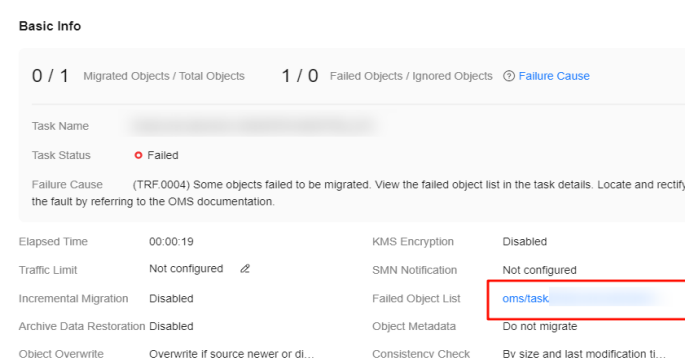
Method 2: Viewing the List of Failed Objects

NOTICE

You can only obtain the list of failed objects if you enabled the **Record Failed Objects** function when creating a task.

Step 1 Check the names of the source objects that fail to be migrated.

In the task list, select a failed task. Click the name of the selected task to view the task details displayed on the right. Click the file link next to **Failed Object List** to access OBS and download the file.



Step 2 View the failure cause of the task.

The failed object list contains information about the failed migration task, including the error codes, occurrence time (local UTC), URL-encoded names of the failed objects, non-URL-encoded names of the failed objects, and error messages returned by source SDKs. For details about how to handle a migration failure, see [Table 1](#).

Figure 5-1 Failed object list

```

NIGRATE_SRC_ARCHIVE_OBJ_FAILURE 2019-08-12 10:47:28 CST filest
NIGRATE_SRC_ARCHIVE_OBJ_FAILURE 2019-08-12 10:47:28 CST filest
NIGRATE_SRC_ARCHIVE_OBJ_FAILURE 2019-08-12 10:47:28 CST filest
NIGRATE_SRC_ARCHIVE_OBJ_FAILURE 2019-08-12 10:47:28 CST filest
NIGRATE_SRC_ARCHIVE_OBJ_FAILURE 2019-08-12 10:47:28 CST filest
NIGRATE_SRC_ARCHIVE_OBJ_FAILURE 2019-08-12 10:48:19 CST 1GB4
    
```

Table 5-1 Error codes returned for failed objects

Error Code	Description	Solution
GET_SRC_OBJ_META_FAILURE	Failed to obtain the metadata of the source object.	Check whether the source object exists and whether you have the read permission on the object. For details about how to obtain the required permission, see Permissions Management .
GET_DST_OBJ_META_FAILURE	Failed to obtain the metadata of the destination object.	Check whether you have the read permission on the destination object. For details about how to obtain the required permission, see Permissions Management .
GET_SRC_OBJ_FAILURE	Failed to obtain the source object.	Check whether the source object exists and whether you have the download permission on the object. For details about how to obtain the required permission, see Permissions Management .
COMPARE_SRC_AND_CD N_FAILURE	The source objects are inconsistent with the objects mapped to the custom domain name.	Refresh the CDN cache so that the cached object on CDN is the latest.
UPLOAD_DST_OBJ_FAILURE	Failed to upload the object to the destination bucket.	Check whether you have the write permission on the destination bucket.

Error Code	Description	Solution
COMPARE_SRC_AND_DEST_KMS_FAILURE	The encryption statuses of source and destination objects are different.	Check whether the encryption status of the destination object is consistent with the setting of KMS encryption of the migration task.
COMPARE_SRC_AND_DEST_SIZE_FAILURE	The sizes of the source and destination objects are consistent.	Migrate the object again.
COMPARE_SRC_AND_DEST_LAST_MODIFY_DATE_FAILURE	The last modification times of the source and destination objects are inconsistent.	Migrate the object again.
COMPARE_SRC_AND_DEST_METADATA_VALUE_FAILURE	The metadata of the source object is inconsistent with that of the destination object.	Migrate the object again.
COMPARE_AND_GET_SRC_OBJ_META_FAILURE	Failed to obtain the metadata of the source object when comparing the source and destination objects after the migration.	Check whether the source object exists and whether you have the read permission on the object. For details about how to obtain the required permission, see Permissions Management .
COMPARE_AND_GET_DEST_OBJ_META_FAILURE	Failed to obtain the metadata of the destination object when comparing the source and destination objects after the migration.	Check whether the destination object exists and whether you have the read permission on the object. For details about how to obtain the required permission, see Permissions Management .

Error Code	Description	Solution
INIT_DST_OBJ_MULTIPART_FAILURE	Failed to initialize the multipart upload.	<p>Check whether the object supports multipart upload.</p> <p>NOTE Objects whose ContentType is multipart/form-data do not support multipart upload. You need to use obsutil to upload such objects separately.</p>
COMPLETE_DST_OBJ_MULTIPART_FAILURE	Failed to combine the parts in the destination bucket.	<ol style="list-style-type: none"> 1. Check whether the source object is modified after the migration task is started. 2. Check whether you have the Listing Uploaded Parts permission on the destination bucket. If you do not have this permission, obtain it by referring to Destination Permissions. 3. Migrate the object again.
RESTORE_SRC_ARCHIVE_OBJ_FAILURE	Failed to restore archive data.	<p>Restore the archive data manually and migrate the data. Archive the data after the migration.</p> <p>NOTE For details about how to restore archived data, see What Do I Do If a Migration Task Fails Due to an Archived Data Read Failure?</p>

Error Code	Description	Solution
MIGRATE_SRC_ARCHIVE_OBJ_FAILURE	Failed to migrate the data because there is archive data that has not been restored.	Create a migration task again and enable the Archive Data Restoration function. If a large amount of archive data exists, you can manually restore the data and then migrate it. NOTE For details about how to restore archived data, see What Do I Do If a Migration Task Fails Due to an Archived Data Read Failure?
URL_LIST_FORMAT_ERROR	The format of the URL list is incorrect.	Check for errors based on the URL list template, rectify the errors, and try again. For details, see URL List Requirements .
URL_LIST_DOMAIN_FORBIDDEN	The URL list contains forbidden domain names.	Change the domain names and try again. If you have any questions, contact technical support.
URL_LIST_IP_FORBIDDEN	The URL list contains forbidden IP addresses.	Change the IP addresses and try again. If you have any questions, contact technical support.
URL_LIST_OBJECT_KEY_TOO_LONG	URLs in the URL list are too long.	Modify the URLs (a URL can contain a maximum of 65,536 characters) and try again.
URL_LIST_INTERNAL_IP	The host IP addresses in the URL list are internal IP addresses.	Change the IP addresses and try again. If you have any questions, contact technical support.
URL_LIST_INCORRECT_DOMAIN	The domain names in the URL list are incorrect, irresolvable, or do not exist.	Correct the domain names and try again.

Error Code	Description	Solution
SrcObjectModifiedDuringMigration	After the migration task is started, the large source object is modified. As a result, the parts of the large object fail to be merged in the destination bucket.	Migrate the object again.

 **NOTE**

If you have any doubts during the processing, [submit a service ticket](#).

----End

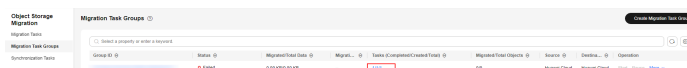
5.4 What Can I Do If a Migration Task Group Fails to Be Executed?

If a migration task group fails to be executed, perform the following steps:

1. On the **Migration Task Groups** page, locate the target group and click the number listed in the **Tasks** column. On the displayed **Migration Tasks** page, sub-tasks contained in the current migration task group are displayed.

Generally, a migration task group contains multiple subtasks. The failure cause of each sub-task may be different. You can view the failure cause of each sub-task one by one. Then, identify the failure cause by referring to [What Can I Do If a Migration Task Fails?](#)

Figure 5-2 Migration failed



2. If the **Storage Class** of the destination bucket for the migration task group is not **Standard**, the migration will fail. In this case, change the **Storage Class** of the destination bucket to **Standard** and then create a migration task group again.

 **NOTE**

For a migration task groups, the system temporarily stores the list file in the **oms/** directory of the destination bucket. If the destination bucket storage class is not **Standard**, the migration node cannot read the list file in the directory. As a result, the migration will fail.

5.5 What Do I Do If SMN Does Not Work Properly?

- SMN was not available during the creation of a migration task.

- After you clicked **Add** to select an SMN message topic, the topic list displayed in the **Select SMN Topic** dialog box was empty.
In this case, log in to the SMN console to check whether there are any topics. If there are no topics, create one.
- After you clicked **Add** to select an SMN message topic, the topic list displayed in the **Select SMN Topic** dialog box contained topics, but you could not use a selected topic to create a migration task.
In this case, log in to the SMN console to check whether the selected topic exists. If the topic does not exist, select another topic or create a topic.
- You selected an SMN topic during the creation of a migration task and the migration task was successfully created, but the subscribers of the topic could not receive the migration result notifications.
In this case, check that the selected topic contains the required subscription and that the topic has been confirmed. Otherwise, notification messages will not be sent to designated subscribers. A subscriber is a role that is subscribed to a topic. When you add a subscription, you need to specify the message sending destination. The following subscriptions are supported:
 - If it is an email subscription, the subscriber is an email address.
 - If it is an HTTP or HTTPS subscription, the subscriber is a URL.For details about SMN, see [Simple Message Notification](#).

5.6 What Do I Do If a Migration Task Fails Due to an Inconsistent Encryption Attribute?

Before a source object is stored into the destination OBS bucket, OMS checks whether the encryption setting of the migration task is inconsistent with that of the destination bucket. If they are inconsistent, the migration task is determined failed. You can see the reported error message in the failed object list.

- If [default encryption](#) is enabled for the destination bucket and you want to retain this setting, create a task with the same source and destination bucket as the failed migration task. In the second step, select **KMS** for **Data Encryption** in the **Destination Configuration** area.
- If default encryption is enabled for the destination bucket but you do not want to encrypt the migrated objects, disable [default encryption](#) for the bucket and restart the failed task.
- If default encryption is not enabled for the destination bucket, [submit a service ticket](#) to seek Huawei Cloud technical support.

5.7 What Can I Do If the Migration Task Failed Due to an Archive Data Read Failure?

If there is archive data in the source bucket, you need to restore the data before migration. To do so, you can perform the following steps:

- Step 1** Use a tool or the source platform management console to restore the archive data before migration. It is recommended that you configure a long restoration duration.
- If the source bucket is not on Huawei Cloud, follow the restoration methods provided by the source cloud service vendors.
 - If the source bucket is on Huawei Cloud, use **obsutil** to restore the archived data. For details, see [Restoring Objects from the Archive Storage](#).
- Step 2** On the OMS console, create a migration task for the source bucket again and enable the **Archive Data Restoration** function. OMS will automatically restore and migrate archive objects that are not restored in advance.

⚠ CAUTION

- If you do not restore archive objects in advance, and if you rely entirely on the automatic restoration function of OMS, it takes 1 to 5 minutes to restore each object, depending on the source object storage services. This can significantly slow down the migration.
- For OBS buckets with **direct reading** enabled, even though the archived data in these OBS buckets can be directly downloaded without being restored in advance, OMS cannot migrate such data because its storage class is not changed.
- You will be billed for enabling direct reading for your source bucket and enabling OMS to automatically restore archived data in the source bucket. To learn about OBS billing details, see [Pricing Details](#).
- Before you migrate archive data, you are advised to set the storage class of the destination bucket to **Standard**. After the migration is complete, confirm that the migrated data is correct, and change the storage class of the destination bucket to **Archive**.

----End

5.8 What Problems May I Encounter If CDN Is Enabled at the Source?

Problem 1

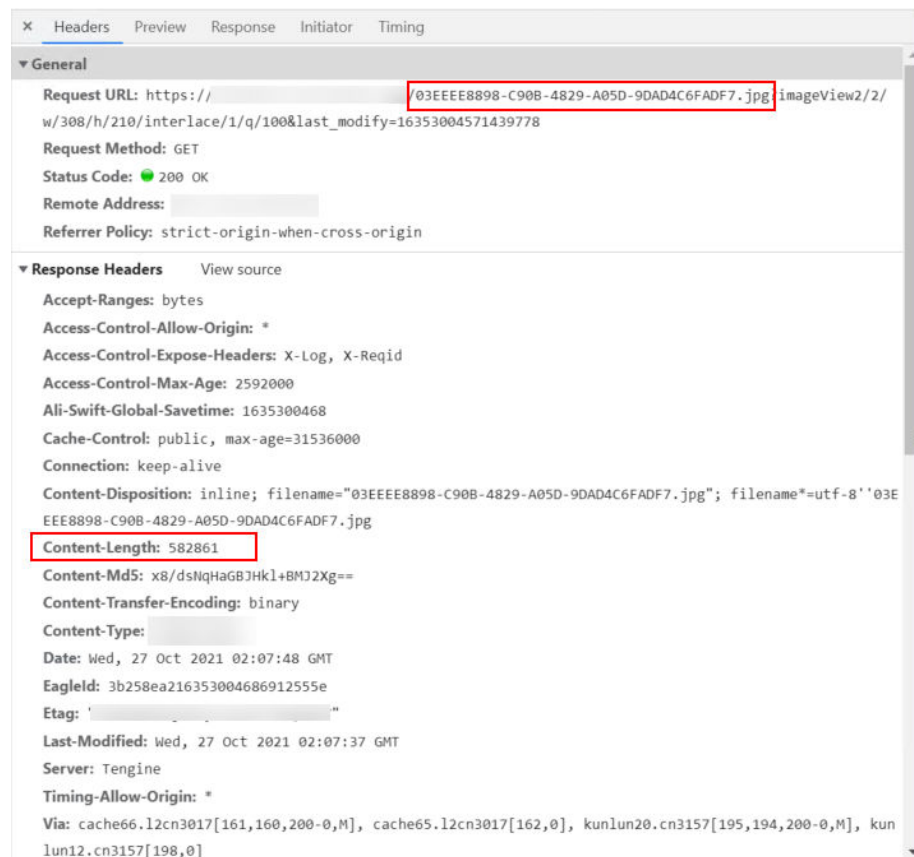
The CDN domain name configuration fails the check before the migration, and the error code **COMPARE_SRC_AND_CDN_FAILURE** is returned.

Possible Causes

The object metadata obtained by OMS from the source bucket does not match the HTTP header in the response from CDN. To be specific, the object size is inconsistent or the last modification time of the cached object on CDN is earlier.

Solution

1. Check whether the CDN domain name can be used to download the object from the CDN. OMS uses the URL consisting of the CDN domain name and the object name to download the object.
 - a. If the URL cannot be accessed, check whether anti-leeching is enabled for CDN.
 - b. If the URL can be accessed, go to 2.
2. Check whether the values of **Content-Length** and **Last-Modified** in the HTTP response header are the same as those in the object metadata obtained from the source bucket.
 - a. If the **Content-Length** value is inconsistent with that in the metadata, check whether image compression is enabled on CDN. If yes, disable image compression and perform the migration again.

Figure 5-3 Object size in the metadata

Solution

Update the CDN cache so that the cached object on CDN is the latest.

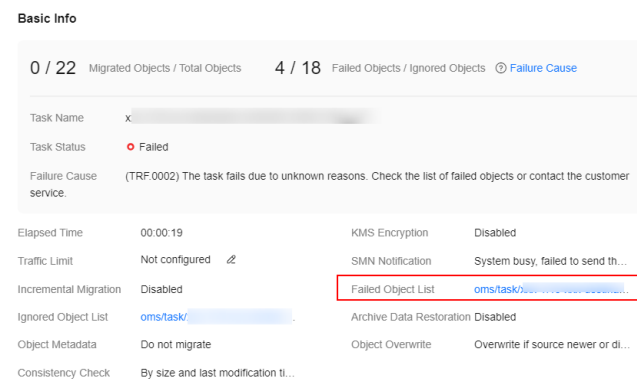
Problem 3

The migration fails and the error code **403** is displayed in the list of failed objects.



To obtain the list of failed objects, you can click the name of the failed migration task and in the task details displayed on the right, click the link next to **Failed Object List**.

Figure 5-6 Failed Object List



Possible Causes

403 indicates that OMS does not have the permissions to access the CDN domain name because:

- The CDN is public, and anti-leeching was enabled for it.
- The CDN is private, and CND authentication was not enabled for the migration task or task group.

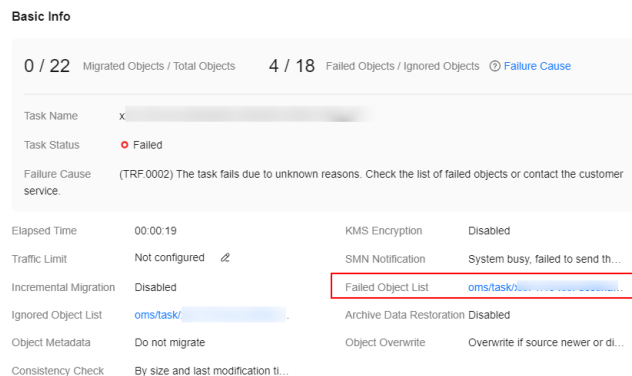
Solutions

- Disable anti-leeching. If anti-leeching cannot be disabled for security purposes, contact Huawei Cloud technical support.
- Enable CND authentication and correctly enter the CDN verification key on when you configure a migration task or task group the OMS console.

Problem 4

The migration fails and the error code **COMPARE_SRC_AND_CDN_FAILURE** is displayed in the list of failed objects.

To obtain the list of failed objects, you can click the name of the failed migration task and in the task details displayed on the right, click the link next to **Failed Object List**.

Figure 5-7 Failed Object List

Possible Causes

CDN performance optimization, such as Gzip compression or page optimization, is enabled at the source. OMS has learned how large the object is based on **Content-Length** of the object metadata obtained from the source bucket. However, when transmitting this object, OMS finds that the object is compressed and its size is smaller than what OMS has learned. OkHttp3 determines that the stream is interrupted during data transmission. As a result, the migration fails.

Solutions

- Solution 1: Disable CDN performance optimization and then perform the migration again.
- Solution 2: Use the URL list method to perform the migration. When configuring the advanced options, set **Consistency Check** to **Not required**.

5.9 What Do I Do If All Objects Whose Names Contain Slashes (/) Fail to be Migrated from Alibaba Cloud?

Symptom

When you migrated an entire bucket from Alibaba Cloud, all objects whose names contain slashes (/) failed to be migrated. According to the migration logs, objects were listed, and their metadata was successfully obtained. However, error 404 "No such key" was reported when the objects were obtained.

Possible Causes

Default Homepage is set to **index.html** for the OSS bucket. When OMS pulls objects from the OSS bucket, it adds **index.html** to the end of object names that contain slash (/), and error 404 is reported.

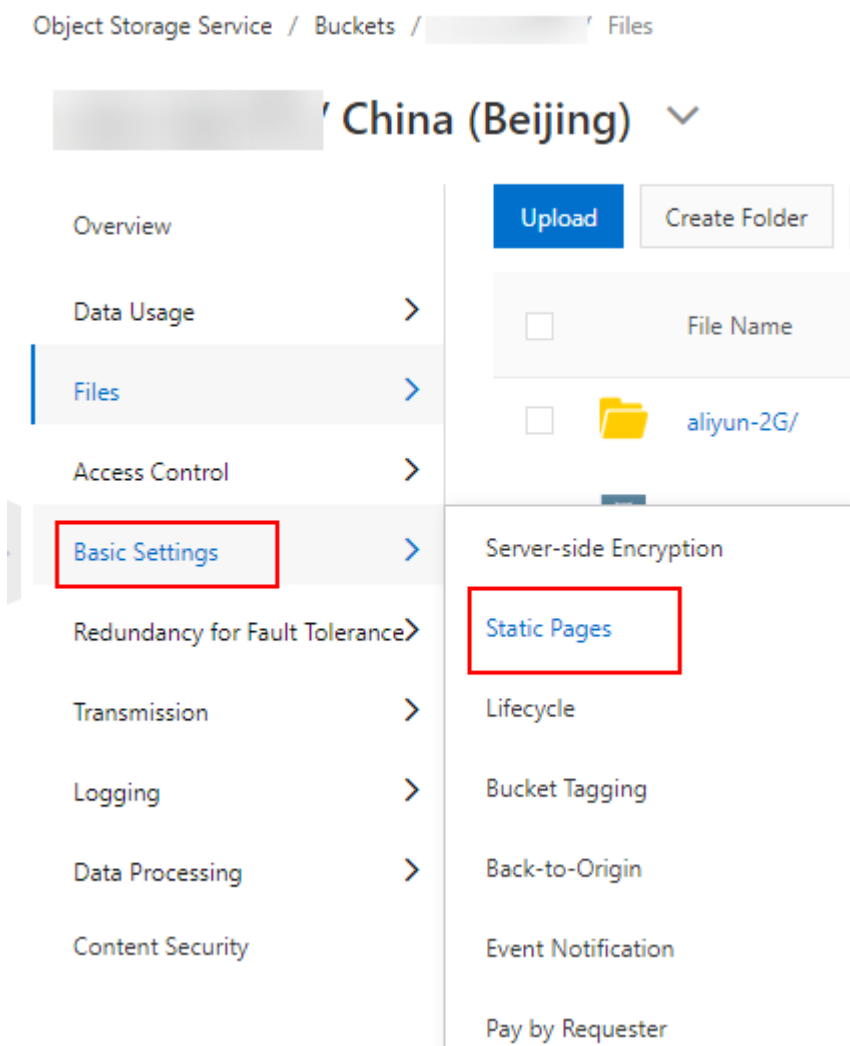
Solution

- Step 1** Log in to the OSS console using your Alibaba Cloud account.
- Step 2** In the navigation pane on the left, click **Buckets**.

Bucket Name #	Tag	Region	Storage Class	Redundancy	Capacity	Traffic (G)	Visits This	Standard	Billed M. Storage	Billed Archive	Versioning	Transfer
		UAE (Dubai)	Standard	Locally Redundant Storage (LRS)	130.48 MB	0 Byte	35	130.48 MB	0 Byte	0 Byte	Enable	Enable
		Germany (Frankfurt)	Standard	Locally Redundant Storage (LRS)	180.86 KB	0 Byte	47	180.86 KB	0 Byte	0 Byte	Enable	Enable
		Singapore	Standard	Locally Redundant Storage (LRS)	108 Byte	0 Byte	19	108 Byte	0 Byte	0 Byte	Enable	Enable
		China (Beijing)	Standard	Locally Redundant Storage (LRS)	69.27 GB	98.76 MB	1,642,621	50.9 GB	6.84 MB	117.43 GB	Enable	Enable
		China (Beijing)	Standard	Locally Redundant Storage (LRS)	47.8 KB	0 Byte	19	47.8 KB	0 Byte	0 Byte	Enable	Enable

Step 3 Click the name of the bucket to be migrated.

Step 4 In the navigation pane on the left, choose **Basic Settings > Static Pages**.



Step 5 In the **Static Pages** area, click **Configure**.

Step 6 Delete the setting of **Default Homepage**, select **Disable** for **Subfolder Homepage**, and click **Save**.

Perform the migration again.

----End

5.10 How Do I Resolve the Error "Failed to access the object. Make sure that the object exists and you have the rights to access" When I Enter Object Prefixes?

Symptom

During the creation of a migration task or group, you selected migration method **Object name prefix** and entered a prefix, and the system reported error message "Failed to access the object. Make sure that the object exists and you have the rights to access."

Possible Causes

The matched objects are stored in a non-root directory of the source bucket.

Solution

Add the directory before the prefix for filtering these objects in the format of *bucket name/folder/prefix*.

5.11 What Can I Do If Consistency Checks Fail During the Migration of Data in a Parallel File System?

Symptom

During the migration of data in a parallel file system, the data consistency check failed, even after the migration was tried again. It was found that source objects were modified more recently than destination objects, and the last modification times of destination objects remained unchanged.

Possible Causes

Metadata mtime (which indicates the last time the contents of a file were modified) is configured in the source parallel file system. It means the last modification times of files are fixed. Data consistency checks will always fail. This problem does not affect the migration. You can ignore this problem.

5.12 What Can I Do If the Migration Failed Because the Objects Cannot Be Downloaded from the Source Bucket?

Symptom

A migration task failed because the objects could not be downloaded from the source bucket.

Possible Causes

Possible causes include:

- Files created by OMS in the destination bucket are deleted.
- The source or destination account has insufficient permissions.

Solutions

- Restart the migration task or task group.
- Obtain required permissions for the source and destination accounts by referring to [How Do I Obtain Required Permissions for the Source and Destination Platform Accounts?](#) Then try the migration again.

5.13 What Can I Do If a Migration Task Failed Due to Transmission Interruptions?

Symptom

A migration task failed to be executed. In the list of failed objects, the failure cause was "UPLOAD_DST_OBJ_FAILURE" and the error description was "-1-OBSClientUploadError".



Possible Causes

The network fluctuated during the migration.

Solutions

- Solution 1: Manually restart the migration task.
- Solution 2: Embed code in your service system to automatically check the status of the task and to restart the task if it fails.
- Solution 3: Use FunctionGraph to automatically check the task status and restart the task if it fails. For details, see [Automatically Checking and Restarting Failed Migration Tasks](#).