

Object Storage Migration Service

Best Practices

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1 Overview

This document describes how to use the Object Storage Migration Service (OMS) to quickly migrate objects in typical application scenarios.

Table 1-1 OMS best practices

Best Practice	Scenario	Advantage
Migration with Dual-Write	This practice is suitable to migration of a large amount of data, but it is expensive because your service data will be written to both the source and destination buckets.	Cross-cloud backup scenarios: <ul style="list-style-type: none">• Zero service interruptions Your services do not have to go down during the migration. You can adjust the service switchover time based on your service requirements.• One-time migration and ease of use

Best Practice	Scenario	Advantage
<p>Multiple Incremental Migrations</p>	<p>This practice is suitable to rapid migration of a small amount of incremental data. The following methods can be used to quickly identify and migrate incremental data:</p> <ul style="list-style-type: none"> • Identify the incremental objects in advance and migrate these objects using the OMS object list function. • Record the time when the previous migration task is created. When you create the next task, enable the incremental migration function of OMS and set the migration time to the time you recorded. 	<ul style="list-style-type: none"> • Rapid migration • Short service interruption • Ease of use <p>You can use the following rule to estimate how much time will be needed for an incremental migration:</p> <p>Incremental migration duration = Time required for identifying incremental objects (by comparing all objects in the source destination buckets) + Time required for migrating these incremental objects</p>
<p>Migrating Archive Data</p>	<p>This practice is suitable to migration of archive data.</p>	<p>Rapid migration enabled by restoration in advance</p>

2 Automatically Checking for and Retrying Failed Migration Tasks

Overview

After a migration task or migration task group is started by calling an OMS API, the task or task group may fail due to network fluctuations or other reasons. To resolve this problem, you can:

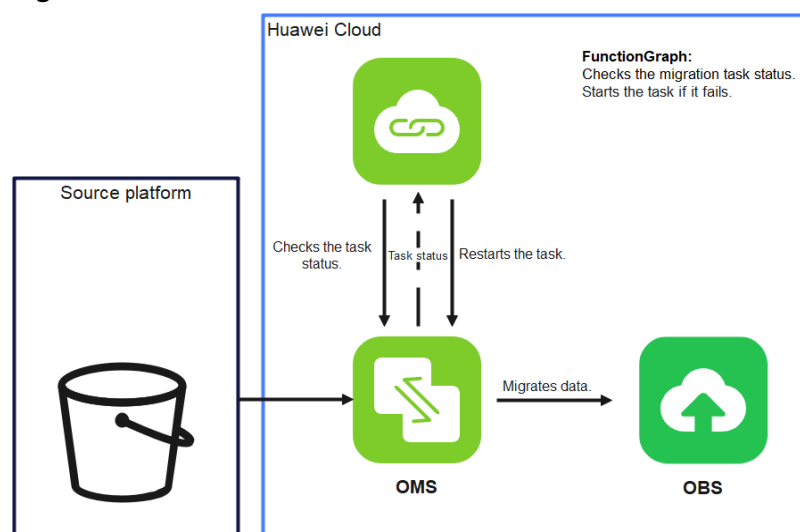
- Manually call the API to restart the task or task group.
- Embed the code in your service system to automatically check the status of the task or task group and to restart it whenever it fails.
- Use Huawei Cloud FunctionGraph to automatically check the status of the task or task group and to restart it whenever it fails.

The following describes how to use Huawei Cloud FunctionGraph to monitor a migration task and retry it if it fails.

NOTE

This solution is for reference only. For details about how to use FunctionGraph, see [FunctionGraph](#).

Figure 2-1 Architecture



After an OMS migration task is started, FunctionGraph is triggered to periodically check the migration task status.

- If FunctionGraph detects that a migration task has failed and if the task is not included in a task group, FunctionGraph calls the OMS API to restart the migration task.
- If FunctionGraph detects that a migration task included in a task group has failed, FunctionGraph calls OMS APIs to check the status of the migration task group and keeps restarting the task until the migration task group enters a failed status.

FunctionGraph stops checking the migration task status if the migration succeeds or the number of retry times reaches a certain threshold.

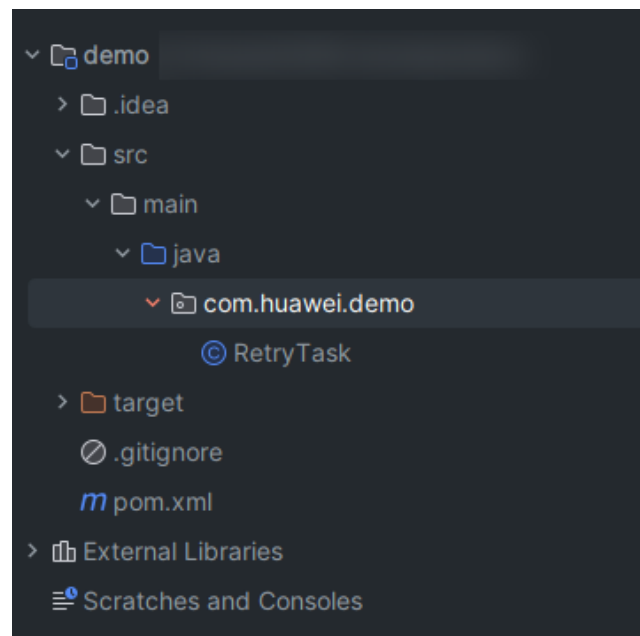
Prerequisites

- You have [signed up a HUAWEI ID and enabled Huawei Cloud services](#). If you are migrating a region within the Chinese mainland, you also must complete [real-name authentication](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
- A migration task or migration task group has been started.

Step 1: Creating a Package

This example uses Java 8 to periodically check for and restart failed migration tasks. For details about function development, see [Developing Functions in Java](#).

Figure 2-2 Directory structure



Dependencies of the **pom.xml** file:

```
<dependency>  
<groupId>Runtime</groupId>  
<artifactId>Runtime</artifactId>
```

```
<version>2.0.5</version>
</dependency>
<dependency>
  <groupId>com.huaweicloud.sdk</groupId>
  <artifactId>huaweicloud-sdk-oms</artifactId>
  <version>3.1.86</version>
</dependency>
```

Sample code:

```
package com.huawei.demo;

import com.huawei.services.runtime.Context;
import com.huawei.services.runtime.RuntimeLogger;
import com.huawei.services.runtime.entity.timer.TimerTriggerEvent;

import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.oms.v2.OmsClient;
import com.huaweicloud.sdk.oms.v2.model.RetryTaskGroupReq;
import com.huaweicloud.sdk.oms.v2.model.RetryTaskGroupRequest;
import com.huaweicloud.sdk.oms.v2.model.ShowTaskGroupRequest;
import com.huaweicloud.sdk.oms.v2.model.ShowTaskGroupResponse;
import com.huaweicloud.sdk.oms.v2.model.ShowTaskRequest;
import com.huaweicloud.sdk.oms.v2.model.ShowTaskResponse;
import com.huaweicloud.sdk.oms.v2.model.StartTaskReq;
import com.huaweicloud.sdk.oms.v2.model.StartTaskRequest;
import com.huaweicloud.sdk.oms.v2.region.OmsRegion;

public class RetryTask {
  private RuntimeLogger logger;
  private String dstAk;
  private String dstSk;
  private String srcAk;
  private String srcSk;

  public String checkAndRetryTask(TimerTriggerEvent event, Context context) {
    logger = context.getLogger();
    String region = context.getUserData("region_id");
    String taskId = context.getUserData("task_id");
    int maxRetryCount = Integer.parseInt(context.getUserData("retry_count"));
    srcAk = context.getUserData("src_ak");
    srcSk = context.getUserData("src_sk");
    dstAk = context.getUserData("dst_ak");
    dstSk = context.getUserData("dst_ak");

    String ak = context.getAccessKey();
    String sk = context.getSecretKey();
    ICredential auth = new BasicCredentials()
      .withAk(ak)
      .withSk(sk);

    OmsClient client = OmsClient.newBuilder()
      .withCredential(auth)
      .withRegion(OmsRegion.valueOf(region))
      .build();
    ShowTaskRequest request = new ShowTaskRequest();
    request.withTaskId(taskId);
    int retryCount = 0;
    try {
      while (true) {
        ShowTaskResponse taskResponse = client.showTask(request);
        Integer status = taskResponse.getStatus();
        logger.info("task status: "+status);
        if (retryCount >= maxRetryCount || status == 5) {
          break;
        }
        if ("NORMAL_TASK".equals(taskResponse.getGroupType().getValue()) && status == 4) {
```

```
        retryTask(client, taskId);
        logger.info("task restart:" + taskId);
        retryCount++;
        continue;
    }
    if ("GROUP_TASK".equals(taskResponse.getGroupType().getValue()) && status == 4) {
        retryTasksGroup(client, taskResponse.getGroupId());
        logger.info("task group restart:" + taskResponse.getGroupId());
        retryCount++;
    }
}
return "ok";
} catch (ConnectionException e) {
    logger.error("Failed to restart the task, error_msg: " + e.getMessage());
} catch (RequestTimeoutException e) {
    logger.error("Time out, failed to restart the task, error_msg: " + e.getMessage());
} catch (ServiceResponseException e) {
    logger.error("Failed to restart the task, error_code: " + e.getErrorCode() + ", error_msg: " +
e.getErrorMsg());
}
return "fail";
}
}
private void retryTasksGroup(OmsClient client, String groupId) {
    ShowTaskGroupRequest taskGroupRequest = new ShowTaskGroupRequest();
    taskGroupRequest.withGroupId(groupId);
    ShowTaskGroupResponse taskGroupResponse = client.showTaskGroup(taskGroupRequest);
    if (taskGroupResponse.getStatus() == 5) {
        RetryTaskGroupRequest retryTaskGroupRequest = new RetryTaskGroupRequest();
        retryTaskGroupRequest.withGroupId(groupId);
        RetryTaskGroupReq body = new RetryTaskGroupReq();
        body.withMigrateFailedObject(false);
        body.withDstAk(dstAk);
        body.withDstSk(dstSk);
        body.withSrcAk(srcAk);
        body.withSrcSk(srcSk);
        retryTaskGroupRequest.withBody(body);
        client.retryTaskGroup(retryTaskGroupRequest);
    }
}
private void retryTask(OmsClient client, String taskId) {
    StartTaskRequest startTaskRequest = new StartTaskRequest();
    StartTaskReq body = new StartTaskReq();
    body.withMigrateFailedObject(false);
    body.withDstAk(dstAk);
    body.withDstSk(dstSk);
    body.withSrcAk(srcAk);
    body.withSrcSk(srcSk);
    startTaskRequest.withBody(body);
    startTaskRequest.withTaskId(taskId);
    client.startTask(startTaskRequest);
}
}
```

Step 2: Create a Function

Step 1 Log in to the [FunctionGraph console](#), and choose **Functions > Function List** in the navigation pane.

Step 2 Click **Create Function**.

Step 3 Set the function information. After setting the basic information, click **Create**.

- **Function Name:** Enter **check_retry_task**.
- **Agency:** Select **default**.
- **Runtime:** Select **Java 8**.

Step 4 Click the name of the **check_retry_task** function. On the **Code** tab page, choose **Upload > Local JAR**, upload the JAR package compiled using the sample code, and click **Deploy**.

Step 5 Choose **Configuration > Basic Settings**, set the following parameters, and click **Save**.

- **Memory**: Select **512**.
- **Execution Timeout**: Enter **10**.
- **Handler**: Enter **com.huawei.demo.RetryTask.checkAndRetryTask**.

 **NOTE**

The handler must be named in the format of *[Package name].[Class name].[Execution function name]*. Modify the handler name based on the uploaded code.

- **App**: Retain the default value **default**.
- **Description**: Enter a description.

----End

Step 3: Configuring Environment Variables

Step 1 On the **check_retry_task** details page, choose **Configuration > Environment Variables**.

Step 2 Click **Add**, configure environment variables based on [Table 2-1](#), and click **Save**.

Table 2-1 Environment variables

Environment Variable	Description
region_id	Specifies the region where the destination bucket is located, for example, cn-north-4 .
task_id	Specifies the migration task ID.
max_retry_count	Specifies the number of retry attempts.
dst_ak	Specifies the AK of the destination account. Enable Encrypted for it.
dst_sk	Specifies the SK of the destination account. Enable Encrypted for it.
src_ak	Specifies the AK of the source account. Enable Encrypted for it.
src_sk	Specifies the SK of the source account. Enable Encrypted for it.

----End

Step 4: Configuring an Event Source

After creating a function, you can add a timer event source for the function, so that the function can be triggered to periodically check the migration status of the migration task and restart the task if it fails.

Step 1 On the `check_retry_task` details page, choose **Configuration > Triggers**.

Step 2 Click **Create Trigger**.

Step 3 Configure the following parameters:

- **Trigger Type:** Select **Timer**.
- **Timer Name:** Enter a timer name, for example, **Timer**.
- **Rule:** Set a fixed rate or a cron expression.
 - **Fixed rate:** The function is triggered at a fixed rate of minutes, hours, or days. You can set a fixed rate from 1 to 60 minutes, 1 to 24 hours, or 1 to 30 days.
 - **Cron Expression:** The function is triggered based on a complex rule. For example, you can set a function to be executed at 08:30:00 from Monday to Friday. For more information, see [Cron Expressions for a Function Timer Trigger](#).
- **Enable Trigger:** Choose whether to enable the timer trigger.
- **Additional Information:** The additional information you configure will be put into the `user_event` field of the timer event source. For details, see [Supported Event Sources](#).

×

Create Trigger

Trigger Type

The total number of DDS, GAUSSMONGO, DIS, LTS, Kafka and timer triggers cannot exceed 10. You have created 1 such triggers.

* Timer Name

Enter 1 to 64 characters, starting with a letter. Only letters, digits, hyphens (-), and underscores (_) are allowed.

* Rule Fixed rate Cron expression

1-60 minutes, 1-24 hours, or 1-30 days

* Enable Trigger

Additional Information ⓘ

0/2,048

Step 4 Click **OK**.

----End

3 Service Cutover

3.1 Migration with Back-to-Source

This tutorial describes how to migrate data using OMS and OBS back-to-source.

Advantages

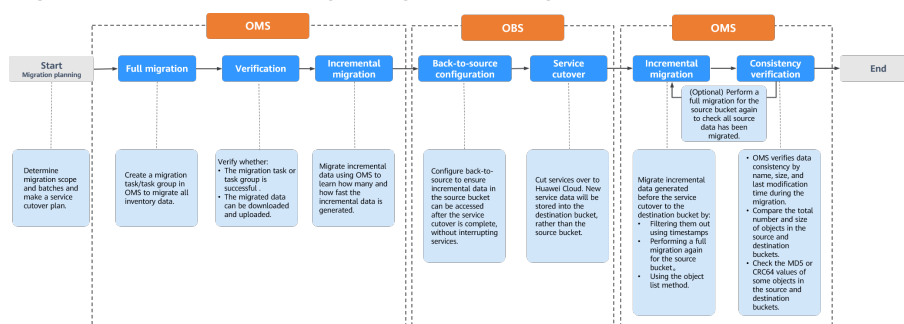
This solution has the following advantages:

- Zero service interruptions: Your services are not interrupted during the whole migration process. This helps you deliver smooth user experience.
- High reliability: You can perform service verification before the service cutover starts and after the migration finishes.

Process

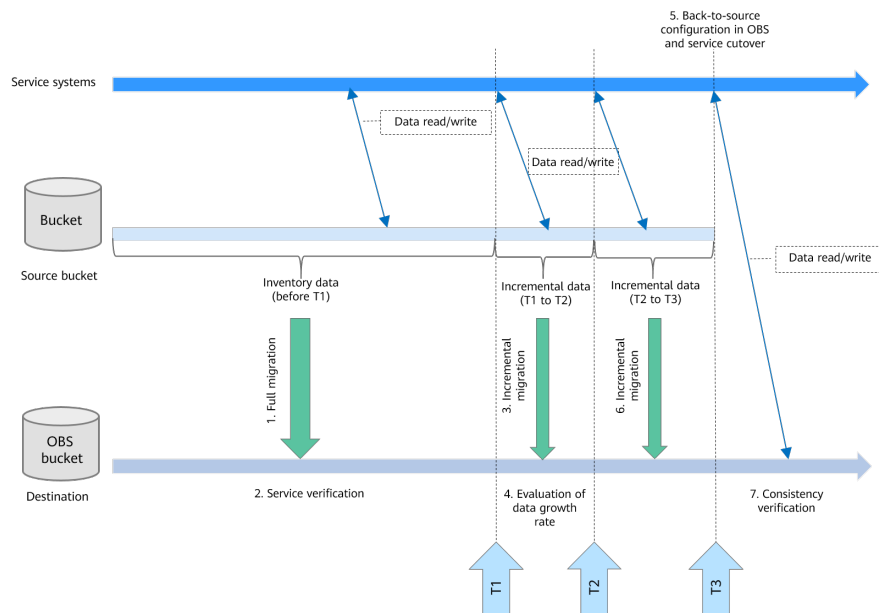
The following figure shows the migration process with OMS and OBS back-to-source.

Figure 3-1 Process of migrating data using OMS and OBS back-to-source



The following figure shows the migration procedure.

Figure 3-2 Migration diagram



The procedure is as follows:

1. T1: full migration and verification on Huawei Cloud
 - (1) Migrate all data generated before the time point T1 from the source bucket to the destination bucket on Huawei Cloud. During this period, your service systems continue to write data to the source bucket.
 - (2) Verify the migration is successful and the data migrated to Huawei Cloud can be downloaded and uploaded.
2. T2: incremental data migration and evaluation of data growth rate
 - (3) Migrate the incremental data generated from T1 to T2 to Huawei Cloud.
 - (4) Evaluate data growth rate to determine the time window for service verification.
3. T3: back-to-source configuration in OBS, service cutover, and incremental migration
 - (5) Configure back-to-source for the destination OBS bucket and cut services over to Huawei Cloud at T3. Then incremental data generated before T3 in the source bucket can be accessed through back-to-source without interrupting your services, and new service data will be stored into the destination bucket, rather than the source bucket.
 - (6) Migrate incremental data generated from T2 to T3 to Huawei Cloud.
 - (7) Compare the total number and size of objects in the source and destination buckets to check that all data in the source bucket has been migrated.

CAUTION


OMS makes API calls to the object storage service on the source platform during the migration. These API calls may generate fees on the source platform, and you will be responsible for those fees based on those source platform billing structures.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
 - The source platform account needs the permissions for:
 - Listing buckets
 - Obtaining bucket locations
 - Listing objects
 - Obtaining object metadata
 - Obtaining object contentFor details about how to obtain these permissions, see [Source Permissions](#).
 - The destination platform account needs the permissions for:
 - Listing buckets
 - Obtaining bucket locations
 - Listing objects
 - Obtaining object metadata
 - Obtaining object content
 - Listing uploaded parts
 - Restoring archive objectsFor details about how to obtain these permissions, see [Destination Permissions](#).
- You have created at least one bucket on OBS.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region.

Step 3 Click **Service List**. Under **Migration**, click **Object Storage Migration Service**.

The **Object Storage Migration Service** page is displayed.

Step 4 Create a migration task or migration task group to migrate the source data.

- If there is more than 3 TB of data or more than 5 million objects to migrate, create a migration task group. For details, see [Creating a Migration Task Group](#).
- If there is not a lot of source data, create a migration task. For details, see [Creating a Migration Task](#).

Step 5 After the migration and verification is complete, go to OBS console, create back-to-source rules for the destination OBS bucket, and switch services to Huawei Cloud.

For details, see .

Step 6 Back to the OMS console, create a migration task or migration task group for the source bucket again. During this migration, OMS fully compares the objects in the source and destination buckets, synchronize all data that is not migrated or modified from the source bucket to the destination bucket. For detailed comparison rules, see [How Does Migration Affect Data in the Destination Bucket?](#)

If there is more than 3 TB of data or more than 5 million objects to migrate, create a migration task group. For details, see [Creating a Migration Task Group](#).

If there is not a lot of source data, create a migration task. For details, see [Creating a Migration Task](#).

----End

3.2 Migration with Dual-Write

Scenarios

This section describes how to migrate data using OMS and dual-write. This practice ensures zero service interruption.

The migration process is as follows:

1. Before migration, configure your services to write data to both the source and destination buckets. This is to ensure that incremental data is written to both buckets.
2. Perform a full migration of source data with OMS. During the migration, OMS automatically identifies objects with the same name at the source and destination and overwrites those at the destination based on configured policy. For details about overwriting policies, see [How Does Migration Affect Data in the Destination Bucket?](#)
3. After the full migration and service verification are complete, switch services to Huawei Cloud and stop writing data to the source bucket.

 **CAUTION**

OMS makes API calls to the object storage service on the source platform during the migration. These API calls may generate fees on the source platform and you will be responsible for those fees based on those source platform billing structures.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.

- The source platform account needs the permissions for:

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

For details about how to obtain these permissions, see [Source Permissions](#).

- The destination platform account needs the permissions for:


- Listing buckets
- Obtaining bucket locations
- Listing objects
- Obtaining object metadata
- Obtaining object content
- Listing uploaded parts
- Restoring archive objects

For details about how to obtain these permissions, see [Destination Permissions](#).

- You have created at least one bucket on OBS.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region.

Step 3 Click **Service List**. Under **Migration**, click **Object Storage Migration Service**.

The **Object Storage Migration Service** page is displayed.

Step 4 Create a migration task or migration task group to migrate the source data.

- If there is more than 3 TB of data or more than 5 million objects to migrate, create a migration task group. For details, see [Creating a Migration Task Group](#).
- If there is not a lot of source data, create a migration task. For details, see [Creating a Migration Task](#).

Step 5 After the migration and service verification, switch services to Huawei Cloud and stop writing data to the source bucket.

----End

3.3 Multiple Incremental Migrations

Scenarios

This section describes how to migrate incremental data multiple times.

The migration process is as follows:

1. Perform a full migration of source data with OMS.
2. Migrate incremental data multiple times to reduce data differences between the source and destination buckets.
3. Stop the services carried by the source bucket and perform the last incremental migration at an appropriate time. After the last incremental migration is complete, configure the services to write data to the destination bucket.

 **CAUTION**

OMS makes API calls to the object storage service on the source platform during the migration. These API calls may generate fees on the source platform and you will be responsible for those fees based on those source platform billing structures.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
 - The source platform account needs the permissions for:
 - Listing buckets
 - Obtaining bucket locations
 - Listing objects
 - Obtaining object metadata
 - Obtaining object contentFor details about how to obtain these permissions, see [Source Permissions](#).
 - The destination platform account needs the permissions for:
 - Listing buckets
 - Obtaining bucket locations
 - Listing objects
 - Obtaining object metadata


- Obtaining object content
- Listing uploaded parts
- Restoring archive objects

For details about how to obtain these permissions, see [Destination Permissions](#).

- You have created at least one bucket on OBS.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region.

Step 3 Click **Service List**. Under **Migration**, click **Object Storage Migration Service**.

The **Object Storage Migration Service** page is displayed.

Step 4 Create a migration task or migration task group to migrate the source data.

- If there is more than 3 TB of data or more than 5 million objects to migrate, create a migration task group. For details, see [Creating a Migration Task Group](#).
- If there is not a lot of source data, create a migration task. For details, see [Creating a Migration Task](#).

Step 5 Stop the services carried by the source bucket and perform the last incremental migration at an appropriate time. After the last incremental migration is complete, configure the services to write data to the destination bucket.

NOTE

To migrate incremental data quickly, you can identify incremental objects in advance and migrate these objects by object list using OMS.

----End

4 Special Migration Scenarios

4.1 Migrating Archive Data

Scenarios

This section describes how to quickly migrate archive data from source buckets to Huawei Cloud OBS buckets. Using OMS directly to migrate archive data takes a long time.

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 the **direct reading** function enabled, the archive data in these OBS buckets can be directly downloaded without being restored in advance. But OMS cannot migrate such data.
 - Direct reading may be a billable function of your source object storage service. Nevertheless, you will be billed for enabling OMS to call or directly using the direct reading function of Huawei Cloud OBS. For 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**.
-

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
 - The source platform account needs the permissions for:

- Listing buckets
 - Obtaining bucket locations
 - Listing objects
 - Obtaining object metadata
 - Obtaining object content
- For details about how to obtain these permissions, see [Source Permissions](#).
- The destination platform account needs the permissions for:
 - Listing buckets
 - Obtaining bucket locations
 - Listing objects
 - Obtaining object metadata
 - Obtaining object content
 - Listing uploaded parts
 - Restoring archive objects
- For details about how to obtain these permissions, see [Destination Permissions](#).
- You have created at least one bucket on OBS.

Procedure

- 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 archive data. For details, see [Restoring Objects from OBS Archive](#).
- Step 2** Log in to the management console.
- Step 3** Click **Service List**. Under **Migration**, click **Object Storage Migration Service**.
The **Object Storage Migration Service** page is displayed.
- Step 4** Create a migration task or migration task group to migrate the source data.
- If there is more than 3 TB of data or more than 5 million objects to migrate, create a migration task group. For details, see [Creating a Migration Task Group](#).
 - If there is not a lot of source data, create a migration task. For details, see [Creating a Migration Task](#).

 **CAUTION**

It is recommended that you enable the archive data restoration function of OMS. OMS will automatically restore and migrate the archive data that is not restored in advance.

----End

4.2 Adding a Name Prefix or Path Prefix to Migrated Objects

Overview

The **Specify Prefix** parameter enables you to:

- Add a name prefix to objects migrated to the destination bucket.
For example, if you set **Specify Prefix** to **Yes** and specify the prefix **Test-Prefix** when you create a migration task or task group, source objects **oms_a.txt** and **oms_b.txt** will be renamed **Test-Prefixoms_a.txt** and **Test-Prefixoms_b.txt** after they are migrated to the destination bucket.
- Add a path prefix to objects migrated to the destination bucket.
For example, if you set **Specify Prefix** to **Yes** and specify the path prefix **Test-Prefix/** when you create a migration task or task group, OMS will create a **Test-Prefix/** directory in the root directory of the destination bucket, and migrate source objects, such as **oms_a.txt** and **oms_b.txt** to it. The paths to **oms_a.txt** and **oms_b.txt** will be *Destination bucket name/Test-Prefix/oms_a.txt* and *Destination bucket name/Test-Prefix/oms_b.txt*.

Scenarios

This section uses the **File/Folder** migration method as an example to describe how to configure **Specify Prefix** during the creation of a migration task or task group.

You can use **Specify Prefix** to:

- [Add a name prefix to migrated files.](#)
- [Add a path prefix to migrated files.](#)
- [Add a name prefix to migrated folders.](#)
- [Add a path prefix to migrated folders.](#)
- [Add a path prefix to the whole bucket.](#)

Add a Name Prefix to Migrated Files

Step 1 Log in to the Huawei Cloud [console](#).


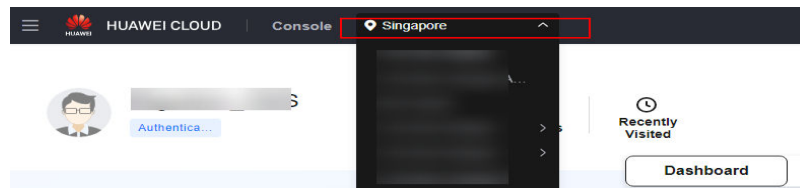
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

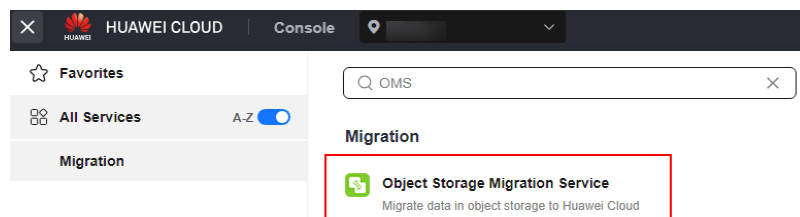
Figure 4-1 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

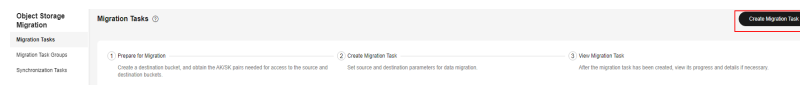
You can also enter **OMS** in the search box to quickly find OMS.

Figure 4-2 Choosing OMS



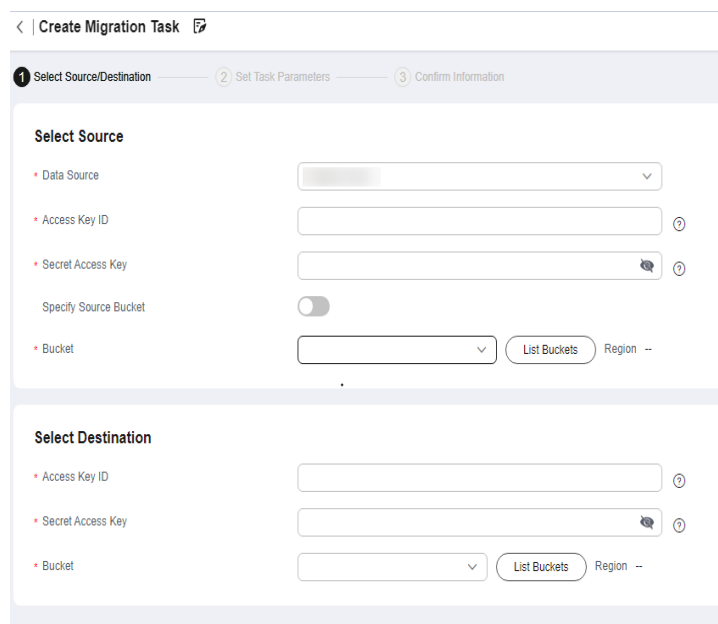
Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 4-3 Creating a migration task



Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

Figure 4-4 Select Source/Destination



Step 6 Set parameters in the **Select Source** area. For details, see [Table 4-1](#).

Table 4-1 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select Huawei Cloud .
Access Key ID	Enter the AK for the Huawei Cloud account to which the source bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the source bucket belongs.
Specify Source Bucket	<p>If you disable Specify Source Bucket (which is disabled by default), you need to:</p> <ol style="list-style-type: none"> 1. Click List Buckets next to Bucket. All buckets in the account will be listed. 2. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source account does not have the permissions required to list buckets, you need to enable Specify Source Bucket.</p>
	<p>If you enable Specify Source Bucket, you need to:</p> <ol style="list-style-type: none"> 1. Select the region where the source bucket is located from the Region drop-down list. 2. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. 3. Click Connect.

Step 7 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 4-2](#).

Table 4-2 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 8 On the displayed **Set Task Parameters** page, set parameters.

Figure 4-5 Setting task parameters

1 Select Source/Destination 2 Set Task Parameters 3 Confirm Information

Source Configuration

Select Migration Method File/Folder Object List Object Name Prefix URL List

Select the files or folders you want to migrate. If you do not select specific files or folders, all objects in the source bucket will be migrated.

Bucket

Select the files and folders to migrate.

Incremental Data Yes No

Destination Configuration

Data Encryption KMS (if KMS is selected, all migrated data will be encrypted before it is stored in the destination bucket.)

Specify Prefix Yes No

Advanced Settings

Failed Object Record Yes No

Archive Data Restoration Yes No

SMN Notification Yes No

Traffic Limit Yes No

Description

Step 9 In the **Source Configuration** area, set **Select Migration Method** to **File/Folder**.

Figure 4-6 Selecting a migration method

Source Configuration

Migration Method File/Folder Object list Object name prefix URL list

Select the files or folders you want to migrate. If you do not select specific files or folders, all objects in the source bucket will be migrated.

Bucket

Select the files and folders to migrate.

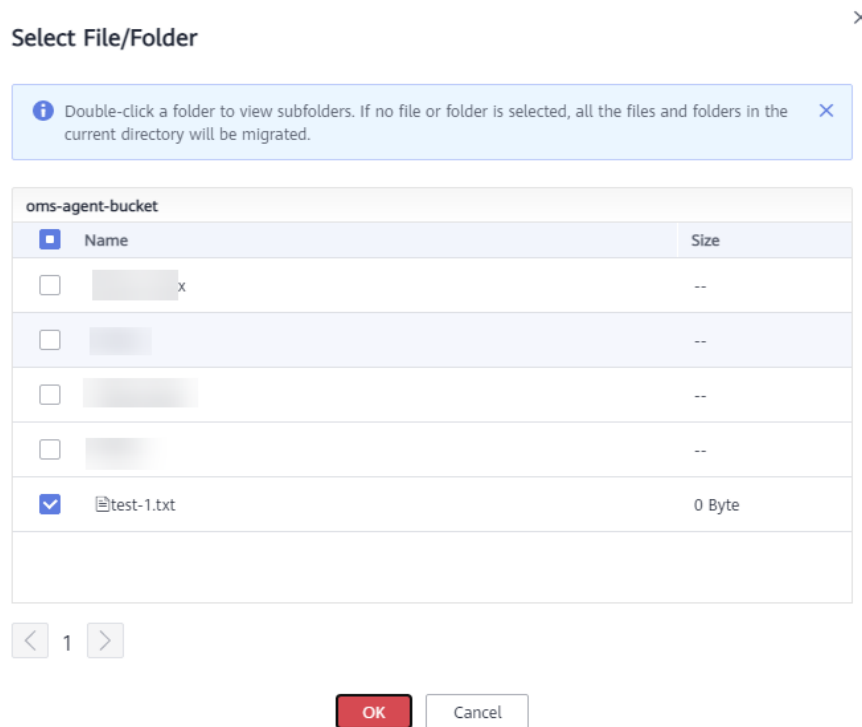
Object Metadata

Metadata ContentType will still be migrated to ensure a successful migration.

Incremental Migration Yes No

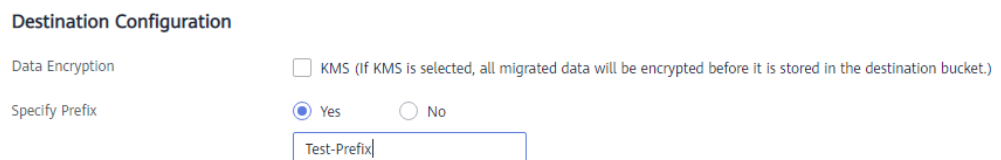
Step 10 Click **Select** on the left of the **Bucket** box. In the **Select File/Folder** dialog box, as shown in [Figure 4-7](#), select one or more files to be migrated and click **OK**.

Figure 4-7 Selecting files



Step 11 In the **Destination Configuration** area, select **Yes** for **Specify Prefix** and enter a prefix, for example, **Test-Prefix**.

Figure 4-8 Specifying a prefix



Step 12 Click **Next** to access the confirmation page.

Figure 4-9 Confirmation

The screenshot shows a multi-step migration confirmation process. It is divided into several sections:

- Source Information:** Fields for Data Source, Region, and Bucket.
- Destination Information:** Fields for Bucket and Region.
- Source Configuration:** Migration Method (File/Folder), Incremental Data (No), and a field for File/Folder (test-1.txt).
- Destination Configuration:** Data Encryption (No), Specify Prefix (Test-Prefix), and a field for Test-Prefix.
- Advanced Settings:** SMN Notification (No), Failed Object Record (Yes), Archive Data Restoration (Disabled), and Description (--).

Navigation buttons at the bottom include 'Previous' and 'Migrate Now'.

Step 13 Confirm the configuration and click **Migrate Now**.

Step 14 After the migration is complete, view the migrated files in the destination bucket. You will see the prefix **Test-Prefix** has been added to the names of these files.

Figure 4-10 Verification

The screenshot shows the Object Storage console interface. A table lists the migrated objects:

Name	Storage Class	Size	Encrypted	Restoration Status	Last Modified	Operation
[Redacted]	--	--	--	--	--	Share | Copy Path | More
[Redacted]	--	--	--	--	--	Share | Copy Path | More
[Redacted]	--	--	--	--	--	Share | Copy Path | More
[Redacted]	--	--	--	--	--	Share | Copy Path | More
Test-Prefix-1.txt	Standard	0 byte	No	--	Oct 15, 2021 17:04:32 GMT+08:00	Download | Share | More

----End

Add a Path Prefix to Migrated Files

Step 1 In the **Source Configuration** area, set **Select Migration Method** to **File/Folder**.

Figure 4-11 Selecting a migration method

Source Configuration

Migration Method File/Folder Object list Object name prefix URL list

Select the files or folders you want to migrate. If you do not select specific files or folders, all objects in the source bucket will be migrated.

Bucket a00-guiyang-oms

Select the files and folders to migrate.

Object Metadata

Metadata ContentType will still be migrated to ensure a successful migration.

Incremental Migration Yes No

Step 2 Click **Select** on the left of the **Bucket** box. In the **Select File/Folder** dialog box, as shown in **Figure 4-12**, select one or more files to be migrated and click **OK**.

Figure 4-12 Selecting files

Select File/Folder ×

i Double-click a folder to view subfolders. If no file or folder is selected, all the files and folders in the current directory will be migrated. ×

oms-agent-bucket		
<input type="checkbox"/>	Name	Size
<input type="checkbox"/>	...	--
<input type="checkbox"/>	...	--
<input type="checkbox"/>	...	--
<input type="checkbox"/>	...	--
<input checked="" type="checkbox"/>	test-1.txt	0 Byte

< 1 >

Step 3 In the **Destination Configuration** area, select **Yes** for **Specify Prefix** and enter a path prefix, for example, **Test-Prefix/**.

Figure 4-13 Specifying a path prefix

Destination Configuration

Data Encryption KMS (If KMS is selected, all migrated data will be encrypted before it is stored in the destination bucket.)

Specify Prefix Yes No

Test-Prefix/

Step 4 Click **Next** to access the confirmation page.

Figure 4-14 Confirmation

The screenshot shows a multi-step confirmation process. Step 3, 'Confirm Information', is active. It displays the following configuration:

- Source Information:** Data Source, Region, Bucket.
- Destination Information:** Bucket, Region.
- Source Configuration:** Migration Method (File/Folder), Incremental Data (No). A red box highlights 'File/Folder' and 'test-1.txt'.
- Destination Configuration:** Data Encryption (No). A red box highlights 'Specify Prefix' and 'Test-Prefix/'.
- Advanced Settings:** SMN Notification (No), Archive Data Restoration (Disabled), Failed Object Record (Yes), Description (--).

Buttons for 'Previous' and 'Migrate Now' are at the bottom right.

Step 5 Confirm the configuration and click **Migrate Now**.

Step 6 After the migration is complete, view the migrated files in the destination bucket. You will see that these files are all stored in the **Test-Prefix/** directory of the destination bucket.

Figure 4-15 Verification

The screenshot shows the 'Object Storage / Test-Prefix' page. A red box highlights the bucket name 'Test-Prefix'. The page displays a table of objects:

Name	Storage Class	Size	Encrypted	Restoration Status	Last Modified	Operation
test-1.txt	Standard	0 byte	No	--	Oct 15, 2021 17:19:56 GMT+08:00	Download Share More

----End

Add a Name Prefix to Migrated Folders

Step 1 In the **Source Configuration** area, set **Select Migration Method** to **File/Folder**.

Figure 4-16 Selecting a migration method

Source Configuration

Migration Method File/Folder Object list Object name prefix URL list

Select the files or folders you want to migrate. If you do not select specific files or folders, all objects in the source bucket will be migrated.

Bucket a00-guiyang-oms

Select the files and folders to migrate.

Object Metadata

Metadata ContentType will still be migrated to ensure a successful migration.

Incremental Migration Yes No

Step 2 Click **Select** on the left of the **Bucket** box. In the **Select File/Folder** dialog box, as shown in **Figure 4-17**, select one or more folders to be migrated and click **OK**.

Figure 4-17 Selecting folders

Select File/Folder ×

i Double-click a folder to view subfolders. If no file or folder is selected, all the files and folders in the current directory will be migrated. ×

<input checked="" type="checkbox"/>	Name	Size
<input type="checkbox"/>	[blurred]	--
<input checked="" type="checkbox"/>	Test	--
<input type="checkbox"/>	[blurred]	--
<input type="checkbox"/>	[blurred]	--
<input type="checkbox"/>	[blurred]	0 Byte

< 1 >

Step 3 In the **Destination Configuration** area, select **Yes** for **Specify Prefix** and enter a prefix, for example, **Test-Prefix**.

Figure 4-18 Specifying a prefix

Destination Configuration

Data Encryption KMS (if KMS is selected, all migrated data will be encrypted before it is stored in the destination bucket.)

Specify Prefix Yes No

Step 4 Click **Next** to access the confirmation page.

Figure 4-19 Confirmation

The screenshot shows a multi-step migration process. The current step is 'Confirm Information'. It is divided into several sections:

- Source Information:** Fields for Data Source, Region, and Bucket.
- Destination Information:** Fields for Bucket and Region.
- Source Configuration:** Migration Method (File/Folder) and Incremental Data (No). A dropdown menu is set to 'File/Folder' with a 'Test' button next to it.
- Destination Configuration:** Data Encryption (No) and a dropdown menu set to 'Specify Prefix' with a 'Test-Prefix' button next to it.
- Advanced Settings:** Includes SMN Notification (No), Archive Data Restoration (Disabled), Failed Object Record (Yes), and Description (--).

At the bottom right, there are 'Previous' and 'Migrate Now' buttons.

Step 5 Confirm the configuration and click **Migrate Now**.

Step 6 After the migration is complete, view the migrated folders in the destination bucket. You will see the prefix **Test-Prefix** has been added to the names of these folders.

Figure 4-20 Verification

The screenshot shows the Object Storage console interface. At the top, there are tabs for 'Objects', 'Deleted Objects', and 'Fragments'. Below the tabs, there are buttons for 'Upload Object', 'Create Folder', 'Restore', and 'More'. A search bar is present with the text 'Enter an object name prefix'. Below this is a table of objects:

Name	Storage Class	Size	Encrypted	Restoration Status	Last Modified	Operation
[Redacted]	--	--	--	--	--	Share Copy Path More
Test-Prefix	--	--	--	--	--	Share Copy Path More

----End

Add a Path Prefix to Migrated Folders

Step 1 In the **Source Configuration** area, set **Select Migration Method** to **File/Folder**.

Figure 4-21 Selecting a migration method

Source Configuration

Migration Method File/Folder Object list Object name prefix URL list

Select the files or folders you want to migrate. If you do not select specific files or folders, all objects in the source bucket will be migrated.

Bucket a00-guiyang-oms

Select the files and folders to migrate.

Object Metadata

Metadata ContentType will still be migrated to ensure a successful migration.

Incremental Migration Yes No

Step 2 Click **Select** on the left of the **Bucket** box. In the **Select File/Folder** dialog box, as shown in **Figure 4-22**, select one or more folders to be migrated and click **OK**.

Figure 4-22 Selecting folders

Select File/Folder ×

i Double-click a folder to view subfolders. If no file or folder is selected, all the files and folders in the current directory will be migrated. ×

oms-agent-bucket		
<input checked="" type="checkbox"/>	Name	Size
<input type="checkbox"/>	[blurred]	--
<input checked="" type="checkbox"/>	Test	--
<input type="checkbox"/>	[blurred]	--
<input type="checkbox"/>	[blurred]	--
<input type="checkbox"/>	[blurred]	0 Byte

< 1 >

Step 3 In the **Destination Configuration** area, select **Yes** for **Specify Prefix** and enter a path prefix, for example, **Test-Prefix/**.

Figure 4-23 Specifying a path prefix

Destination Configuration

Data Encryption KMS (If KMS is selected, all migrated data will be encrypted before it is stored in the destination bucket.)

Specify Prefix Yes No

Test-Prefix/

Step 4 Click **Next** to enter the confirmation page.

Figure 4-24 Confirmation

The screenshot shows a multi-step migration process. Step 3, 'Confirm Information', is active. It displays the following configuration:

- Source Information:** Data Source, Region, Bucket.
- Destination Information:** Bucket, Region.
- Source Configuration:** Migration Method (File/Folder), Incremental Data (No). A red box highlights the 'File/Folder' method and the 'Test' option.
- Destination Configuration:** Data Encryption (No). A red box highlights the 'Specify Prefix' option and the 'Test-Prefix/' value.
- Advanced Settings:** SMN Notification (No), Failed Object Record (Yes), Archive Data Restoration (Disabled), Description (--).

Buttons for 'Previous' and 'Migrate Now' are visible at the bottom right.

Step 5 Confirm the configuration and click **Migrate Now**.

Step 6 After the migration is complete, view the migrated folders in the destination bucket. You will see that these folders are all moved to the **Test-Prefix/** directory of the destination bucket.

Figure 4-25 Verification

The screenshot shows the Object Storage console interface. The breadcrumb path is 'Object Storage / Test-Prefix'. The 'Objects' tab is selected, showing a table with one object:

Name	Storage Class	Size	Encrypted	Restoration Status	Last Modified	Operation
Test	--	--	--	--	--	Share Copy Path More

A red box highlights the 'Test' folder name in the table.

----End

Add a Path Prefix to the Whole Bucket

Step 1 In the **Source Configuration** area, set **Select Migration Method** to **File/Folder**.

Figure 4-26 Selecting a migration method

The screenshot shows the 'Source Configuration' section. The 'Migration Method' is set to 'File/Folder' (selected with a radio button). Other options include 'Object list', 'Object name prefix', and 'URL list'. Below this, there is a 'Bucket' field with the value 'a00-guiyang-oms' and a 'Select' button. At the bottom, there are 'Migrate' and 'Do not migrate' buttons, and an 'Incremental Migration' section with 'Yes' and 'No' radio buttons.

Step 2 In the **Destination Configuration** area, select **Yes** for **Specify Prefix** and enter a path prefix, for example, **Test-Prefix/**.

Figure 4-27 Specifying a path prefix

Destination Configuration

Data Encryption KMS (If KMS is selected, all migrated data will be encrypted before it is stored in the destination bucket.)

Specify Prefix Yes No

Test-Prefix/

Step 3 Click **Next** to access the confirmation page.

Figure 4-28 Confirmation

① Select Source/Destination — ② Set Task Parameters — ③ Confirm Information

Source Information

Data Source [Redacted] Bucket [Redacted]

Region [Redacted]

Destination Information

Bucket [Redacted] Region [Redacted]

Source Configuration

Migration Method File/Folder File/Folder Entire Bucket ([Redacted])

Incremental Data No

Destination Configuration

Data Encryption No Specify Prefix Test-Prefix/

Advanced Settings [Hide](#)

SMN Notification No Failed Object Record Yes

Archive Data Restoration Disabled Description --

Previous **Migrate Now**

Step 4 Confirm the configuration and click **Migrate Now**.

Step 5 After the migration is complete, view the directory where the entire bucket is stored. You will see all objects in the source bucket are moved to the **Test-Prefix/** directory of the destination bucket.

Figure 4-29 Verification

Object Storage / **Test-Prefix**

Objects Deleted Objects Fragments

Objects are basic units of data storage. In OBS, files and folders are treated as objects. Any file type can be uploaded and managed in a bucket. [Learn more](#)

You can use [OBS Browser+](#) to move an object to any other folder in this bucket.

Upload Object Create Folder Restore More

Enter an object name prefix: [Search Icon] [Clear Icon]

<input type="checkbox"/>	Name	Storage Class	Size	Encrypted	Restoration Status	Last Modified	Operation
<input type="checkbox"/>	Test-Prefix	...	...	...	...	...	Share Copy Path More
<input type="checkbox"/>	Test	...	...	...	...	...	Share Copy Path More
<input type="checkbox"/>	download	...	...	...	...	...	Share Copy Path More
<input type="checkbox"/>	oms	...	...	...	...	...	Share Copy Path More

----End

5 Migration from Other Clouds to Huawei Cloud

5.1 Migrating Data Between Huawei Cloud OBS Buckets

5.1.1 Background

This tutorial describes how to migrate data between Huawei Cloud OBS buckets that are in different accounts, located in the same region, or located in different regions.

As an online data migration service, Huawei Cloud OMS helps you migrate data from third-party data storage to Huawei Cloud OBS or between OBS buckets.

When you use OMS, you only need to specify a source data address and a destination OBS data address on the console, and then create a migration task or migration task group. For details about the differences between a migration task and a migration task group, see [What Are the Application Scenarios of Migration Tasks and Migration Task Groups?](#) After the migration task starts, you can view and manage it on the console.

Service Cutover

If service cutover is involved, see [Service Cutover](#) for more information.

CAUTION

You need to choose a cutover method based your requirements. The preceding solutions are for reference only.

Archive Data Migration

If data in the source bucket is archived, migrate the data by referring to [Migrating Archive Data](#).

Constraints

Use of OMS is limited as follows.

Table 5-1 OMS constraints

Item	Constraint
Objects with multiple versions	By default, OMS migrates only the latest version of objects in source buckets.
Storage class of destination buckets	The storage class of destination buckets can only be standard or infrequent access. You can change the storage class of destination buckets after the migration is complete.
Migration network	Only migrations over the Internet are supported.
Metadata migration	Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded. NOTE Even if you choose not to migrate metadata, the Content-Type metadata will still be migrated to ensure that the migration runs properly.
Migration scope	A single migration task or migration task group can only migrate data of one bucket. If data of multiple buckets needs to be migrated, you need to create multiple tasks or task groups.
Migration speed	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 transmission distance over the Internet 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. If more concurrent migrations are required, contact OMS technical support.

Item	Constraint
Archived data	<p>You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to:</p> <ul style="list-style-type: none"> • Create migration tasks after the restoration is complete. • Configure a validity period for restored data based on the total amount of data to be migrated. This helps prevent migration failures because restored data becomes archived again during the migration. • Pay your source cloud vendor for restoring archived data. To learn about the pricing details, contact your source cloud vendor.
Migration tasks	<p>A maximum of five concurrent migration tasks are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.</p> <p>A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.</p>
Migration task groups	<p>A maximum of five concurrent migration task groups are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.</p>
Synchronization tasks	<p>Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority.</p> <p>A maximum of five concurrent synchronization tasks are allowed for your account per region.</p>
Object list files	<ul style="list-style-type: none"> • An object list file cannot exceed 1,024 MB. • An object list file must be a .txt file, and its metadata Content-Type must be text/plain. • An object list file must be in UTF-8 without BOM. • Each line in an object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail. • The Content-Encoding metadata of an object list file must be left empty, or the migration will fail.

Item	Constraint
URL list files	<ul style="list-style-type: none">• A URL list file cannot exceed 1,024 MB.• A URL list file must be a .txt file, and its metadata Content-Type must be text/plain.• A URL list file must be in UTF-8 without BOM.• Each line in a URL list file can contain only one URL and one destination object name.• The length of each line in a URL list file cannot exceed 65,535 characters, or the migration will fail.• The Content-Encoding metadata of a URL list file must be left empty, or the migration will fail.• Spaces are not allowed in each line in a URL list file. Spaces may cause migration failures because they may be mistakenly identified as object names.• In a URL list file, each line uses a tab character (\t) to separate the URL and destination object name. The format is [<i>URL</i>][<i>Tab character</i>][<i>Destination object name</i>]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: <pre>http://xxx.xxx.xxx.xxx.com/doc/thefile2.txt doc/thefile2.txt http:// xxx.xxx.xxx.xxx.com/the%20file.txt the%20file.txt http://xxx.xxx.xxx.xxx.com/the%20file2.txt the+file2.txt http://xxx.xxx.xxx.xxx.com/doc/thefile.txt doc/thefile.txt</pre> <p>CAUTION The URL encoding starts from the second character after the domain name in a line. Do not encode the protocol header, domain name, or slash before or after the domain name. Otherwise, the format verification will fail.</p> <p>In each line, use a tab character (Tab key on the keyboard) to separate the URL and the destination object name. Do not use spaces.</p> <p>In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named doc/the file2.txt, the file.txt, the file2.txt, and doc/thefile.txt.</p>
Failed object list files	<p>A maximum of 100,000 failed objects can be recorded in a failed object list file.</p> <p>NOTE If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.</p>

5.1.2 Preparing for Migration

Before using OMS to migrate data between OBS buckets, make preparations by referring to this section.

Registering a HUAWEI ID

[Register a HUAWEI ID and enable Huawei Cloud services.](#)

NOTE

[Real-name authentication](#) is required for migrations to regions within the Chinese mainland.

Creating Access Keys for the Source and Destination Accounts and Obtaining the Required Permissions

- Source: Check whether the source account has an AK/SK pair and the permissions to list buckets, obtain bucket locations, list objects, obtain object metadata, and obtain object content. If it does not have, create an AK/SK pair and assign it the required permissions. For more information, see [Creating an Access Key \(AK/SK\)](#) and [Obtaining Permissions for the Source Account](#).
- Destination: Create an AK/SK pair for the destination account and obtain the required permissions. For more information, see [Creating an Access Key \(AK/SK\)](#) and [Destination Permissions](#).

Creating a Destination OBS Bucket

Create an OBS bucket for storing the migrated data. For details, see [Creating a Bucket](#).

Restoring Archive Data in the Source Bucket

You need to restore data of the Archive storage class before you migrate it. Otherwise, the migration will take a long time. For details, see [Restoring Objects from OBS Archive](#).

CAUTION

Perform the migration after all archive data is restored. Any data not restored will fail to be migrated.

5.1.3 Creating a Migration Task

This section describes how to create a migration task.

Scenarios

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.

NOTE

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.

 **CAUTION**

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
 - If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.
-

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.

- The source platform account needs the permissions for:

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

For details about how to obtain these permissions, see [Source Permissions](#).

- The destination platform account needs the following permissions:

- Listing buckets
- Obtaining bucket locations
- Listing objects
- Obtaining object metadata
- Obtaining object content
- Listing uploaded parts
- Restoring archive objects

For details about how to obtain these permissions, see [Destination Permissions](#).

- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


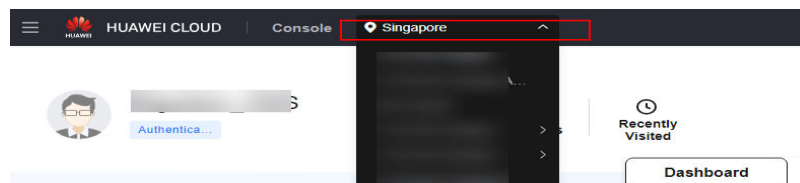
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

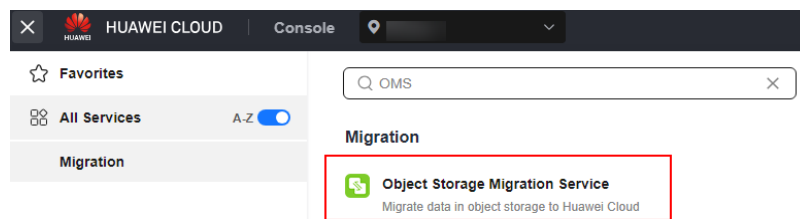
Figure 5-1 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

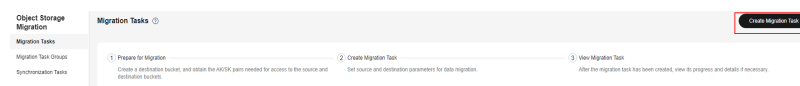
You can also enter **OMS** in the search box to quickly find OMS.

Figure 5-2 Choosing OMS



Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 5-3 Creating a migration task



Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

Figure 5-4 Select Source/Destination

The screenshot shows the 'Create Migration Task' interface. At the top, there are three steps: 1. Select Source/Destination, 2. Set Task Parameters, and 3. Confirm Information. The 'Select Source' section has a 'Data Source' dropdown menu, 'Access Key ID' and 'Secret Access Key' text input fields, a 'Specify Source Bucket' toggle switch, and a 'Bucket' dropdown menu with a 'List Buckets' button and a 'Region' dropdown. The 'Select Destination' section has 'Access Key ID' and 'Secret Access Key' text input fields, and a 'Bucket' dropdown menu with a 'List Buckets' button and a 'Region' dropdown.

Step 6 Set parameters in the **Select Source** area. For details, see [Table 5-2](#).

Table 5-2 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select Huawei Cloud .
Access Key ID	Enter the AK for the Huawei Cloud account to which the source bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the source bucket belongs.
Specify Source Bucket	<p>If you disable Specify Source Bucket (which is disabled by default), you need to:</p> <ol style="list-style-type: none"> 1. Click List Buckets next to Bucket. All buckets in the account will be listed. 2. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source account does not have the permissions required to list buckets, you need to enable Specify Source Bucket.</p> <p>If you enable Specify Source Bucket, you need to:</p> <ol style="list-style-type: none"> 1. Select the region where the source bucket is located from the Region drop-down list. 2. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. 3. Click Connect.

Step 7 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-3](#).

Table 5-3 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 8 On the displayed **Set Task Parameters** page, configure the task parameters.

Figure 5-5 Set Task Parameters

< | Create Migration Task

1 Select Source/Destination 2 Set Task Parameters 3 Confirm Information

Source Configuration

Migration Method File/Folder Object list Object name prefix URL list

Select the files or folders you want to migrate. If you do not select specific files or folders, all objects in the source bucket will be migrated.

Bucket

Object Metadata

Metadata ContentType will still be migrated to ensure a successful migration.

Incremental Migration Yes No

Destination Configuration

Data Encryption Enable

⚠ Encryption is recommended to keep data secure, but it will slow down migration speed. ✕

Specify Prefix Yes No

Object Storage Class Default Standard Infrequent Access Archive Deep Archive Same as source

Advanced Settings

Step 9 Select a migration method.

Migration Method	Scenario	Description
File/Folder	You have obtained the names of the files to be migrated or the folders where the files to be migrated are located.	<ul style="list-style-type: none">• If you select folders, all files in the selected folders will be migrated.• If you select files, all selected files will be migrated. <p>You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.</p>

Migration Method	Scenario	Description
Object list	You have obtained the names of all the objects to be migrated, saved the object names in a .txt file, and uploaded the file to an OBS bucket on Huawei Cloud.	<ul style="list-style-type: none">• Object List Bucket (Huawei Cloud): The bucket where the list file is stored must be in the same region as the destination bucket. Otherwise, the list file cannot be selected.• Object List: Select the .txt file that contains the names of all objects to be migrated.

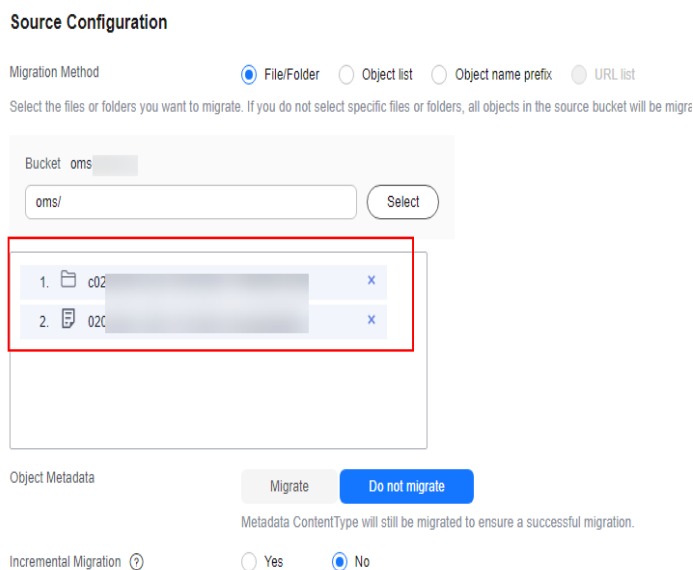
Migration Method	Scenario	Description
		<p>NOTE</p> <ul style="list-style-type: none"> • An object list file cannot exceed 1,024 MB. • The first object in the object list must exist, or the pre-verification will fail. • The object list file must be a .txt file, and its metadata ContentType must be text/plain. • The object list file must be in UTF-8 without BOM. • Each line in the object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in the object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in the object list file cannot exceed 65,535 characters, or the migration will fail. • The Content-Encoding metadata of the object list file must be left empty, or the migration will fail. • Archive data can only be accessed and obtained by OMS after it is restored. If the object list file is archived, manually restore it before migration.

Migration Method	Scenario	Description
Object name prefix	You know the naming format of the objects to be migrated, and the objects to be migrated are named with the same prefix.	After a prefix is added, all objects whose names start with the prefix will be migrated. If this parameter is not specified, all objects in the bucket will be migrated.

- **File/Folder**

- Click **Select** under the bucket name. The **Select File/Folder** dialog box is displayed.
- Select the folders or files to be migrated. You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.
- Click **OK**. The selected files or folders are displayed.

Figure 5-6 Selected files and folders



- **Object list**

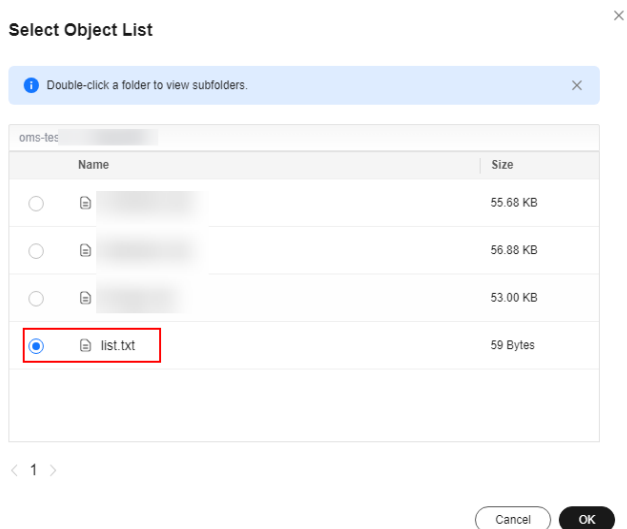
- In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the object list is stored.

CAUTION

The bucket used for storing object list must be located in the same region as the destination bucket, or you cannot select the object list.

- b. Click **Select** next to **Object List**. In the displayed **Object List File** dialog box, select the .txt file that contains the names of all objects to be migrated, and click **OK**.

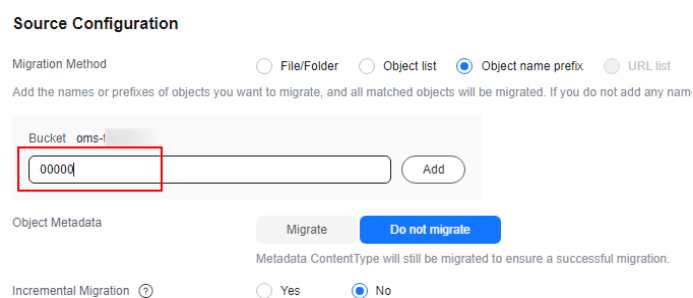
Figure 5-7 Selecting an object list file



- **Object name prefix**

- a. Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-8 Entering the names or name prefixes of objects to be migrated



- b. Click **Add**. The system will automatically list the matched objects. You can click **X** to delete the objects that do not need to be migrated from the list.

Step 10 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata ContentType.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 11 Set **Incremental Migration**.

- 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.

Step 12 Configure parameters in the **Destination Configuration** area.

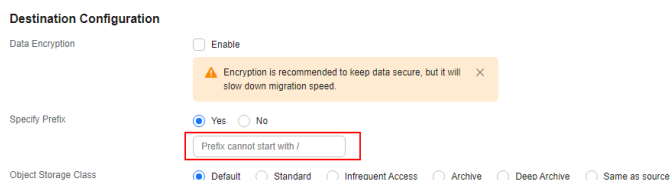
1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

NOTE

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-9 Specifying a prefix**NOTE**

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. **Object Storage Class**

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).


Step 13 Click  on the left of **Advanced Settings** to expand advanced options, as shown in **Figure 5-10**. Set parameters in **Advanced Settings** based on **Table 5-4**.

Figure 5-10 Advanced settings

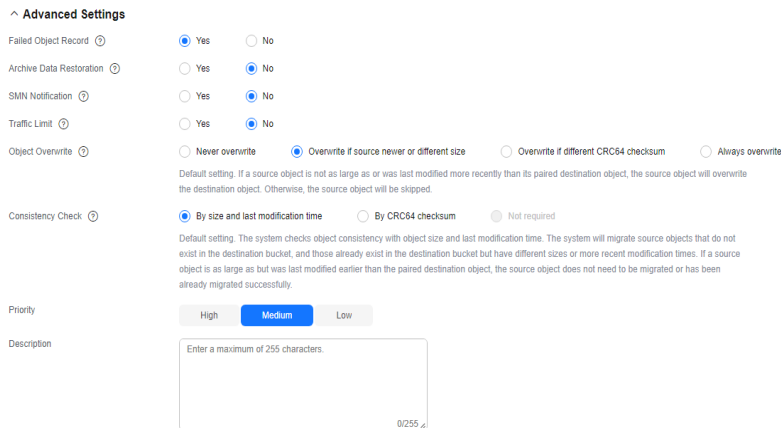


Table 5-4 Advanced settings

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none"> If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again. If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none"> For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket. A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.

Parameter	Description
Archive Data Restoration	<p>The default value is No. You are advised to retain the default configuration, and restore any archived data using OBS tools before the migration. For details, see Restoring Objects from Archive Storage.</p> <ul style="list-style-type: none">• If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects.• If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to notify you of migration results.</p> <ul style="list-style-type: none">• If this option is set to No, no SMN message is sent after the migration.• If this option is set to Yes, you will receive an SMN message informing you of the migration results.
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none">• If you do not need to limit migration traffic, select No.• If you need to limit migration traffic, select Yes.

Parameter	Description
Object Overwrite	<ul style="list-style-type: none"> ● 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. Otherwise, the source object will be skipped. ● Never overwrite: The system always skips source objects and keeps their paired destination objects. ● Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. <p>NOTE</p> <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. <ul style="list-style-type: none"> ● Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency check	<ul style="list-style-type: none"> ● By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. ● By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	If there are a large number of tasks, you can set task priorities to determine the migration sequence.

Step 14 Click **Next** to enter the confirmation page.

Step 15 Confirm the source information, destination information, task parameters, and advanced settings, and click **Migrate Now**. A message is displayed, indicating that the migration task is successfully created. The migration task is displayed in the migration task list.

 NOTE

After the task is created, a task ID is generated for quick identification. It is displayed in the upper left corner of the task list. It is composed of the source bucket name, destination bucket name, and time sequence ID.

----End

Related Operations

You can perform the following operations on a created migration task.

Operation	Description
View a migration task.	For details, see Viewing a Migration Task .
Manage a migration task.	For details, see Managing a Migration Task .

5.1.4 Creating a Migration Task Group

This section describes how to create a migration task group.

 CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
- If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.

Scenarios

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.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
 - The source platform account needs the permissions for:
 - Listing all buckets

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

To learn how to obtain these permissions, see [Source Permissions](#).

- The destination platform account needs the permissions for:

- Listing all buckets
- Obtaining bucket locations
- Listing objects
- Obtaining object metadata
- Obtaining object content
- Listing uploaded parts
- Restoring archive objects

To learn how to obtain these permissions, see [Destination Permissions](#).

- You have created at least one bucket on OBS.
- You have created less than 300 migration task groups within the past 24 hours.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


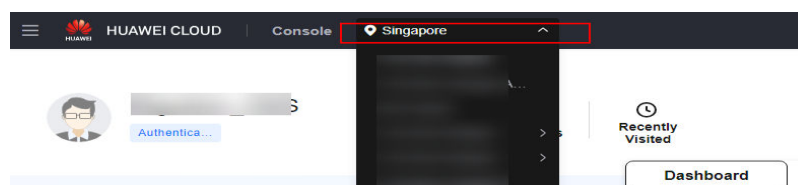
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

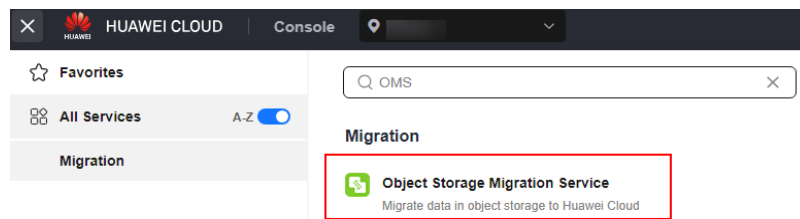
Figure 5-11 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

You can also enter **OMS** in the search box to quickly find OMS.

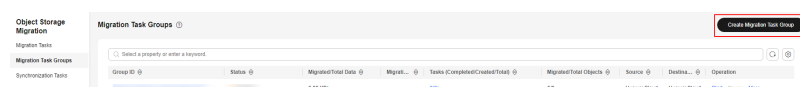
Figure 5-12 Choosing OMS



Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

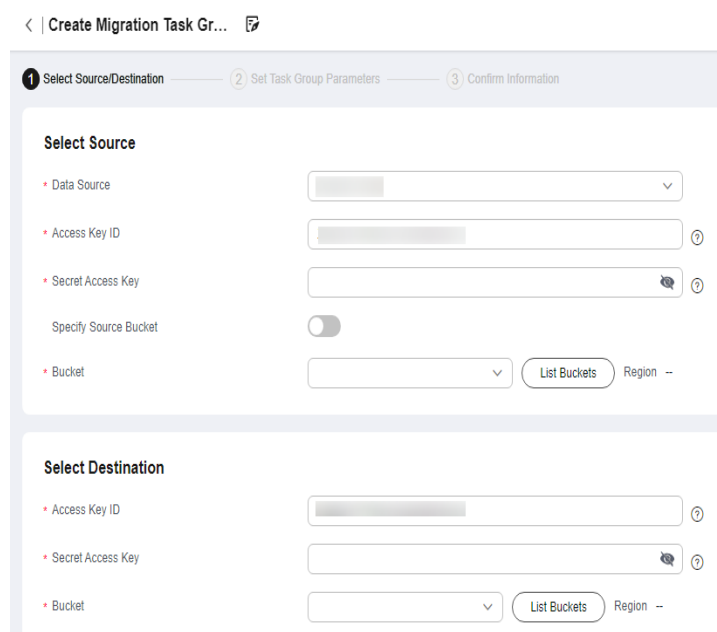
Step 5 On the **Migration Task Groups** page, click **Create Migration Task** in the upper right corner.

Figure 5-13 Creating a migration task group



Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-14 Select Source/Destination



Step 7 Set parameters in the **Select Source** area. For details, see [Table 5-5](#).

Table 5-5 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select Huawei Cloud .
Access Key ID	Enter the AK for the Huawei Cloud account to which the source bucket belongs.

Parameter	Configuration
Secret Access Key	Enter the SK for the Huawei Cloud account to which the source bucket belongs.
Specify Source Bucket	<p>If you disable Specify Source Bucket (which is disabled by default), you need to:</p> <ol style="list-style-type: none"> 1. Click List Buckets next to Bucket. All buckets in the account will be listed. 2. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source account does not have the permissions required to list buckets, you need to enable Specify Source Bucket.</p> <p>If you enable Specify Source Bucket, you need to:</p> <ol style="list-style-type: none"> 1. Select the region where the source bucket is located from the Region drop-down list. 2. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. 3. Click Connect.

Step 8 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-6](#).

Table 5-6 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 9 Click **Next**. The **Set Task Group Parameters** page is displayed.

Figure 5-15 Set Task Group Parameters

Source Configuration

Migration Method Object name prefix URL list folder Object list folder

Add the names or prefixes of objects you want to migrate, and all matched objects will be migrated. If you do not add any names or prefixes, all objects in the source bucket will be migrated.

Bucket om

Enter an object name or name prefix. Add

Object Metadata

Metadata ContentType will still be migrated to ensure a successful migration.

Incremental Migration Yes No

Destination Configuration

Data Encryption Enable

Encryption is recommended to keep data secure, but it will slow down migration speed.

Specify Prefix Yes No

Object Storage Class Default Standard Infrequent Access Archive Deep Archive Same as source

Advanced Settings

Step 10 Select a migration method.

- **Object name prefix**

- a. Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-16 Entering the names or name prefixes of objects to be migrated

Source Configuration

Migration Method Object name prefix URL list folder Object list folder

Add the names or prefixes of objects you want to migrate, and all matched objects will be migrated. If you do not add any names or prefixes, all c

Bucket oms-1


00000 Add

Object Metadata

Metadata ContentType will still be migrated to ensure a successful migration.

Incremental Migration Yes No

 NOTE

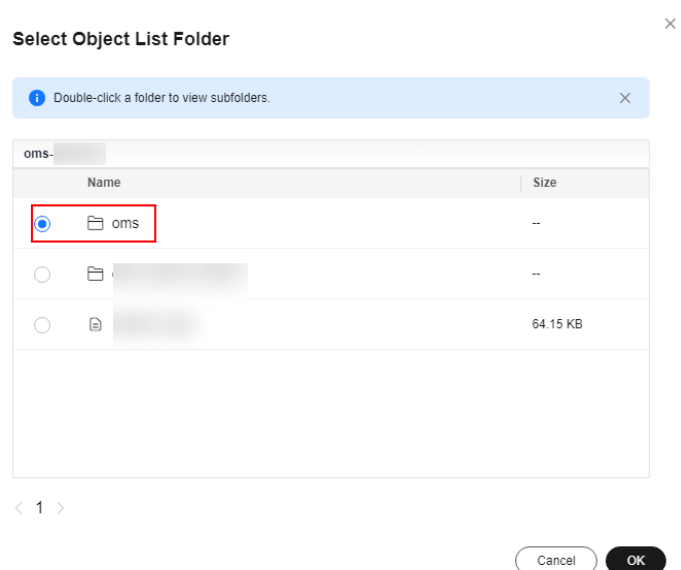
- If the objects you want to migrate are stored in the root directory of the source bucket, add their prefixes directly. If these objects are stored in non-root directories, add their directories and prefixes in the format of *Bucket name/Folder/Prefix*.
 - If you do not add any object names or prefixes, all objects in the source bucket will be migrated.
 - The objects to be migrated are recorded in .txt files, and each migration task has a list file. The storage path of the files is **oms/taskgroup/** in the destination bucket. These list files will be retained after the migration, and you can manually delete them.
- b. Click **Add**. The system will automatically list the matched objects. You can click  to delete the objects that do not need to be migrated from the list.
- **Object list folder**
 - a. In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the list files are stored.

 CAUTION

The bucket used for storing the list files must be located in the same region as the destination bucket, or you cannot select the files.

- b. Click **Select** next to **Object List Folder**. In the displayed **Object List File** dialog box, select the folder where the list files are stored, and click **OK**.

Figure 5-17 Selecting the folder where the object list files are located



 NOTE

- An object list file cannot exceed 1,024 MB.
- The total number of files in the object list folder cannot exceed 2,000.
- An object list file must be a .txt file, and the **Content-Type** metadata of the file must be **text/plain**.
- An object list file must be in UTF-8 without BOM.
- Each line in the object list file can contain only one object name, and the object name must be URL encoded if it contains special characters or spaces.
- Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names.
- The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail.
- The **Content-Encoding** metadata of each object list file must be left empty, or the migration will fail.
- Archive data can only be accessed and obtained by OMS after it is restored. If the object list files are archive, manually restore them before migration.

Step 11 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata **ContentType**.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 12 Set **Incremental Migration**.

- 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.

Step 13 Configure parameters in the **Destination Configuration** area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

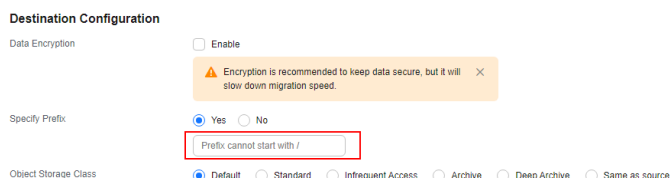
NOTE

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. Specify Prefix

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-18 Specifying a prefix



NOTE

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. Object Storage Class

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).


Step 14 Click  on the left of **Advanced Settings** to expand advanced options, as shown in [Figure 5-19](#). Set parameters in **Advanced Settings** based on [Table 5-7](#).

Figure 5-19 Advanced settings

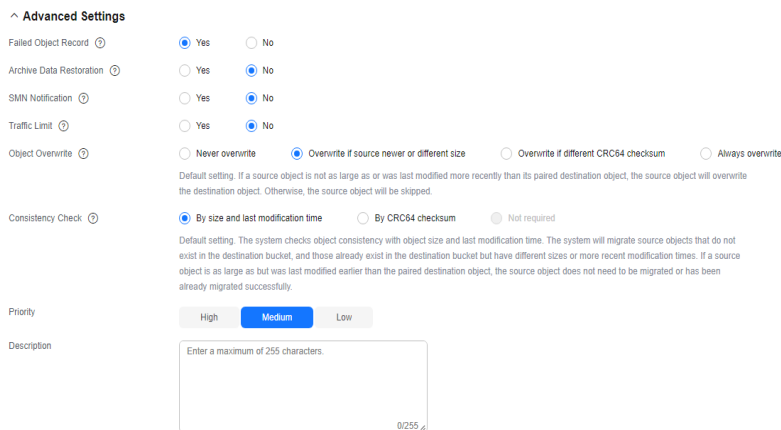


Table 5-7 Advanced settings

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none"> • If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again. • If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none"> - For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket. - A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
Archive Data Restoration	<p>The default value is No. You are advised to retain the default configuration, and restore any archived data using OBS tools before the migration. For details, see Restoring Objects from Archive Storage.</p> <ul style="list-style-type: none"> • If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects. • If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to notify you of migration results.</p> <ul style="list-style-type: none"> • If this option is set to No, no SMN message is sent after the migration. • If this option is set to Yes, you will receive an SMN message informing you of the migration results.

Parameter	Description
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none"> • If you do not need to limit migration traffic, select No. • If you need to limit migration traffic, select Yes.
Object Overwrite	<ul style="list-style-type: none"> • 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. Otherwise, the source object will be skipped. • Never overwrite: The system always skips source objects and keeps their paired destination objects. • Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. NOTE <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. • Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency check	<ul style="list-style-type: none"> • By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. • By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	<p>If there are a large number of tasks, you can set task priorities to determine the migration sequence.</p>

Step 15 Click **Next** to enter the confirmation page.

Step 16 Confirm the source information, destination information, task group parameters, and advanced settings, and click **Migrate Now**. A message is displayed indicating that the task group has been submitted. The task group is displayed in the migration task group list.

----End

Related Operations

You can perform the following operations on a created migration task group.

Operation	Description
View a migration task group.	For details, see Viewing a Migration Task .
Manage a migration task group.	For details, see Managing a Migration Task .

5.2 Migrating Data from Huawei Cloud PFS to Huawei Cloud OBS or Between PFS Systems

Parallel File System (PFS) is a high-performance semantic file system provided by Huawei Cloud OBS. It features access latency in milliseconds, TB/s-level bandwidth, and millions of IOPS.

You can use OMS to migrate data from PFS to OBS or between PFS systems.

Migrating Data Using a Migration Task

- [Create a migration task](#).
- [View the migration task](#).
- [Manage the migration task](#).

NOTE

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.

Migrating Data Using a Migration Task Group

- [Create a migration task group](#).
- [View the migration task group](#).
- [Manage the migration task group](#).

Migration Data Using a Synchronization Task

- [Create a synchronization task.](#)
- [Configure the source storage service to send synchronization requests.](#)
- [Monitor the synchronization task.](#)

NOTICE

There are constraints on migrating data to a parallel file system using OMS.

- If the object name ends with a slash (/), the object size must be zero. Otherwise, the object cannot be migrated.
 - The object name cannot contain consecutive slashes (/), for example, test//test.
-

5.3 Migrating Data from Alibaba Cloud OSS to Huawei Cloud OBS

5.3.1 Background

This tutorial describes how to migrate data from Alibaba Cloud Object Storage Service (OSS) to Huawei Cloud OBS.

As an online data migration service, Huawei Cloud OMS helps you migrate data from third-party data storage to Huawei Cloud OBS or between OBS buckets.

When you use OMS, you only need to specify a source data address and a destination OBS data address on the console, and then create a migration task or migration task group. For details about the differences between a migration task and a migration task group, see [What Are the Application Scenarios of Migration Tasks and Migration Task Groups?](#) After the migration task starts, you can view and manage it on the console.

Service Cutover

If service cutover is involved, see [Service Cutover](#) for more information.

CAUTION

You need to choose a cutover method based your requirements. The preceding solutions are for reference only.

Constraints

Use of OMS is limited as follows.

Table 5-8 OMS constraints

Item	Constraint
Objects with multiple versions	By default, OMS migrates only the latest version of objects in source buckets.
Storage class of destination buckets	The storage class of destination buckets can only be standard or infrequent access. You can change the storage class of destination buckets after the migration is complete.
Migration network	Only migrations over the Internet are supported.
Metadata migration	Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded. NOTE Even if you choose not to migrate metadata, the Content-Type metadata will still be migrated to ensure that the migration runs properly.
Migration scope	A single migration task or migration task group can only migrate data of one bucket. If data of multiple buckets needs to be migrated, you need to create multiple tasks or task groups.
Migration speed	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 transmission distance over the Internet 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. If more concurrent migrations are required, contact OMS technical support.
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: <ul style="list-style-type: none">• Create migration tasks after the restoration is complete.• Configure a validity period for restored data based on the total amount of data to be migrated. This helps prevent migration failures because restored data becomes archived again during the migration.• Pay your source cloud vendor for restoring archived data. To learn about the pricing details, contact your source cloud vendor.

Item	Constraint
Migration tasks	<p>A maximum of five concurrent migration tasks are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.</p>
	<p>A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.</p>
Migration task groups	<p>A maximum of five concurrent migration task groups are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.</p>
Synchronization tasks	<p>Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority.</p> <p>A maximum of five concurrent synchronization tasks are allowed for your account per region.</p>
Object list files	<ul style="list-style-type: none"> • An object list file cannot exceed 1,024 MB. • An object list file must be a .txt file, and its metadata Content-Type must be text/plain. • An object list file must be in UTF-8 without BOM. • Each line in an object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail. • The Content-Encoding metadata of an object list file must be left empty, or the migration will fail.

Item	Constraint
URL list files	<ul style="list-style-type: none"> ● A URL list file cannot exceed 1,024 MB. ● A URL list file must be a .txt file, and its metadata Content-Type must be text/plain. ● A URL list file must be in UTF-8 without BOM. ● Each line in a URL list file can contain only one URL and one destination object name. ● The length of each line in a URL list file cannot exceed 65,535 characters, or the migration will fail. ● The Content-Encoding metadata of a URL list file must be left empty, or the migration will fail. ● Spaces are not allowed in each line in a URL list file. Spaces may cause migration failures because they may be mistakenly identified as object names. ● In a URL list file, each line uses a tab character (\t) to separate the URL and destination object name. The format is [<i>URL</i>][<i>Tab character</i>][<i>Destination object name</i>]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: <pre style="background-color: #f0f0f0; padding: 5px;">http://xxx.xxx.xxx.xxx.com/doc/thefile2.txt doc/thefile2.txt http:// xxx.xxx.xxx.xxx.com/the%20file.txt the%20file.txt http://xxx.xxx.xxx.xxx.com/the%20file2.txt the+file2.txt http://xxx.xxx.xxx.xxx.com/doc/thefile.txt doc/thefile.txt</pre> <p>CAUTION The URL encoding starts from the second character after the domain name in a line. Do not encode the protocol header, domain name, or slash before or after the domain name. Otherwise, the format verification will fail.</p> <p>In each line, use a tab character (Tab key on the keyboard) to separate the URL and the destination object name. Do not use spaces.</p> <p>In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named doc/the file2.txt, the file.txt, the file2.txt, and doc/thefile.txt.</p>
Failed object list files	<p>A maximum of 100,000 failed objects can be recorded in a failed object list file.</p> <p>NOTE If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.</p>

5.3.2 Preparing for Migration

Before you use OMS, make preparations by referring to this section.

Registering a HUAWEI ID

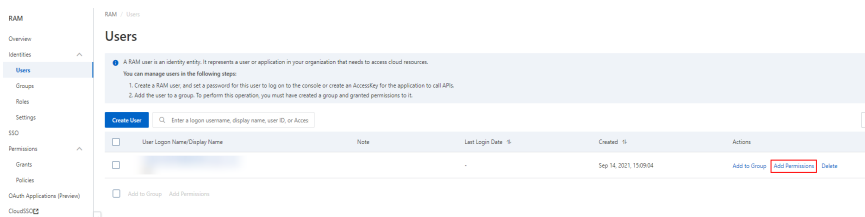
[Register a HUAWEI ID and enable Huawei Cloud services.](#)

NOTE

[Real-name authentication](#) is required for migrations to regions within the Chinese mainland.

Creating Access Keys for the Source and Destination Accounts and Obtaining the Required Permissions

- Source (Alibaba Cloud): Check whether you have created an access key for and assigned the **AliyunOSSReadOnlyAccess** permission to your Alibaba Cloud account. If you have not, perform the following procedures:
 - a. Log in to the RAM console using your Alibaba Cloud account.
 - b. In the navigation pane on the left, choose **Identities > Users**.
 - c. On the **Users** tab page, click **Create User**.
 - d. On the **Create User** page, in the **User Access Key** area, click **Create Access Key**.
 - e. Assign required permissions to the user.
Locate the RAM user, and click **Add Permissions** in the **Actions** column. Assign the user the **AliyunOSSReadOnlyAccess** permission.



- Destination (Huawei Cloud): Create an AK/SK pair for the destination account and obtain the required permissions. For more information, see [Creating an Access Key \(AK/SK\)](#) and [Destination Permissions](#).

Creating a Destination OBS Bucket

Create an OBS bucket for storing the migrated data. For details, see [Creating a Bucket](#).

Restoring Archive Data in the Source Bucket

You need to restore data of the Archive storage class before you migrate it. Otherwise, the migration will take a long time. Alibaba Cloud OSS provides the ossutil tool to restore archive objects with specified prefixes. For details, see [Restoring Archive Data on Alibaba Cloud OSS](#).

CAUTION

Perform the migration after all archive data is restored. Any data not restored will fail to be migrated.

5.3.3 Creating a Migration Task

This section describes how to create a migration task.

CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
 - If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.
-

Scenarios

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.

NOTE

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.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
 - The source platform account needs the **AliyunOSSReadOnlyAccess** permission.
 - The destination platform account needs the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata, obtain object content, upload objects, list uploaded parts, and restore archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).
- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


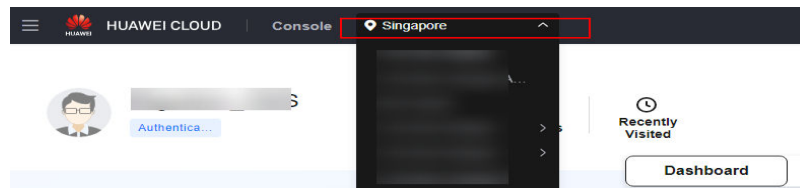
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

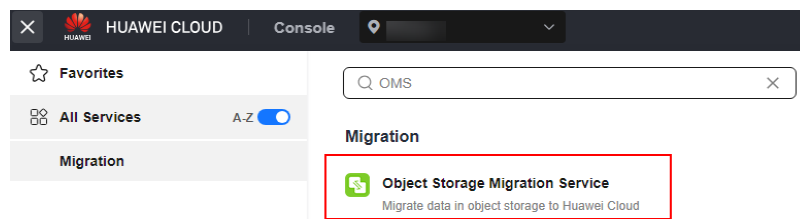
Figure 5-20 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

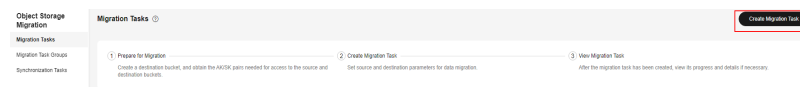
You can also enter **OMS** in the search box to quickly find OMS.

Figure 5-21 Choosing OMS



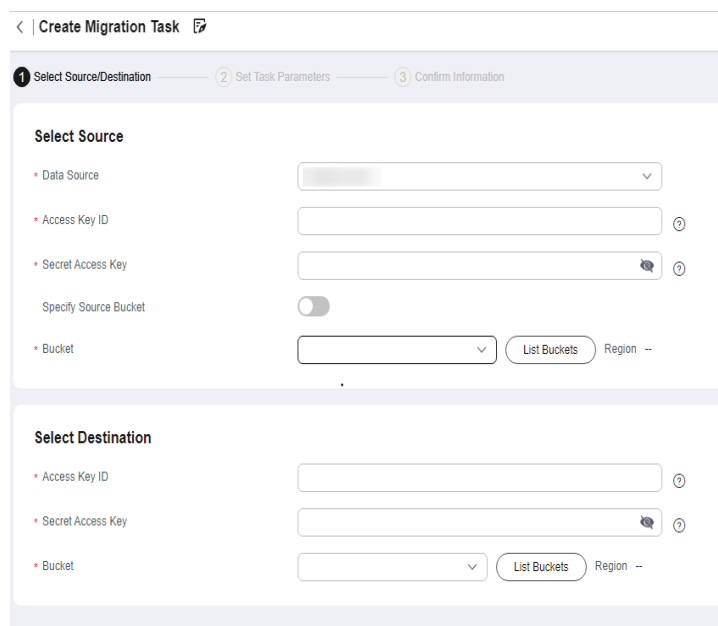
Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 5-22 Creating a migration task



Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

Figure 5-23 Select Source/Destination



Step 6 Set parameters in the **Select Source** area. For details, see [Table 5-9](#).

Table 5-9 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select Alibaba Cloud .
Access Key ID	Enter the AK of the Alibaba Cloud account to which the source bucket belongs.
Secret Access Key	Enter the SK of the Alibaba Cloud account to which the source bucket belongs.
Specify Source Bucket	Disable Specify Source Bucket (This feature is disabled by default.) <ol style="list-style-type: none"> Click List Buckets next to Bucket. All buckets in the account will be listed. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source platform account does not have the permissions required to list buckets, you need to enable Specify Source Bucket.</p>
	Enable Specify Source Bucket . <ol style="list-style-type: none"> Select the region where the source bucket resides from the Region drop-down list. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. Click Connect.

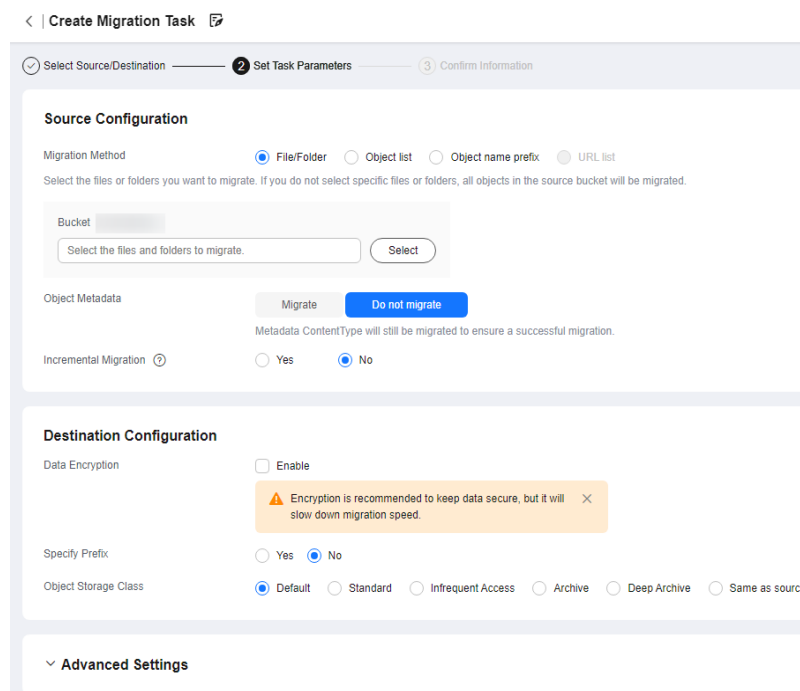
Step 7 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-10](#).

Table 5-10 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 8 Click **Next**. The **Set Task Parameters** page is displayed.

Figure 5-24 Set Task Parameters



Step 9 Select a migration method.

Migration Method	Scenario	Description
File/Folder	You have obtained the names of the files to be migrated or the folders where the files to be migrated are located.	<ul style="list-style-type: none"> If you select folders, all files in the selected folders will be migrated. If you select files, all selected files will be migrated. <p>You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.</p>

Migration Method	Scenario	Description
Object list	You have obtained the names of all the objects to be migrated, saved the object names in a .txt file, and uploaded the file to an OBS bucket on Huawei Cloud.	<ul style="list-style-type: none">• Object List Bucket (Huawei Cloud): The bucket where the list file is stored must be in the same region as the destination bucket. Otherwise, the list file cannot be selected.• Object List: Select the .txt file that contains the names of all objects to be migrated.

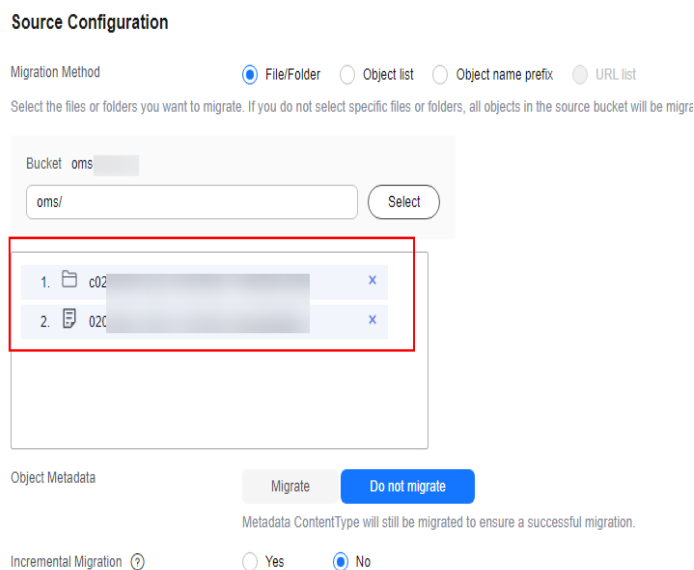
Migration Method	Scenario	Description
		<p>NOTE</p> <ul style="list-style-type: none"> • Each object list file cannot exceed 1,024 MB. • The first object in the object list must exist, or the pre-verification will fail. • The object list file must be a .txt file, and its metadata ContentType must be text/plain. • The object list file must be in UTF-8 without BOM. • Each line in the object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in the object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in the object list file cannot exceed 65,535 characters, or the migration will fail. • The Content-Encoding metadata of the object list file must be left empty, or the migration will fail. • Archive data can only be accessed and obtained by OMS after it is restored. If the object list files are archive, manually restore them before migration.

Migration Method	Scenario	Description
Object name prefix	You know the naming format of the objects to be migrated, and the objects to be migrated are named with the same prefix.	After a prefix is added, all objects whose names start with the prefix will be migrated. If this parameter is not specified, all objects in the bucket will be migrated.

- **File/Folder**

- Click **Select** under the bucket name. The **Select File/Folder** dialog box is displayed.
- Select the folders or files to be migrated. You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.
- Click **OK**. The selected files or folders are displayed.

Figure 5-25 Selected files and folders



- **Object list**

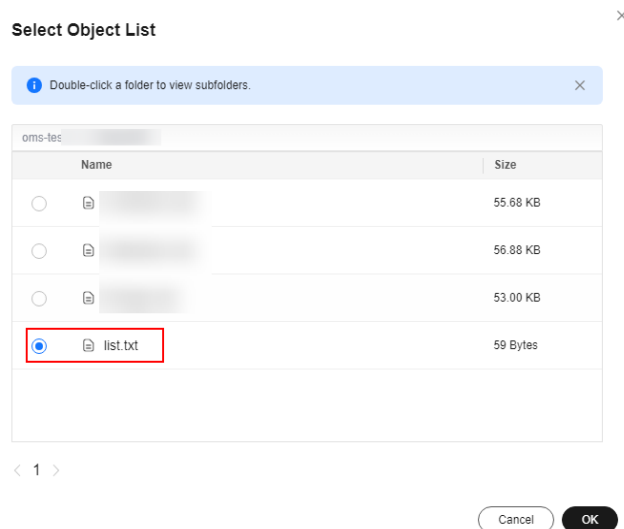
- In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the object list is stored.

CAUTION

The bucket used for storing object list must be located in the same region as the destination bucket, or you cannot select the object list.

- b. Click **Select** next to **Object List**. In the displayed **Object List File** dialog box, select the .txt file that contains the names of all objects to be migrated, and click **OK**.

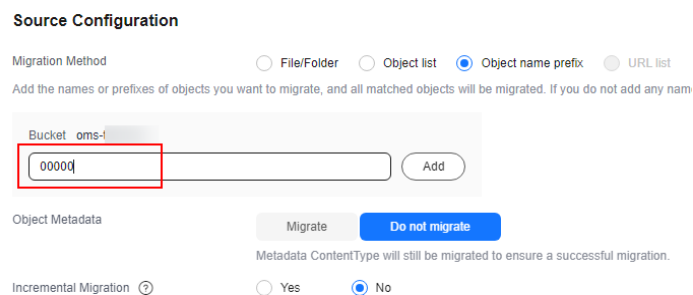
Figure 5-26 Selecting an object list file



- **Object name prefix**

- a. Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-27 Entering the names or name prefixes of objects to be migrated



- b. Click **Add**. The system will automatically list the matched objects. You can click **X** to delete the objects that do not need to be migrated from the list.

Step 10 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata ContentType.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 11 Set Incremental Migration.

- 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.

Step 12 (Optional) Set Use Source Custom Domain Name based on Table 5-11.

Use Source Custom Domain Name Yes No

⚠ If the CDN performance optimization function (such as Gzip compression function) is enabled on the source end, the migration may fail.

Transfer Protocol HTTP HTTPS

Custom Bucket Domain Name

Enable CDN Authentication Yes No

Verification Type Type A Type B Type C

Verification Key

Table 5-11 Parameters

Parameter	Configuration
Use Source Custom Domain Name	<p>This option is deselected by default.</p> <p>If the default domain name cannot meet your migration requirements, then if the source cloud service provider supports custom domain names, you can bind a custom domain name to the source bucket, and enable the CDN service on the source platform to reduce data download fees.</p> <p>NOTE If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.</p> <ol style="list-style-type: none"> 1. Select a transmission protocol for Transfer Protocol. <p>NOTE HTTPS is more secure than HTTP and is recommended.</p> <ol style="list-style-type: none"> 2. Enter a custom domain name of the bucket in the Custom Bucket Domain Name box.

Parameter	Configuration
Enable CDN Authentication	<p>This option is deselected by default.</p> <p>If you use the CDN authentication provided by Alibaba Cloud, select this option and perform the following settings:</p> <ol style="list-style-type: none"> 1. Select Type C for Verification Type. Only Type C is supported for migration from Alibaba Cloud. 2. Enter the CDN verification key in the Verification Key box. <p>NOTE</p> <ul style="list-style-type: none"> - The fees generated by using Alibaba Cloud CDN are billed by Alibaba Cloud. - Before the migration, disable CDN optimization functions, such as Gzip compression, on the Alibaba Cloud CDN console, or the migration may fail. - URL redirection is not supported.
Check	<p>Click Check to check whether the configuration is correct.</p> <ul style="list-style-type: none"> • If the configuration fails the check, click Details to view the failure causes. • If the configuration passes the check, complete other migration configurations.

Step 13 Configure parameters in the **Destination Configuration** area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

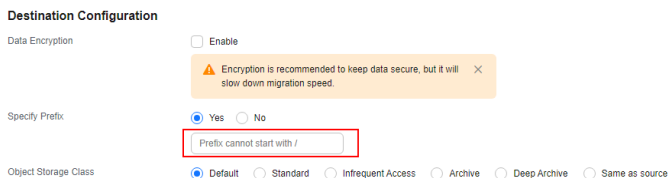
 **NOTE**

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-28 Specifying a prefix



NOTE

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. Object Storage Class

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 14 Click **Advanced Settings**. Set parameters in the **Advanced Settings** area based on [Table 5-12](#).

Table 5-12 Advanced settings

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none"> If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again. If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none"> For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket. A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.

Parameter	Description
Archive Data Restoration	<p>The default value is No.</p> <ul style="list-style-type: none">● If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects.● If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none">● If this option is set to No, no SMN message is sent after the migration.● If this option is set to Yes, you will receive an SMN message informing you of the migration results.
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none">● If you do not need to limit migration traffic, select No.● If you need to limit migration traffic, select Yes.

Parameter	Description
Object Overwrite	<ul style="list-style-type: none"> ● 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. Otherwise, the source object will be skipped. ● Never overwrite: The system always skips source objects and keeps their paired destination objects. ● Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. <p>NOTE</p> <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. <ul style="list-style-type: none"> ● Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency check	<ul style="list-style-type: none"> ● By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. ● By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	If there are a large number of tasks, you can set task priorities to determine the migration sequence.

Step 15 Click **Next** to enter the confirmation page.

Step 16 Confirm the source information, destination information, task parameters, and advanced settings, and click **Migrate Now**. A message is displayed, indicating that the migration task is successfully created. The migration task is displayed in the migration task list.

 NOTE

After the task is created, a task ID is generated for quick identification. It is displayed in the upper left corner of the task list. It is composed of the source bucket name, destination bucket name, and time sequence ID.

----End

Related Operations

You can perform the following operations on a created migration task.

Operation	Description
View a migration task.	For details, see Viewing a Migration Task .
Manage a migration task.	For details, see Managing a Migration Task .

5.3.4 Creating a Migration Task Group

This section describes how to create a migration task group.

 CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
- If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.

Scenarios

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.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
 - The source platform account needs the **AliyunOSSReadOnlyAccess** permission.
 - The destination platform account needs the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata,

obtain object content, upload objects, list uploaded parts, and restore archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).

- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


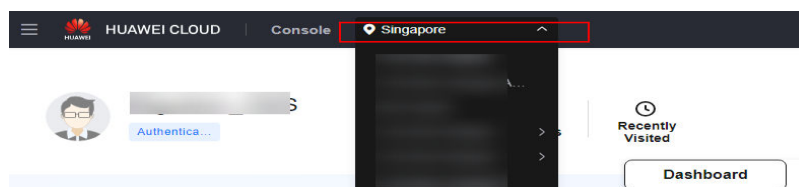
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

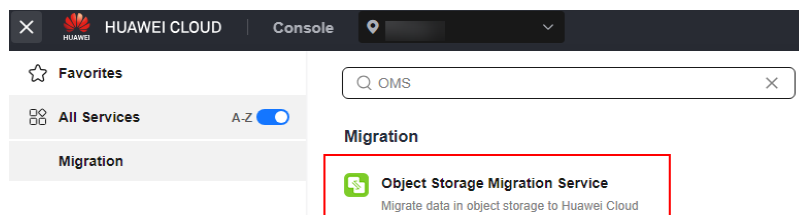
Figure 5-29 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

You can also enter **OMS** in the search box to quickly find OMS.

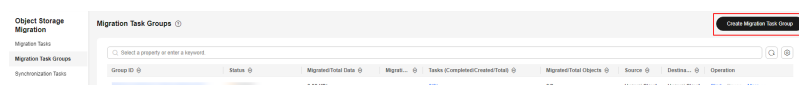
Figure 5-30 Choosing OMS



Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

Step 5 On the **Migration Task Groups** page, click **Create Migration Task** in the upper right corner.

Figure 5-31 Creating a migration task group



Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-32 Select Source/Destination

The screenshot shows a web interface for creating a migration task group. It has a breadcrumb trail: < | Create Migration Task Gr... |. Below this is a progress bar with three steps: 1. Select Source/Destination (active), 2. Set Task Group Parameters, and 3. Confirm Information. The main content is divided into two sections: 'Select Source' and 'Select Destination'.
Select Source:
 - Data Source: A dropdown menu.
 - Access Key ID: A text input field with a help icon.
 - Secret Access Key: A text input field with a help icon and a password mask icon.
 - Specify Source Bucket: A toggle switch that is currently turned off.
 - Bucket: A dropdown menu, a 'List Buckets' button, and a 'Region' dropdown menu.
Select Destination:
 - Access Key ID: A text input field with a help icon.
 - Secret Access Key: A text input field with a help icon and a password mask icon.
 - Bucket: A dropdown menu, a 'List Buckets' button, and a 'Region' dropdown menu.

Step 7 Set parameters in the **Select Source** area. For details, see [Table 5-13](#).

Table 5-13 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select Alibaba Cloud .
Access Key ID	Enter the AK of the Alibaba Cloud account to which the source bucket belongs.
Secret Access Key	Enter the SK of the Alibaba Cloud account to which the source bucket belongs.
Specify Source Bucket	<p>Disable Specify Source Bucket (This feature is disabled by default.)</p> <ol style="list-style-type: none"> Click List Buckets next to Bucket. All buckets in the account will be listed. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source platform account does not have the permissions required to list buckets, you need to enable Specify Source Bucket.</p> <p>Enable Specify Source Bucket.</p> <ol style="list-style-type: none"> Select the region where the source bucket resides from the Region drop-down list. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. Click Connect.

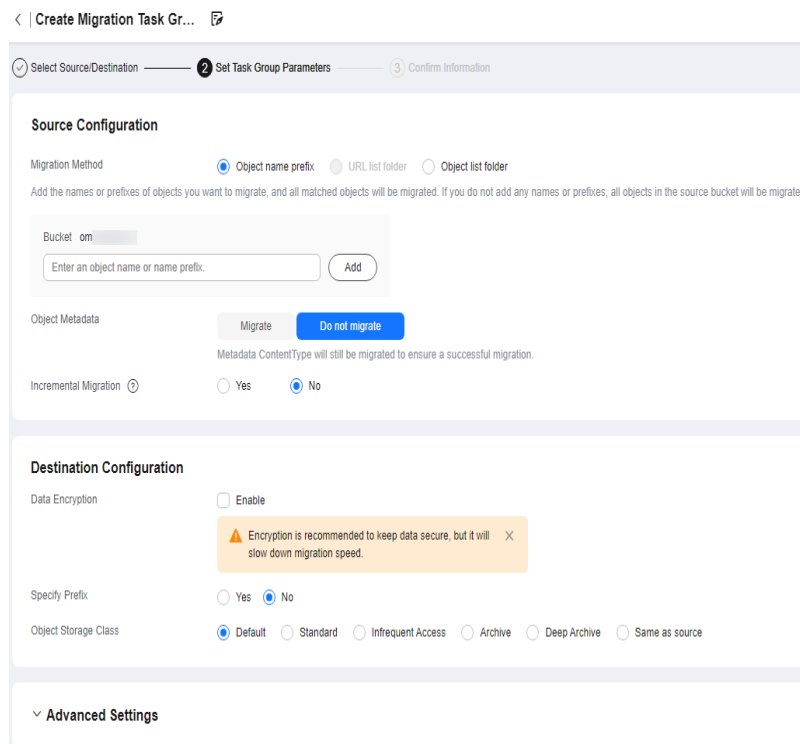
Step 8 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-14](#).

Table 5-14 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 9 Click **Next**. The **Set Task Group Parameters** page is displayed.

Figure 5-33 Set Task Group Parameters



Step 10 Select a migration method.

- **Object name prefix**
 - a. Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-34 Entering the names or name prefixes of objects to be migrated

Source Configuration

Migration Method Object name prefix URL list folder Object list folder

Add the names or prefixes of objects you want to migrate, and all matched objects will be migrated. If you do not add any names or prefixes, all c


Bucket oms-
00000 Add

Object Metadata Migrate Do not migrate

Metadata ContentType will still be migrated to ensure a successful migration.

Incremental Migration Yes No

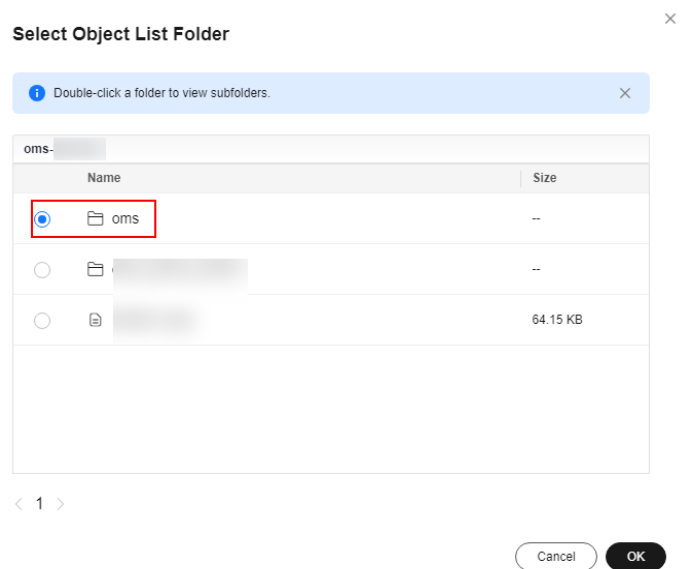
NOTE

- If the objects you want to migrate are stored in the root directory of the source bucket, add their prefixes directly. If these objects are stored in non-root directories, add their directories and prefixes in the format of *Bucket name/Folder/Prefix*.
 - If you do not add any object names or prefixes, all objects in the source bucket will be migrated.
 - The objects to be migrated are recorded in .txt files, and each migration task has a list file. The storage path of the files is **oms/taskgroup/** in the destination bucket. These list files will be retained after the migration, and you can manually delete them.
- b. Click **Add**. The system will automatically list the matched objects. You can click  to delete the objects that do not need to be migrated from the list.
- **Object list folder**
 - a. In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the list files are stored.

CAUTION

The bucket used for storing the list files must be located in the same region as the destination bucket, or you cannot select the files.

- b. Click **Select** next to **Object List Folder**. In the displayed **Object List File** dialog box, select the folder where the list files are stored, and click **OK**.

Figure 5-35 Selecting the folder where the object list files are located**NOTE**

- An object list file cannot exceed 1,024 MB.
- The total number of files in the object list folder cannot exceed 2,000.
- An object list file must be a .txt file, and the **Content-Type** metadata of the file must be **text/plain**.
- An object list file must be in UTF-8 without BOM.
- Each line in the object list file can contain only one object name, and the object name must be URL encoded if it contains special characters or spaces.
- Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names.
- The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail.
- The **Content-Encoding** metadata of each object list file must be left empty, or the migration will fail.
- Archive data can only be accessed and obtained by OMS after it is restored. If the object list files are archive, manually restore them before migration.

Step 11 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata **ContentType**.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 12 Set Incremental Migration.

- 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.

Step 13 (Optional) Set Use Source Custom Domain Name based on [Table 5-15](#).

Use Source Custom Domain Name Yes No

⚠ If the CDN performance optimization function (such as Gzip compression function) is enabled on the source end, the migration may fail.

Transfer Protocol HTTP HTTPS

Custom Bucket Domain Name

Enable CDN Authentication Yes No

Verification Type Type A Type B Type C

Verification Key

Table 5-15 Parameters

Parameter	Configuration
Use Source Custom Domain Name	<p>This option is deselected by default.</p> <p>If the default domain name cannot meet your migration requirements, then if the source cloud service provider supports custom domain names, you can bind a custom domain name to the source bucket, and enable the CDN service on the source platform to reduce data download fees.</p> <p>NOTE If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.</p> <ol style="list-style-type: none"> 1. Select a transmission protocol for Transfer Protocol. <p>NOTE HTTPS is more secure than HTTP and is recommended.</p> <ol style="list-style-type: none"> 2. Enter a custom domain name of the bucket in the Custom Bucket Domain Name box.

Parameter	Configuration
Enable CDN Authentication	<p>This option is deselected by default.</p> <p>If you use the CDN authentication provided by Alibaba Cloud, select this option and perform the following settings:</p> <ol style="list-style-type: none"> 1. Select Type C for Verification Type. Only Type C is supported for migration from Alibaba Cloud. 2. Enter the CDN verification key in the Verification Key box. <p>NOTE</p> <ul style="list-style-type: none"> - The fees generated by using Alibaba Cloud CDN are billed by Alibaba Cloud. - Before the migration, disable CDN optimization functions, such as Gzip compression, on the Alibaba Cloud CDN console, or the migration may fail. - URL redirection is not supported.
Check	<p>Click Check to check whether the configuration is correct.</p> <ul style="list-style-type: none"> • If the configuration fails the check, click Details to view the failure causes. • If the configuration passes the check, complete other migration configurations.

Step 14 Configure parameters in the **Destination Configuration** area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

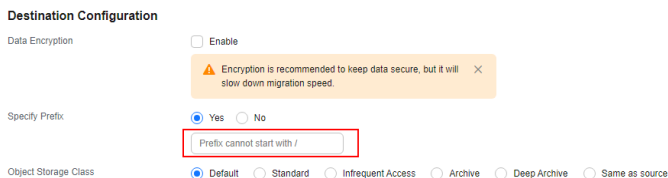
 **NOTE**

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-36 Specifying a prefix



NOTE

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. Object Storage Class

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 15 Click **Advanced Settings**. Set parameters in the **Advanced Settings** area based on [Table 5-16](#).

Table 5-16 Advanced settings

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none"> If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again. If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none"> For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket. A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.

Parameter	Description
Archive Data Restoration	<p>The default value is No.</p> <ul style="list-style-type: none"> ● If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects. ● If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none"> ● If this option is set to No, no SMN message is sent after the migration. ● If this option is set to Yes, you will receive an SMN message informing you of the migration results.
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none"> ● If you do not need to limit migration traffic, select No. ● If you need to limit migration traffic, select Yes.

Parameter	Description
Object Overwrite	<ul style="list-style-type: none"> ● 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. Otherwise, the source object will be skipped. ● Never overwrite: The system always skips source objects and keeps their paired destination objects. ● Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. <p>NOTE</p> <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. <ul style="list-style-type: none"> ● Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency check	<ul style="list-style-type: none"> ● By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. ● By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	If there are a large number of tasks, you can set task priorities to determine the migration sequence.

Step 16 Click **Next** to enter the confirmation page.

Step 17 Confirm the source information, destination information, task group parameters, and advanced settings, and click **Migrate Now**. A message is displayed indicating

that the task group has been submitted. The task group is displayed in the migration task group list.

----End

Related Operations

You can perform the following operations on a created migration task group.

Operation	Description
View a migration task group.	For details, see Viewing a Migration Task .
Manage a migration task group.	For details, see Managing a Migration Task .

5.4 Migrating Data from Tencent Cloud COS to Huawei Cloud OBS

5.4.1 Background

This tutorial describes how to migrate data from Tencent Cloud Object Storage (COS) to Huawei Cloud OBS.

As an online data migration service, Huawei Cloud OMS helps you migrate data from third-party data storage to Huawei Cloud OBS or between OBS buckets.

When you use OMS, you only need to specify a source data address and a destination OBS data address on the console, and then create a migration task or migration task group. For details about the differences between a migration task and a migration task group, see [What Are the Application Scenarios of Migration Tasks and Migration Task Groups?](#) After the migration task starts, you can view and manage it on the console.

Service Cutover

If service cutover is involved, see [Service Cutover](#) for more information.

CAUTION

You need to choose a cutover method based your requirements. The preceding solutions are for reference only.

Constraints

Use of OMS is limited as follows.

Table 5-17 OMS constraints

Item	Constraint
Objects with multiple versions	By default, OMS migrates only the latest version of objects in source buckets.
Storage class of destination buckets	The storage class of destination buckets can only be standard or infrequent access. You can change the storage class of destination buckets after the migration is complete.
Migration network	Only migrations over the Internet are supported.
Metadata migration	Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded. NOTE Even if you choose not to migrate metadata, the Content-Type metadata will still be migrated to ensure that the migration runs properly.
Migration scope	A single migration task or migration task group can only migrate data of one bucket. If data of multiple buckets needs to be migrated, you need to create multiple tasks or task groups.
Migration speed	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 transmission distance over the Internet 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. If more concurrent migrations are required, contact OMS technical support.
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: <ul style="list-style-type: none">• Create migration tasks after the restoration is complete.• Configure a validity period for restored data based on the total amount of data to be migrated. This helps prevent migration failures because restored data becomes archived again during the migration.• Pay your source cloud vendor for restoring archived data. To learn about the pricing details, contact your source cloud vendor.

Item	Constraint
Migration tasks	<p>A maximum of five concurrent migration tasks are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.</p>
	<p>A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.</p>
Migration task groups	<p>A maximum of five concurrent migration task groups are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.</p>
Synchronization tasks	<p>Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority.</p> <p>A maximum of five concurrent synchronization tasks are allowed for your account per region.</p>
Object list files	<ul style="list-style-type: none"> • An object list file cannot exceed 1,024 MB. • An object list file must be a .txt file, and its metadata Content-Type must be text/plain. • An object list file must be in UTF-8 without BOM. • Each line in an object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail. • The Content-Encoding metadata of an object list file must be left empty, or the migration will fail.

Item	Constraint
URL list files	<ul style="list-style-type: none"> ● A URL list file cannot exceed 1,024 MB. ● A URL list file must be a .txt file, and its metadata Content-Type must be text/plain. ● A URL list file must be in UTF-8 without BOM. ● Each line in a URL list file can contain only one URL and one destination object name. ● The length of each line in a URL list file cannot exceed 65,535 characters, or the migration will fail. ● The Content-Encoding metadata of a URL list file must be left empty, or the migration will fail. ● Spaces are not allowed in each line in a URL list file. Spaces may cause migration failures because they may be mistakenly identified as object names. ● In a URL list file, each line uses a tab character (\t) to separate the URL and destination object name. The format is [<i>URL</i>][<i>Tab character</i>][<i>Destination object name</i>]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: <pre style="background-color: #f0f0f0; padding: 5px;">http://xxx.xxx.xxx.xxx.com/doc/thefile2.txt doc/thefile2.txt http:// xxx.xxx.xxx.xxx.com/the%20file.txt the%20file.txt http://xxx.xxx.xxx.xxx.com/the%20file2.txt the+file2.txt http://xxx.xxx.xxx.xxx.com/doc/thefile.txt doc/thefile.txt</pre> <p>CAUTION The URL encoding starts from the second character after the domain name in a line. Do not encode the protocol header, domain name, or slash before or after the domain name. Otherwise, the format verification will fail.</p> <p>In each line, use a tab character (Tab key on the keyboard) to separate the URL and the destination object name. Do not use spaces.</p> <p>In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named doc/the file2.txt, the file.txt, the file2.txt, and doc/thefile.txt.</p>
Failed object list files	<p>A maximum of 100,000 failed objects can be recorded in a failed object list file.</p> <p>NOTE If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.</p>

5.4.2 Preparing for Migration

Before using OMS to migrate data between OBS buckets, make preparations by referring to this section.

Registering a HUAWEI ID

[Register a HUAWEI ID and enable Huawei Cloud services.](#)

NOTE

[Real-name authentication](#) is required for migrations to regions within the Chinese mainland.

Creating Access Keys for the Source and Destination Accounts and Obtaining the Required Permissions

- Source (Tencent Cloud): Check whether you have created an access key for and assigned the **ReadOnlyAccess** permission to your Tencent Cloud account. If you have not, perform the following procedures:
 - a. Log in to the Tencent Cloud management console.
 - b. In the left navigation pane, choose **User > User List**.
 - c. Click a user to go to the user details page.
 - d. Click the **API Key** tab and click **Create Key** to generate a **SecretId** and **SecretKey**.
 - e. Assign required permissions to the user.
On the user list page, click **Grant Permission** in the **Operation** column of the sub-user, select **ReadOnlyAccess**, and click **OK**.
- Destination (Huawei Cloud): Create an AK/SK pair for the destination account and obtain the required permissions. For more information, see [Creating an Access Key \(AK/SK\)](#) and [Destination Permissions](#).

Creating a Destination OBS Bucket

Create an OBS bucket for storing the migrated data. For details, see [Creating a Bucket](#).

Restoring Archive Data in the Source Bucket

You need to restore data of the Archive storage class before you migrate it. Otherwise, the migration will take a long time.

You can use the Tencent Cloud console or the coscmd tool to restore archive objects in batched. For details, see [Restoring Archive Data on Tencent Cloud COS](#).

CAUTION

Perform the migration after all archive data is restored. Any data not restored will fail to be migrated.

5.4.3 Creating a Migration Task

This section describes how to create a migration task.

CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
- If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.

Scenarios

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.

NOTE

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.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
 - The source platform needs have the **ReadOnlyAccess** permission.
 - The destination platform account needs the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata, obtain object content, upload objects, list uploaded parts, and restore archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).
- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


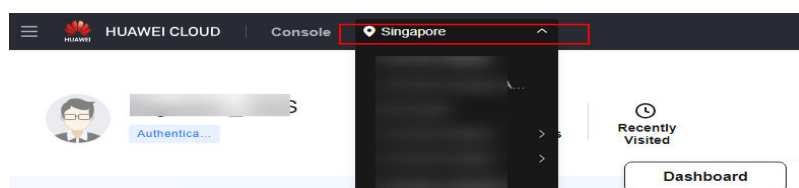
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

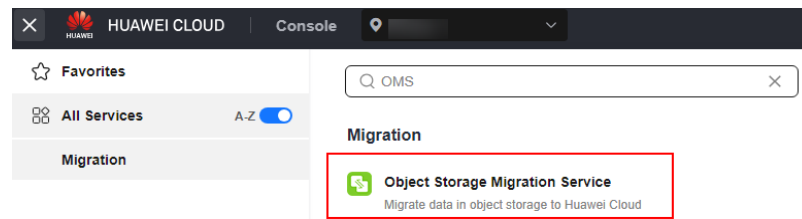
Figure 5-37 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

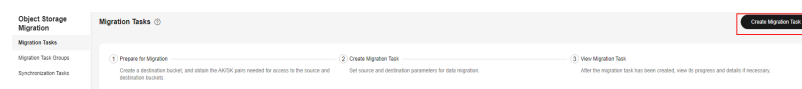
You can also enter **OMS** in the search box to quickly find OMS.

Figure 5-38 Choosing OMS



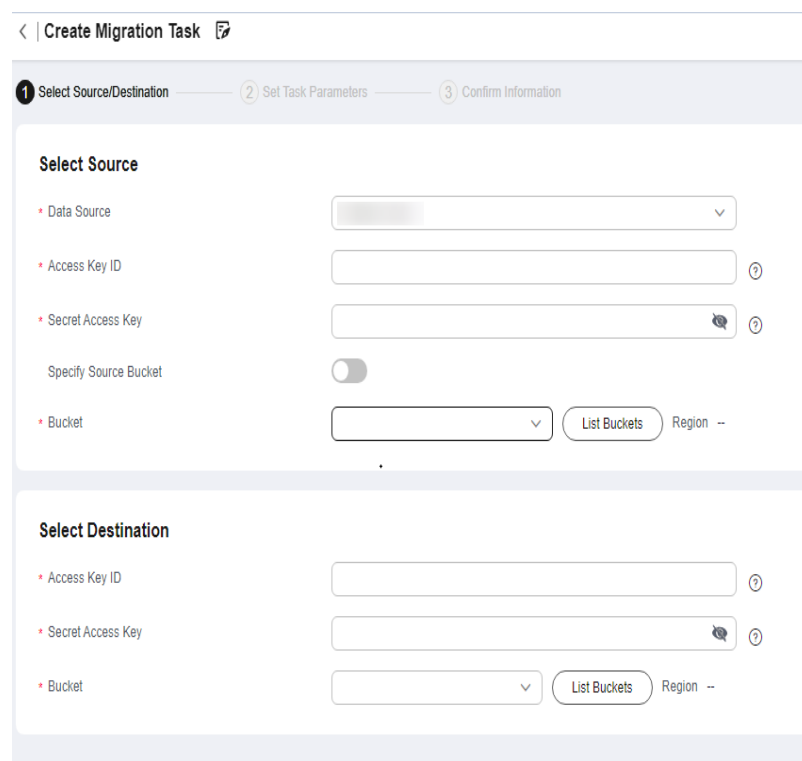
Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 5-39 Creating a migration task



Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

Figure 5-40 Select Source/Destination



Step 6 Set parameters in the **Select Source** area. For details, see [Table 5-18](#).

Table 5-18 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select Tencent Cloud .
appId	Enter the appId of your Tencent Cloud account. NOTE You can view the appId on the account information page of the Tencent Cloud console.
Access Key ID	Enter the SecretId of your Tencent Cloud account to which the source bucket belongs.
Secret Access Key	Enter the SecretKey of your Tencent Cloud account to which the source bucket belongs.
Specify Source Bucket	Disable Specify Source Bucket (This feature is disabled by default.) <ol style="list-style-type: none"> 1. Click List Buckets next to Bucket. All buckets in the account will be listed. 2. Select the bucket you want to migrate from the drop-down list. NOTE If the source account does not have the permissions required to list buckets, you need to enable Specify Source Bucket .
	If you enable Specify Source Bucket , you need to: <ol style="list-style-type: none"> 1. Select the region where the source bucket resides from the Region drop-down list. 2. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. NOTE The entered bucket name should not contain appId. <ol style="list-style-type: none"> 3. Click Connect.

Step 7 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-19](#).

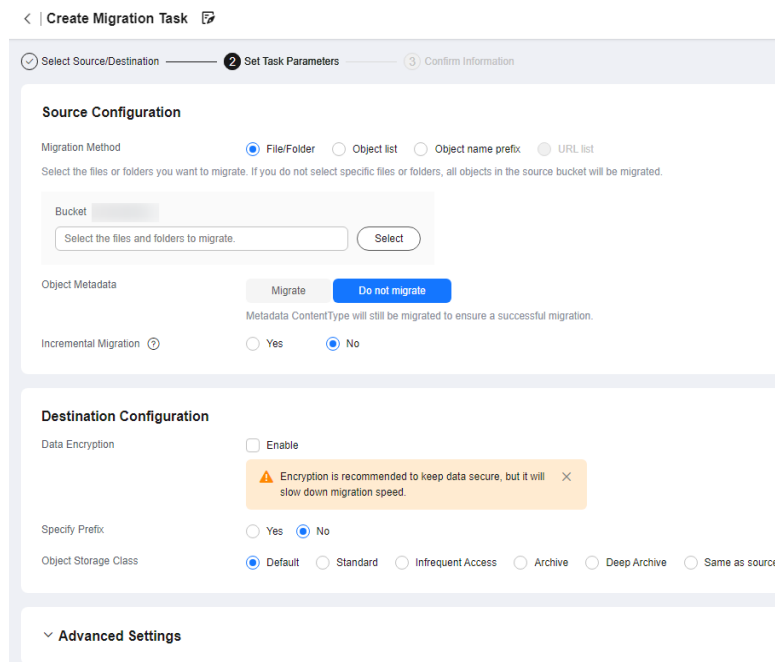
Table 5-19 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .

Parameter	Configuration
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 8 On the displayed **Set Task Parameters** page, configure the task parameters.

Figure 5-41 Set Task Parameters



Step 9 Select a migration method.

Migration Method	Scenario	Description
File/Folder	You have obtained the names of files to be migrated, or the folders where the files to be migrated are located.	<ul style="list-style-type: none"> If you select folders, all files in the selected folders will be migrated. If you select files, all selected files will be migrated. <p>You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.</p>

Migration Method	Scenario	Description
Object list	You have obtained the names of all the objects to be migrated, saved the object names in a .txt file, and uploaded the file to an OBS bucket on Huawei Cloud.	<ul style="list-style-type: none">• Object List Bucket (Huawei Cloud): The bucket where the list file is stored must be in the same region as the destination bucket. Otherwise, the list file cannot be selected.• Object List: Select the .txt file that contains the names of all objects to be migrated.

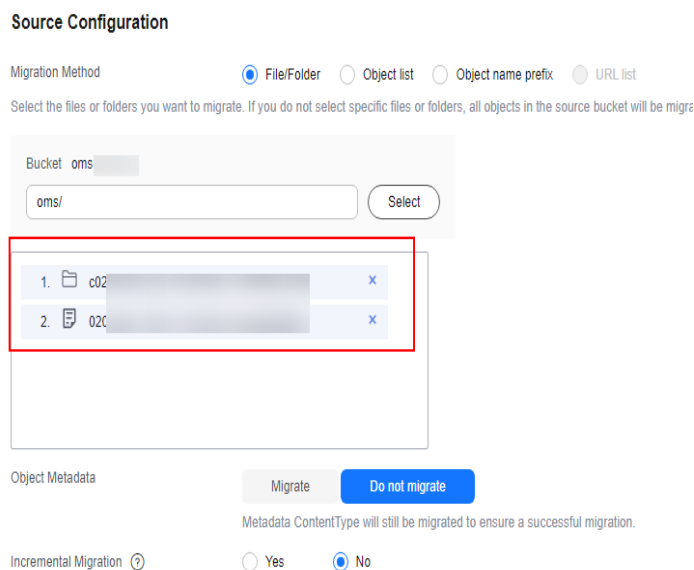
Migration Method	Scenario	Description
		<p>NOTE</p> <ul style="list-style-type: none"> • Each object list file cannot exceed 1,024 MB. • The first object in the object list must exist, or the pre-verification will fail. • The object list file must be a .txt file, and the ContentType metadata of the file must be text/plain. • The object list file must be in UTF-8 without BOM. • Each line in the object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in the object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in the object list file cannot exceed 65,535 characters, or the migration will fail. • ContentEncoding cannot be set in the metadata of the object list file, or the migration will fail. • Archive data can only be accessed and obtained by OMS after it is restored. If the object list files are archive, manually restore them before migration.

Migration Method	Scenario	Description
Object name prefix	You know the naming format of the objects to be migrated, and the objects to be migrated are named with the same prefix.	After a prefix is added, all objects whose names start with the prefix will be migrated. If this parameter is not specified, all objects in the bucket will be migrated.

- **File/Folder**

- Click **Select** under the bucket name. The **Select File/Folder** dialog box is displayed.
- Select the folders or files to be migrated. You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.
- Click **OK**. The selected files or folders are displayed.

Figure 5-42 Selected files and folders



- **Object list**

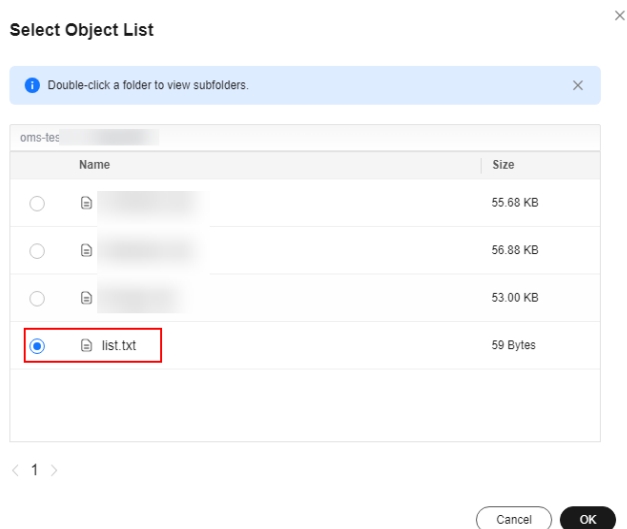
- In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the object list is stored.

CAUTION

The bucket used for storing object list must be located in the same region as the destination bucket, or you cannot select the object list.

- b. Click **Select** next to **Object List**. In the displayed **Object List File** dialog box, select the .txt file that contains the names of all objects to be migrated, and click **OK**.

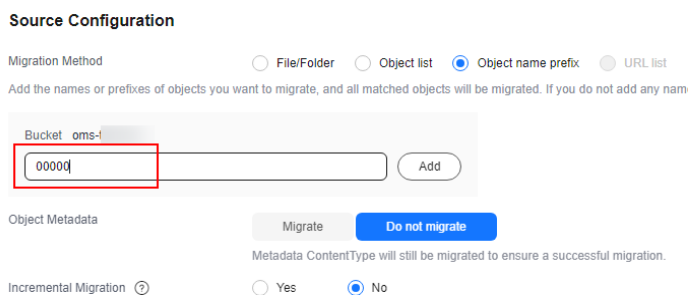
Figure 5-43 Selecting an object list file



- **Object name prefix**

- a. Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-44 Entering the names or name prefixes of objects to be migrated



- b. Click **Add**. The system will automatically list the matched objects. You can click **X** to delete the objects that do not need to be migrated from the list.

Step 10 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata ContentType.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 11 Set **Incremental Migration**.

- 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.

Step 12 Configure parameters in the **Destination Configuration** area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

NOTE

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-45 Specifying a prefix

The screenshot shows the 'Destination Configuration' section of a migration tool. It includes several settings: 'Data Encryption' with an 'Enable' checkbox; 'Specify Prefix' with radio buttons for 'Yes' (selected) and 'No'; and 'Object Storage Class' with radio buttons for 'Default', 'Standard', 'Infrequent Access', 'Archive', 'Deep Archive', and 'Same as source'. A red box highlights the 'Specify Prefix' input field, which contains the text 'Prefix cannot start with /'. An orange warning message is displayed above the input field, stating: 'Encryption is recommended to keep data secure, but it will slow down migration speed.'

NOTE

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. **Object Storage Class**

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 13 Click **Advanced Settings**. Set parameters in the **Advanced Settings** area based on [Table 5-20](#).

Table 5-20 Advanced settings

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none">• If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again.• If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none">- For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket.- A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
Archive Data Restoration	<p>The default value is No.</p> <ul style="list-style-type: none">• If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects.• If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none">• If this option is set to No, no SMN message is sent after the migration.• If this option is set to Yes, you will receive an SMN message informing you of the migration results.

Parameter	Description
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none"> • If you do not need to limit migration traffic, select No. • If you need to limit migration traffic, select Yes.
Object Overwrite	<ul style="list-style-type: none"> • 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. Otherwise, the source object will be skipped. • Never overwrite: The system always skips source objects and keeps their paired destination objects. • Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. NOTE <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. • Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency check	<ul style="list-style-type: none"> • By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. • By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	<p>If there are a large number of tasks, you can set task priorities to determine the migration sequence.</p>

Step 14 Click **Next** to enter the confirmation page.

Step 15 Confirm the source information, destination information, task parameters, and advanced settings, and click **Migrate Now**. A message is displayed, indicating that the migration task is successfully created. The migration task is displayed in the migration task list.

 **NOTE**

After the task is created, a task ID is generated for quick identification. It is displayed in the upper left corner of the task list. It is composed of the source bucket name, destination bucket name, and time sequence ID.

----End

Related Operations

You can perform the following operations on a created migration task.

Operation	Description
View a migration task.	For details, see Viewing a Migration Task .
Manage a migration task.	For details, see Managing a Migration Task .

5.4.4 Creating a Migration Task Group

This section describes how to create a migration task group.

 **CAUTION**

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
 - If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.
-

Scenarios

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.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
 - The source platform needs have the **ReadOnlyAccess** permission.
 - The destination platform account needs the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata, obtain object content, upload objects, list uploaded parts, and restore archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).
- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


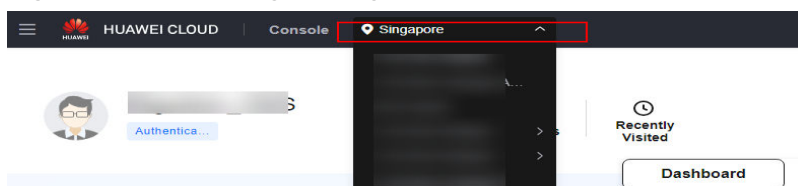
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

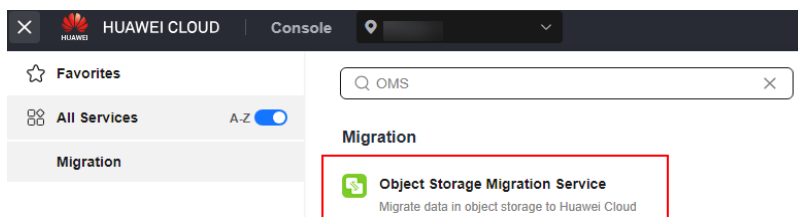
Figure 5-46 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

You can also enter **OMS** in the search box to quickly find OMS.

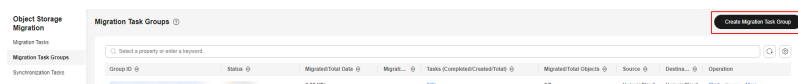
Figure 5-47 Choosing OMS



Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

Step 5 On the **Migration Task Groups** page, click **Create Migration Task** in the upper right corner.

Figure 5-48 Creating a migration task group



Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-49 Select Source/Destination

The screenshot shows the 'Create Migration Task Group' page with three steps: 1. Select Source/Destination, 2. Set Task Group Parameters, and 3. Confirm Information. The 'Select Source' section contains the following fields:

- Data Source:** A dropdown menu.
- Access Key ID:** A text input field with a help icon.
- Secret Access Key:** A text input field with a help icon and a visibility toggle.
- Specify Source Bucket:** A toggle switch.
- Bucket:** A dropdown menu, a 'List Buckets' button, and a 'Region' dropdown.

The 'Select Destination' section contains the following fields:

- Access Key ID:** A text input field with a help icon.
- Secret Access Key:** A text input field with a help icon and a visibility toggle.
- Bucket:** A dropdown menu, a 'List Buckets' button, and a 'Region' dropdown.

Step 7 Set parameters in the **Select Source** area. For details, see [Table 5-21](#).

Table 5-21 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select Tencent Cloud .
appId	Enter the appId of your Tencent Cloud account. NOTE You can view the appId on the account information page of the Tencent Cloud console.
Access Key ID	Enter the SecretId of your Tencent Cloud account to which the source bucket belongs.
Secret Access Key	Enter the SecretKey of your Tencent Cloud account to which the source bucket belongs.

Parameter	Configuration
Specify Source Bucket	<p>Disable Specify Source Bucket (This feature is disabled by default.)</p> <ol style="list-style-type: none"> 1. Click List Buckets next to Bucket. All buckets in the account will be listed. 2. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source account does not have the permissions required to list buckets, you need to enable Specify Source Bucket.</p>
	<p>If you enable Specify Source Bucket, you need to:</p> <ol style="list-style-type: none"> 1. Select the region where the source bucket resides from the Region drop-down list. 2. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. <p>NOTE The entered bucket name should not contain appId.</p> <ol style="list-style-type: none"> 3. Click Connect.

Step 8 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-22](#).

Table 5-22 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 9 Click **Next**. The **Set Task Group Parameters** page is displayed.

Figure 5-50 Set Task Group Parameters

1 Select Source/Destination 2 Set Task Group Parameters 3 Confirm Information

Source Configuration

Migration Method Object name prefix URL list folder Object list folder

Add the names or prefixes of objects you want to migrate, and all matched objects will be migrated. If you do not add any names or prefixes, all objects in the source bucket will be migrated.

Bucket om

Enter an object name or name prefix.

Object Metadata

Metadata ContentType will still be migrated to ensure a successful migration.

Incremental Migration Yes No

Destination Configuration

Data Encryption Enable

Encryption is recommended to keep data secure, but it will slow down migration speed.

Specify Prefix Yes No

Object Storage Class Default Standard Infrequent Access Archive Deep Archive Same as source

Advanced Settings

Step 10 Select a migration method.

- **Object name prefix**

- a. Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-51 Entering the names or name prefixes of objects to be migrated

Source Configuration

Migration Method Object name prefix URL list folder Object list folder

Add the names or prefixes of objects you want to migrate, and all matched objects will be migrated. If you do not add any names or prefixes, all c

Bucket oms-l


00000

Object Metadata

Metadata ContentType will still be migrated to ensure a successful migration.

Incremental Migration Yes No

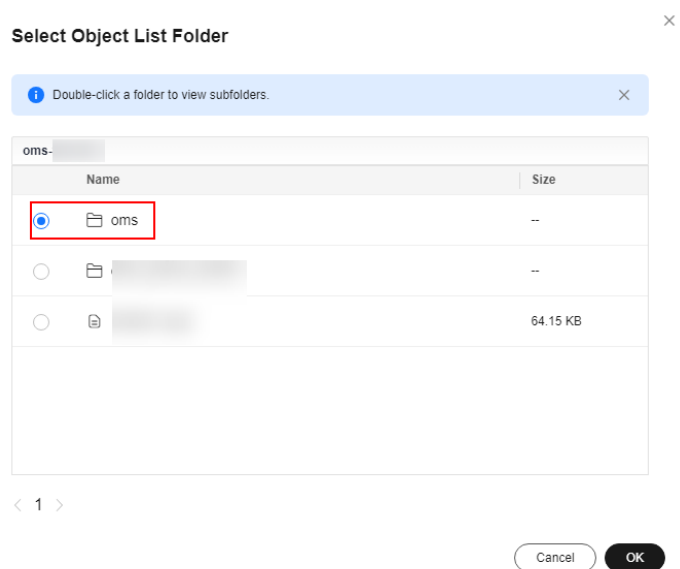
NOTE

- If the objects you want to migrate are stored in the root directory of the source bucket, add their prefixes directly. If these objects are stored in non-root directories, add their directories and prefixes in the format of *Bucket name/Folder/Prefix*.
 - If you do not add any object names or prefixes, all objects in the source bucket will be migrated.
 - The objects to be migrated are recorded in .txt files, and each migration task has a list file. The storage path of the files is **oms/taskgroup/** in the destination bucket. These list files will be retained after the migration, and you can manually delete them.
- b. Click **Add**. The system will automatically list the matched objects. You can click  to delete the objects that do not need to be migrated from the list.
- **Object list folder**
 - a. In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the list files are stored.

CAUTION

The bucket used for storing the list files must be located in the same region as the destination bucket, or you cannot select the files.

- b. Click **Select** next to **Object List Folder**. In the displayed **Object List File** dialog box, select the folder where the list files are stored, and click **OK**.

Figure 5-52 Selecting the folder where the object list files are located

 NOTE

- An object list file cannot exceed 1,024 MB.
- The total number of files in the object list folder cannot exceed 2,000.
- An object list file must be a .txt file, and the **Content-Type** metadata of the file must be **text/plain**.
- An object list file must be in UTF-8 without BOM.
- Each line in the object list file can contain only one object name, and the object name must be URL encoded if it contains special characters or spaces.
- Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names.
- The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail.
- The **Content-Encoding** metadata of each object list file must be left empty, or the migration will fail.
- Archive data can only be accessed and obtained by OMS after it is restored. If the object list files are archive, manually restore them before migration.

Step 11 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata **ContentType**.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 12 Set **Incremental Migration**.

- 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.

Step 13 Configure parameters in the **Destination Configuration** area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

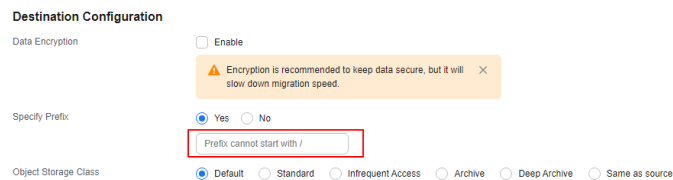
 NOTE

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-53 Specifying a prefix



 NOTE

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. **Object Storage Class**

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 14 Click **Advanced Settings**. Set parameters in the **Advanced Settings** area based on [Table 5-23](#).

Table 5-23 Advanced settings

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none">● If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again.● If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none">- For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket.- A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
Archive Data Restoration	<p>The default value is No.</p> <ul style="list-style-type: none">● If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects.● If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none">● If this option is set to No, no SMN message is sent after the migration.● If this option is set to Yes, you will receive an SMN message informing you of the migration results.
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none">● If you do not need to limit migration traffic, select No.● If you need to limit migration traffic, select Yes.

Parameter	Description
Object Overwrite	<ul style="list-style-type: none"> ● 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. Otherwise, the source object will be skipped. ● Never overwrite: The system always skips source objects and keeps their paired destination objects. ● Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. <p>NOTE</p> <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. <ul style="list-style-type: none"> ● Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency check	<ul style="list-style-type: none"> ● By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. ● By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	If there are a large number of tasks, you can set task priorities to determine the migration sequence.

Step 15 Click **Next** to enter the confirmation page.

Step 16 Confirm the source information, destination information, task group parameters, and advanced settings, and click **Migrate Now**. A message is displayed indicating

that the task group has been submitted. The task group is displayed in the migration task group list.

----End

Related Operations

You can perform the following operations on a created migration task group.

Operation	Description
View a migration task group.	For details, see Viewing a Migration Task .
Manage a migration task group.	For details, see Managing a Migration Task .

5.5 Migrating Data from UCloud US3 to Huawei Cloud OBS

5.5.1 Background

This tutorial describes how to migrate data from UCloud US3 to Huawei Cloud OBS.

As an online data migration service, Huawei Cloud OMS helps you migrate data from third-party data storage to Huawei Cloud OBS or between OBS buckets.

When you use OMS, you only need to specify a source data address and a destination OBS data address on the console, and then create a migration task or migration task group. For details about the differences between a migration task and a migration task group, see [What Are the Application Scenarios of Migration Tasks and Migration Task Groups?](#) After the migration task starts, you can view and manage it on the console.

Service Cutover

If service cutover is involved, see [Service Cutover](#) for more information.

CAUTION

You need to choose a cutover method based your requirements. The preceding solutions are for reference only.

Constraints

Use of OMS is limited as follows.

Table 5-24 OMS constraints

Item	Constraint
Objects with multiple versions	By default, OMS migrates only the latest version of objects in source buckets.
Storage class of destination buckets	The storage class of destination buckets can only be standard or infrequent access. You can change the storage class of destination buckets after the migration is complete.
Migration network	Only migrations over the Internet are supported.
Metadata migration	Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded. NOTE Even if you choose not to migrate metadata, the Content-Type metadata will still be migrated to ensure that the migration runs properly.
Migration scope	A single migration task or migration task group can only migrate data of one bucket. If data of multiple buckets needs to be migrated, you need to create multiple tasks or task groups.
Migration speed	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 transmission distance over the Internet 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. If more concurrent migrations are required, contact OMS technical support.
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: <ul style="list-style-type: none">• Create migration tasks after the restoration is complete.• Configure a validity period for restored data based on the total amount of data to be migrated. This helps prevent migration failures because restored data becomes archived again during the migration.• Pay your source cloud vendor for restoring archived data. To learn about the pricing details, contact your source cloud vendor.

Item	Constraint
Migration tasks	<p>A maximum of five concurrent migration tasks are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.</p>
	<p>A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.</p>
Migration task groups	<p>A maximum of five concurrent migration task groups are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.</p>
Synchronization tasks	<p>Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority.</p> <p>A maximum of five concurrent synchronization tasks are allowed for your account per region.</p>
Object list files	<ul style="list-style-type: none"> • An object list file cannot exceed 1,024 MB. • An object list file must be a .txt file, and its metadata Content-Type must be text/plain. • An object list file must be in UTF-8 without BOM. • Each line in an object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail. • The Content-Encoding metadata of an object list file must be left empty, or the migration will fail.

Item	Constraint
URL list files	<ul style="list-style-type: none"> ● A URL list file cannot exceed 1,024 MB. ● A URL list file must be a .txt file, and its metadata Content-Type must be text/plain. ● A URL list file must be in UTF-8 without BOM. ● Each line in a URL list file can contain only one URL and one destination object name. ● The length of each line in a URL list file cannot exceed 65,535 characters, or the migration will fail. ● The Content-Encoding metadata of a URL list file must be left empty, or the migration will fail. ● Spaces are not allowed in each line in a URL list file. Spaces may cause migration failures because they may be mistakenly identified as object names. ● In a URL list file, each line uses a tab character (\t) to separate the URL and destination object name. The format is [<i>URL</i>][<i>Tab character</i>][<i>Destination object name</i>]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: <pre style="background-color: #f0f0f0; padding: 5px;">http://xxx.xxx.xxx.xxx.com/doc/thefile2.txt doc/thefile2.txt http:// xxx.xxx.xxx.xxx.com/the%20file.txt the%20file.txt http://xxx.xxx.xxx.xxx.com/the%20file2.txt the+file2.txt http://xxx.xxx.xxx.xxx.com/doc/thefile.txt doc/thefile.txt</pre> <p>CAUTION The URL encoding starts from the second character after the domain name in a line. Do not encode the protocol header, domain name, or slash before or after the domain name. Otherwise, the format verification will fail.</p> <p>In each line, use a tab character (Tab key on the keyboard) to separate the URL and the destination object name. Do not use spaces.</p> <p>In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named doc/the file2.txt, the file.txt, the file2.txt, and doc/thefile.txt.</p>
Failed object list files	<p>A maximum of 100,000 failed objects can be recorded in a failed object list file.</p> <p>NOTE If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.</p>

5.5.2 Preparing for Migration

Before using OMS to migrate data between OBS buckets, make preparations by referring to this section.

Registering a HUAWEI ID

[Register a HUAWEI ID and enable Huawei Cloud services.](#)

NOTE

[Real-name authentication](#) is required for migrations to regions within the Chinese mainland.

Creating Access Keys for the Source and Destination Accounts and Obtaining the Required Permissions

- Source (UCloud)
 - If you use a root account for migration, log in to the UCloud console, click the username in the right corner of the top navigation bar, and choose **UAccount > API Keys** to view or create an access key.
 - If you want to use a sub-account for migration, perform the following steps to create a sub-account, generate an AK/SK pair for the sub-account, and assign the **UFileReadOnlyAccess** permission to the sub-account.
 - i. Log in to the UCloud console using a root account.
 - ii. On the top navigation bar, click the username and choose **IAM > User Management**.
 - iii. Click **Invite Sub Account**.
 - iv. Specify **Access Mode, Email and Username**, and click **OK**.

NOTE

- If you select **API** for **Access Mode**, an AK/SK pair will be automatically generated.
- The sub-account can access the console using the email address. The username is the unique identifier of the sub-account under the root account.
- v. Assign permissions to the sub-account.

Locate the sub-account and click **Add Policy** in the **Operation** column. In the displayed **Add Policy** dialog box, select an application project, select **UFileReadOnlyAccess**, and click **Confirm**.
- vi. (Optional) Create an access key for the sub-account.

Click **Username** to go to the user details page. In the **API Keys** area, click **Create Key** to generate an AK/SK pair.
- Destination (Huawei Cloud): Create an AK/SK pair for the destination account and obtain the required permissions. For more information, see [Creating an Access Key \(AK/SK\)](#) and [Destination Permissions](#).

Creating a Destination OBS Bucket

Create an OBS bucket for storing the migrated data. For details, see [Creating a Bucket](#).

Restoring Archive Data in the Source Bucket

You need to restore data of the Archive storage class before you migrate it. Otherwise, the migration will take a long time. US3 provides the us3cli tool to restore archive files in batches. For details, see [Restoring Archive Data on UCloud US3](#).

CAUTION

Perform the migration after all archive data is restored. Any data not restored will fail to be migrated.

5.5.3 Creating a Migration Task

This section describes how to create a migration task.

CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
 - If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.
-

Scenario

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.

NOTE

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.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
 - The source platform account needs the **UFileReadOnlyAccess** permission.
 - The destination platform account needs the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata, obtain object content, upload objects, list uploaded parts, and restore archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).
- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.

- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


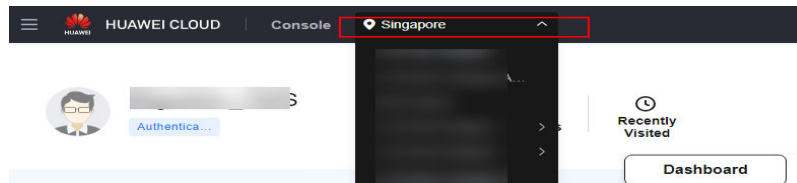
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

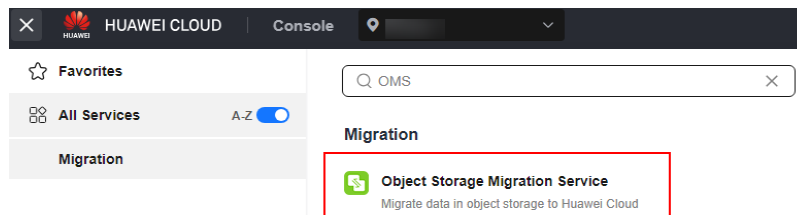
Figure 5-54 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

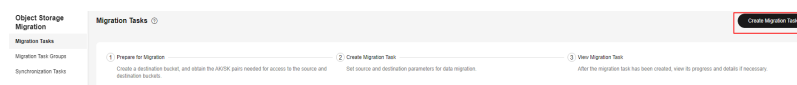
You can also enter **OMS** in the search box to quickly find OMS.

Figure 5-55 Choosing OMS



Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 5-56 Creating a migration task



Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

Figure 5-57 Select Source/Destination

The screenshot shows the 'Create Migration Task' interface. At the top, there are three steps: 1. Select Source/Destination, 2. Set Task Parameters, and 3. Confirm Information. The 'Select Source' section has the following fields: 'Data Source' (a dropdown menu), 'Access Key ID' (a text input field), 'Secret Access Key' (a text input field with a mask icon), 'Specify Source Bucket' (a toggle switch), and 'Bucket' (a dropdown menu with a 'List Buckets' button and a 'Region' dropdown). The 'Select Destination' section has the following fields: 'Access Key ID' (a text input field), 'Secret Access Key' (a text input field with a mask icon), and 'Bucket' (a dropdown menu with a 'List Buckets' button and a 'Region' dropdown).

Step 6 Set parameters in the **Select Source** area. For details, see [Table 5-25](#).

Table 5-25 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select UCloud .
Access Key ID	Enter the AK of the UCloud account to which the source bucket belongs.
Secret Access Key	Enter the SK of the UCloud account to which the source bucket belongs.
Specify Source Bucket	<p>Disable Specify Source Bucket (This feature is disabled by default.)</p> <ol style="list-style-type: none"> Click List Buckets next to Bucket. All buckets in the account will be listed. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source platform account does not have the permissions required to list buckets, you need to enable Specify Source Bucket.</p> <p>Enable Specify Source Bucket.</p> <ol style="list-style-type: none"> Select the region where the source bucket resides from the Region drop-down list. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. Click Connect.

Step 7 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-26](#).

Table 5-26 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 8 Click **Next**. The **Set Task Parameters** page is displayed.

Figure 5-58 Set Task Parameters

< | Create Migration Task

1 Select Source/Destination — 2 Set Task Parameters — 3 Confirm Information

Source Configuration

Migration Method: File/Folder Object list Object name prefix URL list

Select the files or folders you want to migrate. If you do not select specific files or folders, all objects in the source bucket will be migrated.

Bucket: [Selected]

Select the files and folders to migrate.

Object Metadata:

Metadata ContentType will still be migrated to ensure a successful migration.

Incremental Migration: Yes No

Destination Configuration

Data Encryption: Enable

Encryption is recommended to keep data secure, but it will slow down migration speed.

Specify Prefix: Yes No

Object Storage Class: Default Standard Infrequent Access Archive Deep Archive Same as source

Advanced Settings

Step 9 Select a migration method.

Migration Method	Scenario	Description
File/Folder	You have obtained the names of the files to be migrated or the folders where the files to be migrated are located.	<ul style="list-style-type: none">• If you select folders, all files in the selected folders will be migrated.• If you select files, all selected files will be migrated. <p>You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.</p>

Migration Method	Scenario	Description
Object list	You have obtained the names of all the objects to be migrated, saved the object names in a .txt file, and uploaded the file to an OBS bucket on Huawei Cloud.	<ul style="list-style-type: none">• Object List Bucket (Huawei Cloud): The bucket where the list file is stored must be in the same region as the destination bucket. Otherwise, the list file cannot be selected.• Object List: Select the .txt file that contains the names of all objects to be migrated.

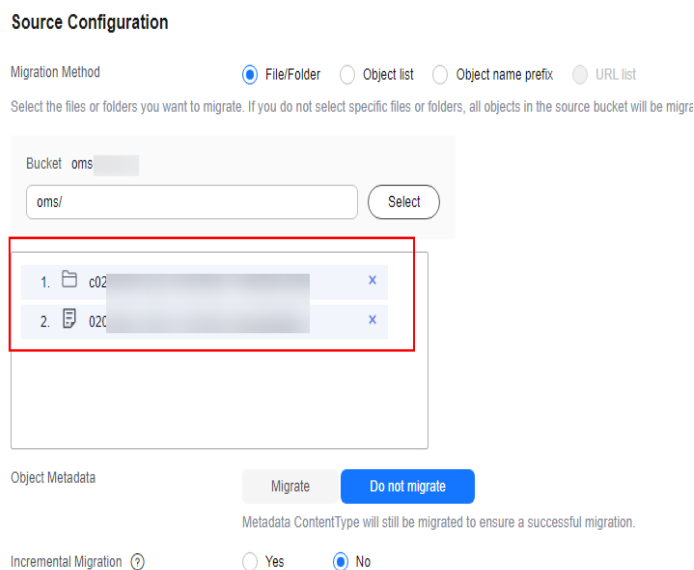
Migration Method	Scenario	Description
		<p>NOTE</p> <ul style="list-style-type: none"> • Each object list file cannot exceed 1,024 MB. • The first object in the object list must exist, or the pre-verification will fail. • The object list file must be a .txt file, and the ContentType metadata of the file must be text/plain. • The object list file must be in UTF-8 without BOM. • Each line in the object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in the object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in the object list file cannot exceed 65,535 characters, or the migration will fail. • ContentEncoding cannot be set in the metadata of the object list file, or the migration will fail. • Archive data can only be accessed and obtained by OMS after it is restored. If the object list files are archive, manually restore them before migration.

Migration Method	Scenario	Description
Object name prefix	You know the naming format of the objects to be migrated, and the objects to be migrated are named with the same prefix.	After a prefix is added, all objects whose names start with the prefix will be migrated. If this parameter is not specified, all objects in the bucket will be migrated.

- **File/Folder**

- Click **Select** under the bucket name. The **Select File/Folder** dialog box is displayed.
- Select the folders or files to be migrated. You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.
- Click **OK**. The selected files or folders are displayed.

Figure 5-59 Selected files and folders



- **Object list**

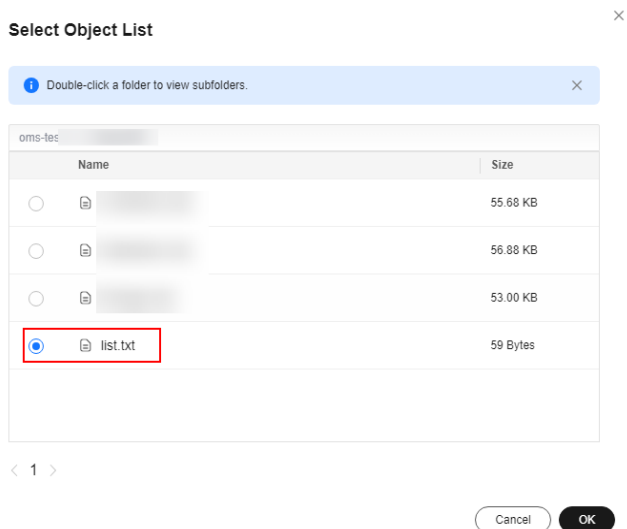
- In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the object list is stored.

CAUTION

The bucket used for storing object list must be located in the same region as the destination bucket, or you cannot select the object list.

- b. Click **Select** next to **Object List**. In the displayed **Object List File** dialog box, select the .txt file that contains the names of all objects to be migrated, and click **OK**.

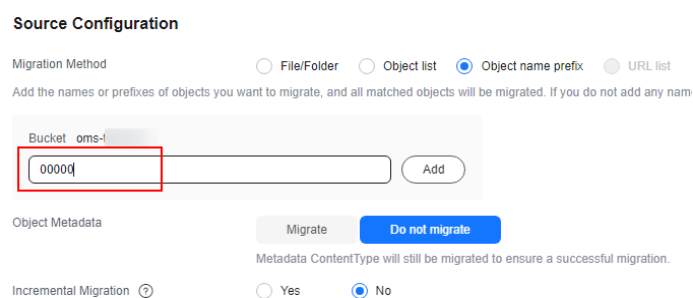
Figure 5-60 Selecting an object list file



- **Object name prefix**

- a. Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-61 Entering the names or name prefixes of objects to be migrated



- b. Click **Add**. The system will automatically list the matched objects. You can click **X** to delete the objects that do not need to be migrated from the list.

Step 10 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata ContentType.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 11 Set Incremental Migration.

- 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.

Step 12 (Optional) Set Use Source Custom Domain Name based on Table 5-27.

Use Source Custom Domain Name Yes No

⚠ If the CDN performance optimization function (such as Gzip compression function) is enabled on the source end, the migration may fail.

Transfer Protocol HTTP HTTPS

Custom Bucket Domain Name

Table 5-27 Parameters

Parameter	Configuration
Use Source Custom Domain Name	<p>This option is deselected by default.</p> <p>If the default domain name cannot meet your migration requirements, then if the source cloud service provider supports custom domain names, you can bind a custom domain name to the source bucket, and enable the CDN service on the source platform to reduce data download fees.</p> <p>NOTE If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.</p> <ol style="list-style-type: none"> 1. Select a transmission protocol for Transfer Protocol. <p>NOTE HTTPS is more secure than HTTP and is recommended.</p> <ol style="list-style-type: none"> 2. Enter a custom domain name of the bucket in the Custom Bucket Domain Name box.
Check	<p>Click Check to check whether the configuration is correct.</p> <ul style="list-style-type: none"> • If the configuration fails the check, click Details to view the failure causes. • If the configuration passes the check, complete other migration configurations.

Step 13 Configure parameters in the Destination Configuration area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

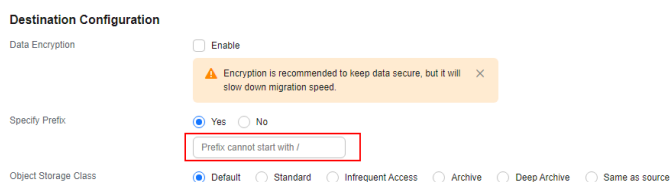
 **NOTE**

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-62 Specifying a prefix



The screenshot shows the 'Destination Configuration' panel. Under 'Data Encryption', the 'Enable' checkbox is unchecked. A warning message states: 'Encryption is recommended to keep data secure, but it will slow down migration speed.' Under 'Specify Prefix', the 'Yes' radio button is selected. A text input field below it contains the text 'Prefix cannot start with /'. Under 'Object Storage Class', the 'Default' radio button is selected.

 **NOTE**

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. **Object Storage Class**

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 14 Click **Advanced Settings**. Set parameters in the **Advanced Settings** area based on [Table 5-28](#).

Table 5-28 Advanced settings

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none">● If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again.● If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none">- For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket.- A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
Archive Data Restoration	<p>The default value is No.</p> <ul style="list-style-type: none">● If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects.● If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none">● If this option is set to No, no SMN message is sent after the migration.● If this option is set to Yes, you will receive an SMN message informing you of the migration results.
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none">● If you do not need to limit migration traffic, select No.● If you need to limit migration traffic, select Yes.

Parameter	Description
Object Overwrite	<ul style="list-style-type: none"> ● 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. Otherwise, the source object will be skipped. ● Never overwrite: The system always skips source objects and keeps their paired destination objects. ● Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. <p>NOTE</p> <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. <ul style="list-style-type: none"> ● Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency check	<ul style="list-style-type: none"> ● By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. ● By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	If there are a large number of tasks, you can set task priorities to determine the migration sequence.

Step 15 Click **Next** to enter the confirmation page.

Step 16 Confirm the source information, destination information, task parameters, and advanced settings, and click **Migrate Now**. A message is displayed, indicating that the migration task is successfully created. The migration task is displayed in the migration task list.

 NOTE

After the task is created, a task ID is generated for quick identification. It is displayed in the upper left corner of the task list. It is composed of the source bucket name, destination bucket name, and time sequence ID.

----End

Related Operations

You can perform the following operations on a created migration task.

Operation	Description
View a migration task.	For details, see Viewing a Migration Task .
Manage a migration task.	For details, see Managing a Migration Task .

5.5.4 Creating a Migration Task Group

This section describes how to create a migration task group.

 CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
- If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.

Scenarios

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.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
 - The source platform account needs the **UFileReadOnlyAccess** permission.
 - The destination platform account needs the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata, obtain object content, upload objects, list uploaded parts, and restore

archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).

- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


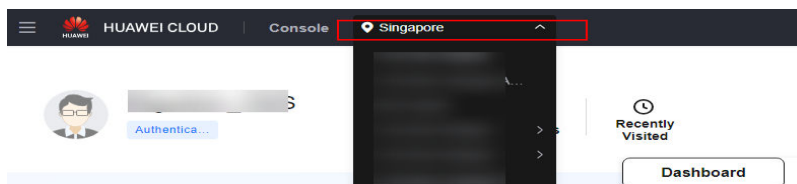
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

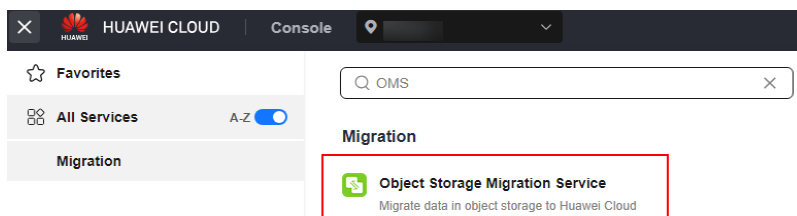
Figure 5-63 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

You can also enter **OMS** in the search box to quickly find OMS.

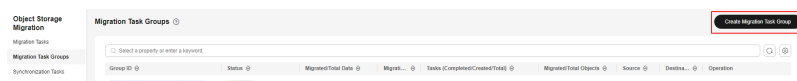
Figure 5-64 Choosing OMS



Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

Step 5 On the **Migration Task Groups** page, click **Create Migration Task** in the upper right corner.

Figure 5-65 Creating a migration task group



Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-66 Select Source/Destination

The screenshot shows a web interface for creating a migration task group. It has a breadcrumb trail: < | Create Migration Task Gr... | A progress bar at the top indicates three steps: 1. Select Source/Destination (active), 2. Set Task Group Parameters, and 3. Confirm Information. The main content is divided into two sections: 'Select Source' and 'Select Destination'.
Select Source:
 - Data Source: A dropdown menu.
 - Access Key ID: A text input field with a help icon.
 - Secret Access Key: A text input field with a help icon and a password mask icon.
 - Specify Source Bucket: A toggle switch that is currently turned off.
 - Bucket: A dropdown menu, a 'List Buckets' button, and a 'Region' dropdown menu.
Select Destination:
 - Access Key ID: A text input field with a help icon.
 - Secret Access Key: A text input field with a help icon and a password mask icon.
 - Bucket: A dropdown menu, a 'List Buckets' button, and a 'Region' dropdown menu.

Step 7 Set parameters in the **Select Source** area. For details, see [Table 5-29](#).

Table 5-29 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select UCloud .
Access Key ID	Enter the AK of the UCloud account to which the source bucket belongs.
Secret Access Key	Enter the SK of the UCloud account to which the source bucket belongs.
Specify Source Bucket	<p>Disable Specify Source Bucket (This feature is disabled by default.)</p> <ol style="list-style-type: none"> Click List Buckets next to Bucket. All buckets in the account will be listed. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source platform account does not have the permissions required to list buckets, you need to enable Specify Source Bucket.</p> <p>Enable Specify Source Bucket.</p> <ol style="list-style-type: none"> Select the region where the source bucket resides from the Region drop-down list. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. Click Connect.

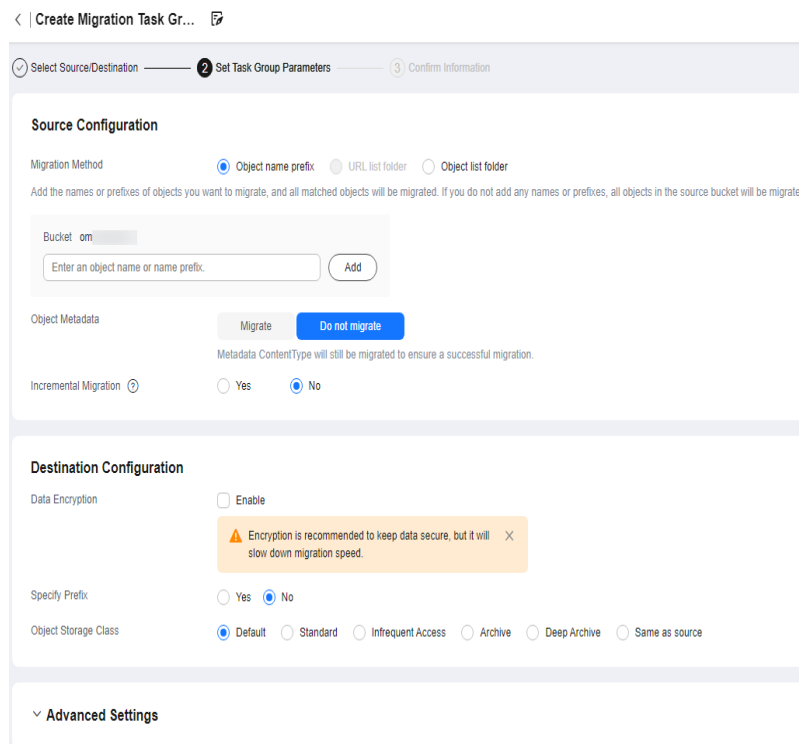
Step 8 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-30](#).

Table 5-30 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 9 Click **Next**. The **Set Task Group Parameters** page is displayed.

Figure 5-67 Set Task Group Parameters



Step 10 Select a migration method.

- **Object name prefix**
 - a. Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-68 Entering the names or name prefixes of objects to be migrated

Source Configuration

Migration Method Object name prefix URL list folder Object list folder

Add the names or prefixes of objects you want to migrate, and all matched objects will be migrated. If you do not add any names or prefixes, all c


Bucket oms-
00000 Add

Object Metadata Migrate Do not migrate

Metadata ContentType will still be migrated to ensure a successful migration.

Incremental Migration Yes No

NOTE

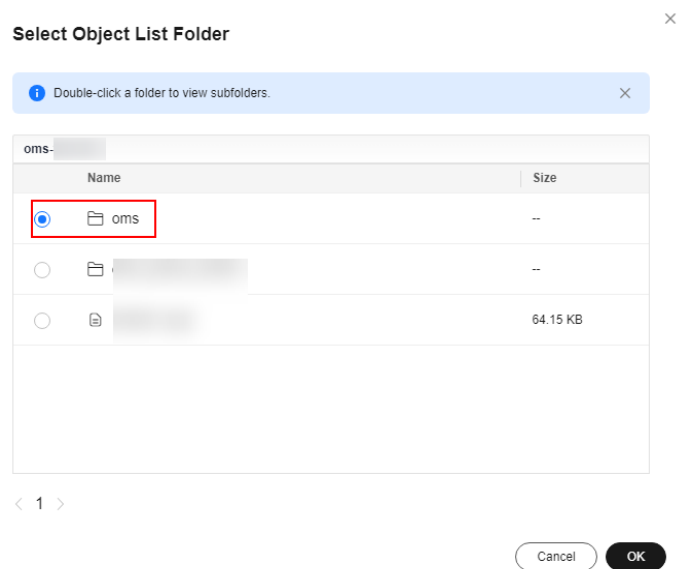
- If the objects you want to migrate are stored in the root directory of the source bucket, add their prefixes directly. If these objects are stored in non-root directories, add their directories and prefixes in the format of *Bucket name/Folder/Prefix*.
 - If you do not add any object names or prefixes, all objects in the source bucket will be migrated.
 - The objects to be migrated are recorded in .txt files, and each migration task has a list file. The storage path of the files is **oms/taskgroup/** in the destination bucket. These list files will be retained after the migration, and you can manually delete them.
- b. Click **Add**. The system will automatically list the matched objects. You can click  to delete the objects that do not need to be migrated from the list.
- **Object list folder**
 - a. In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the list files are stored.

CAUTION

The bucket used for storing the list files must be located in the same region as the destination bucket, or you cannot select the files.

- b. Click **Select** next to **Object List Folder**. In the displayed **Object List File** dialog box, select the folder where the list files are stored, and click **OK**.

Figure 5-69 Selecting the folder where the object list files are located



NOTE

- An object list file cannot exceed 1,024 MB.
- The total number of files in the object list folder cannot exceed 2,000.
- An object list file must be a .txt file, and the **Content-Type** metadata of the file must be **text/plain**.
- An object list file must be in UTF-8 without BOM.
- Each line in the object list file can contain only one object name, and the object name must be URL encoded if it contains special characters or spaces.
- Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names.
- The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail.
- The **Content-Encoding** metadata of each object list file must be left empty, or the migration will fail.
- Archive data can only be accessed and obtained by OMS after it is restored. If the object list files are archive, manually restore them before migration.

Step 11 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata ContentType.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 12 Set **Incremental Migration**.

- 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.

Step 13 (Optional) Set **Use Source Custom Domain Name** based on [Table 5-31](#).

Use Source Custom Domain Name Yes No

⚠ If the CDN performance optimization function (such as Gzip compression function) is enabled on the source end, the migration may fail.

Transfer Protocol HTTP HTTPS

Custom Bucket Domain Name

Table 5-31 Parameters

Parameter	Configuration
Use Source Custom Domain Name	<p>This option is deselected by default.</p> <p>If the default domain name cannot meet your migration requirements, then if the source cloud service provider supports custom domain names, you can bind a custom domain name to the source bucket, and enable the CDN service on the source platform to reduce data download fees.</p> <p>NOTE If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.</p> <p>1. Select a transmission protocol for Transfer Protocol.</p> <p>NOTE HTTPS is more secure than HTTP and is recommended.</p> <p>2. Enter a custom domain name of the bucket in the Custom Bucket Domain Name box.</p>
Check	<p>Click Check to check whether the configuration is correct.</p> <ul style="list-style-type: none"> • If the configuration fails the check, click Details to view the failure causes. • If the configuration passes the check, complete other migration configurations.

Step 14 Configure parameters in the **Destination Configuration** area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

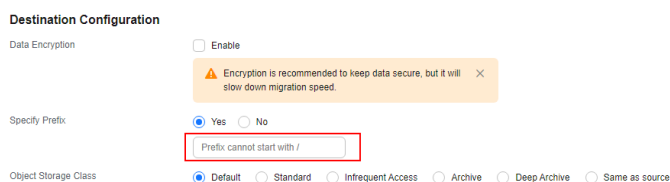
 **NOTE**

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-70 Specifying a prefix



The screenshot shows the 'Destination Configuration' panel. Under 'Data Encryption', the 'Enable' checkbox is unchecked. A warning message states: 'Encryption is recommended to keep data secure, but it will slow down migration speed.' Under 'Specify Prefix', the 'Yes' radio button is selected. A text input field below it contains the text 'Prefix cannot start with /'. Under 'Object Storage Class', the 'Default' radio button is selected.

 **NOTE**

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. **Object Storage Class**

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 15 Click **Advanced Settings**. Set parameters in the **Advanced Settings** area based on [Table 5-32](#).

Table 5-32 Advanced settings

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none"> ● If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again. ● If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none"> - For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket. - A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
Archive Data Restoration	<p>The default value is No.</p> <ul style="list-style-type: none"> ● If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects. ● If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none"> ● If this option is set to No, no SMN message is sent after the migration. ● If this option is set to Yes, you will receive an SMN message informing you of the migration results.
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none"> ● If you do not need to limit migration traffic, select No. ● If you need to limit migration traffic, select Yes.

Parameter	Description
Object Overwrite	<ul style="list-style-type: none"> ● 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. Otherwise, the source object will be skipped. ● Never overwrite: The system always skips source objects and keeps their paired destination objects. ● Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. <p>NOTE</p> <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. <ul style="list-style-type: none"> ● Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency check	<ul style="list-style-type: none"> ● By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. ● By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	If there are a large number of tasks, you can set task priorities to determine the migration sequence.

Step 16 Click **Next** to enter the confirmation page.

Step 17 Confirm the source information, destination information, task group parameters, and advanced settings, and click **Migrate Now**. A message is displayed indicating

that the task group has been submitted. The task group is displayed in the migration task group list.

----End

Related Operations

You can perform the following operations on a created migration task group.

Operation	Description
View a migration task group.	For details, see Viewing a Migration Task .
Manage a migration task group.	For details, see Managing a Migration Task .

5.6 Migrating Data from Kingsoft Cloud KS3 to Huawei Cloud OBS

5.6.1 Background

This tutorial describes how to migrate data from Kingsoft Cloud Standard Storage Service (KS3) to Huawei Cloud OBS.

As an online data migration service, Huawei Cloud OMS helps you migrate data from third-party data storage to Huawei Cloud OBS or between OBS buckets.

When you use OMS, you only need to specify a source data address and a destination OBS data address on the console, and then create a migration task or migration task group. For details about the differences between a migration task and a migration task group, see [What Are the Application Scenarios of Migration Tasks and Migration Task Groups?](#) After the migration task starts, you can view and manage it on the console.

Service Cutover

If service cutover is involved, see [Service Cutover](#) for more information.

CAUTION

You need to choose a cutover method based your requirements. The preceding solutions are for reference only.

Constraints

Use of OMS is limited as follows.

Table 5-33 OMS constraints

Item	Constraint
Objects with multiple versions	By default, OMS migrates only the latest version of objects in source buckets.
Storage class of destination buckets	The storage class of destination buckets can only be standard or infrequent access. You can change the storage class of destination buckets after the migration is complete.
Migration network	Only migrations over the Internet are supported.
Metadata migration	Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded. NOTE Even if you choose not to migrate metadata, the Content-Type metadata will still be migrated to ensure that the migration runs properly.
Migration scope	A single migration task or migration task group can only migrate data of one bucket. If data of multiple buckets needs to be migrated, you need to create multiple tasks or task groups.
Migration speed	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 transmission distance over the Internet 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. If more concurrent migrations are required, contact OMS technical support.
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: <ul style="list-style-type: none">• Create migration tasks after the restoration is complete.• Configure a validity period for restored data based on the total amount of data to be migrated. This helps prevent migration failures because restored data becomes archived again during the migration.• Pay your source cloud vendor for restoring archived data. To learn about the pricing details, contact your source cloud vendor.

Item	Constraint
Migration tasks	<p>A maximum of five concurrent migration tasks are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.</p>
	<p>A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.</p>
Migration task groups	<p>A maximum of five concurrent migration task groups are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.</p>
Synchronization tasks	<p>Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority.</p> <p>A maximum of five concurrent synchronization tasks are allowed for your account per region.</p>
Object list files	<ul style="list-style-type: none"> • An object list file cannot exceed 1,024 MB. • An object list file must be a .txt file, and its metadata Content-Type must be text/plain. • An object list file must be in UTF-8 without BOM. • Each line in an object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail. • The Content-Encoding metadata of an object list file must be left empty, or the migration will fail.

Item	Constraint
URL list files	<ul style="list-style-type: none">• A URL list file cannot exceed 1,024 MB.• A URL list file must be a .txt file, and its metadata Content-Type must be text/plain.• A URL list file must be in UTF-8 without BOM.• Each line in a URL list file can contain only one URL and one destination object name.• The length of each line in a URL list file cannot exceed 65,535 characters, or the migration will fail.• The Content-Encoding metadata of a URL list file must be left empty, or the migration will fail.• Spaces are not allowed in each line in a URL list file. Spaces may cause migration failures because they may be mistakenly identified as object names.• In a URL list file, each line uses a tab character (\t) to separate the URL and destination object name. The format is [<i>URL</i>][<i>Tab character</i>][<i>Destination object name</i>]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: <pre>http://xxx.xxx.xxx.xxx.com/doc/thefile2.txt doc/thefile2.txt http:// xxx.xxx.xxx.xxx.com/the%20file.txt the%20file.txt http://xxx.xxx.xxx.xxx.com/the%20file2.txt the+file2.txt http://xxx.xxx.xxx.xxx.com/doc/thefile.txt doc/thefile.txt</pre> <p>CAUTION The URL encoding starts from the second character after the domain name in a line. Do not encode the protocol header, domain name, or slash before or after the domain name. Otherwise, the format verification will fail.</p> <p>In each line, use a tab character (Tab key on the keyboard) to separate the URL and the destination object name. Do not use spaces.</p> <p>In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named doc/the file2.txt, the file.txt, the file2.txt, and doc/thefile.txt.</p>
Failed object list files	<p>A maximum of 100,000 failed objects can be recorded in a failed object list file.</p> <p>NOTE If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.</p>

5.6.2 Preparing for Migration

Before using OMS to migrate data between OBS buckets, make preparations by referring to this section.

Registering a HUAWEI ID

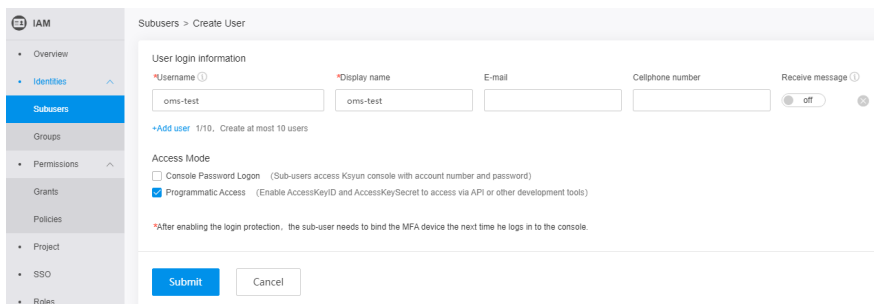
[Register a HUAWEI ID and enable Huawei Cloud services.](#)

NOTE

[Real-name authentication](#) is required for migrations to regions within the Chinese mainland.

Creating Access Keys for the Source and Destination Accounts and Obtaining the Required Permissions

- Source (Kingsoft Cloud)
 - If you use a root account for migration, log in to the Kingsoft Cloud console, click the username in the right corner of the top navigation bar, and choose **Access Keys** to view or create an access key.
 - If you want to use a subuser for migration, perform the following steps to create a subuser, generate an AK/SK pair for the sub-user, and assign the **KS3ReadOnlyAccess** permission to the sub-user.
 - i. Log in to the Kingsoft Cloud console as the root user.
 - ii. On the top navigation bar, click the username and choose **Identity and Access Management**.
 - iii. In the navigation pane on the left, choose **Identities > Subusers**. The **Subusers** page appears.
 - iv. Click **Create User**. The **Create User** page appears.



The screenshot shows the 'Subusers > Create User' page in the IAM console. The left sidebar contains navigation options: Overview, Identities, Subusers (selected), Groups, Permissions, Grants, Policies, Project, SSO, and Roles. The main content area is titled 'Subusers > Create User' and contains the following fields and options:

- User login information:**
 - Username: oms-test
 - Display name: oms-test
 - E-mail: [empty]
 - Cellphone number: [empty]
 - Receive message: off
- Access Mode:**
 - Console Password Logon (Sub-users access Ksyun console with account number and password)
 - Programmatic Access (Enable AccessKeyID and AccessKeySecret to access via API or other development tools)

At the bottom, there is a note: '*After enabling the login protection, the sub-user needs to bind the MFA device the next time he logs in to the console.' Below the note are 'Submit' and 'Cancel' buttons.

- v. Specify **Username**, **Display name**, **E-mail**, and **Cellphone number**, select an access mode, and click **OK**.

NOTE

If you select **Programmatic Access** for **Access Mode**, an AK/SK pair will be automatically generated for the IAM user.

- vi. Assign permissions to the IAM user.

Locate the subuser and click **Add Permissions** in the **Actions** column. In the displayed **Add Permissions** dialog box, select **KS3ReadOnlyAccess** and click **OK**.

Add Permissions

! The authorized subject supports users, user groups, and roles; ✕

Principal 1/5, Up to 5 can be selected

user. ▼

Select Policy

Please select 1 / 1

All Policies ▼ KS3ReadOnlyAccess

KS3ReadOnlyAccess System Policies
Provide read-only access to KS3

Selected 0 / 0

<
>

vii. (Optional) Create an access key for the subuser.

Click the username of the subuser to go to the user details page. On the **Safety management** tab, click **New Key**.

- Destination (Huawei Cloud): Create an AK/SK pair for the destination account and obtain the required permissions. For more information, see [Creating an Access Key \(AK/SK\)](#) and [Destination Permissions](#).

Creating a Destination OBS Bucket

Create an OBS bucket for storing the migrated data. For details, see [Creating a Bucket](#).

Restoring Archive Data in the Source Bucket

You need to restore data of the Archive storage class before you migrate it. Otherwise, the migration will take a long time. Kingsoft Cloud KS3 allows you to restore archive objects on the console or by calling the **Restore Object** API. For details, see [Restoring Archive Data on Kingsoft Cloud KS3](#).

⚠ **CAUTION**

Perform the migration after all archive data is restored. Any data not restored will fail to be migrated.

5.6.3 Creating a Migration Task

This section describes how to create a migration task.

CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
 - If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.
-

Scenario

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.

NOTE

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.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
 - The source platform account needs the **KS3ReadOnlyAccess** permission.
 - The destination platform account needs the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata, obtain object content, upload objects, list uploaded parts, and restore archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).
- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


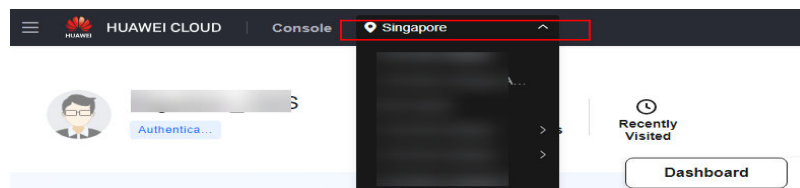
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

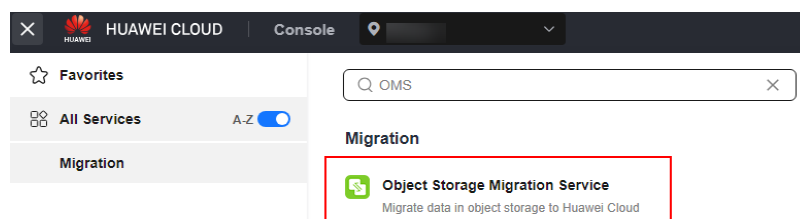
Figure 5-71 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

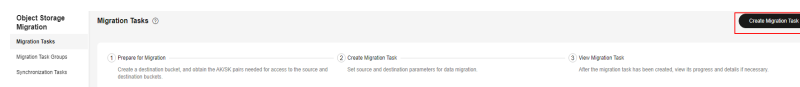
You can also enter **OMS** in the search box to quickly find OMS.

Figure 5-72 Choosing OMS



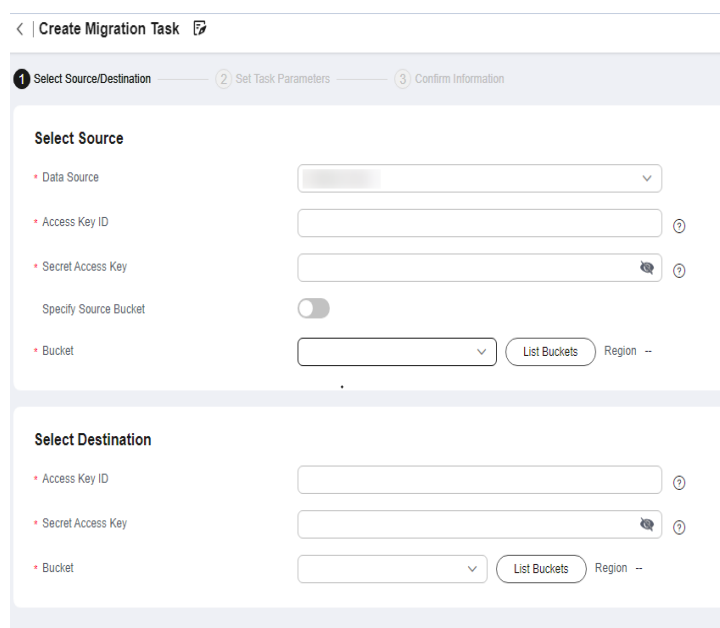
Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 5-73 Creating a migration task



Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

Figure 5-74 Select Source/Destination



Step 6 Set parameters in the **Select Source** area. For details, see [Table 5-34](#).

Table 5-34 Parameters required for configuring a source bucket

Parameter	Configuration
Data Source	Select Kingsoft Cloud .
Access Key ID	Enter the AK of the Kingsoft Cloud account to which the source bucket belongs.
Secret Access Key	Enter the SK of the Kingsoft Cloud account to which the source bucket belongs.
Specify Source Bucket	Disable Specify Source Bucket (This feature is disabled by default.) <ol style="list-style-type: none"> Click List Buckets next to Bucket. All buckets in the account will be listed. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source platform account does not have the permissions required to list buckets, you need to enable Specify Source Bucket.</p>
	Enable Specify Source Bucket . <ol style="list-style-type: none"> Select the region where the source bucket resides from the Region drop-down list. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. Click Connect.

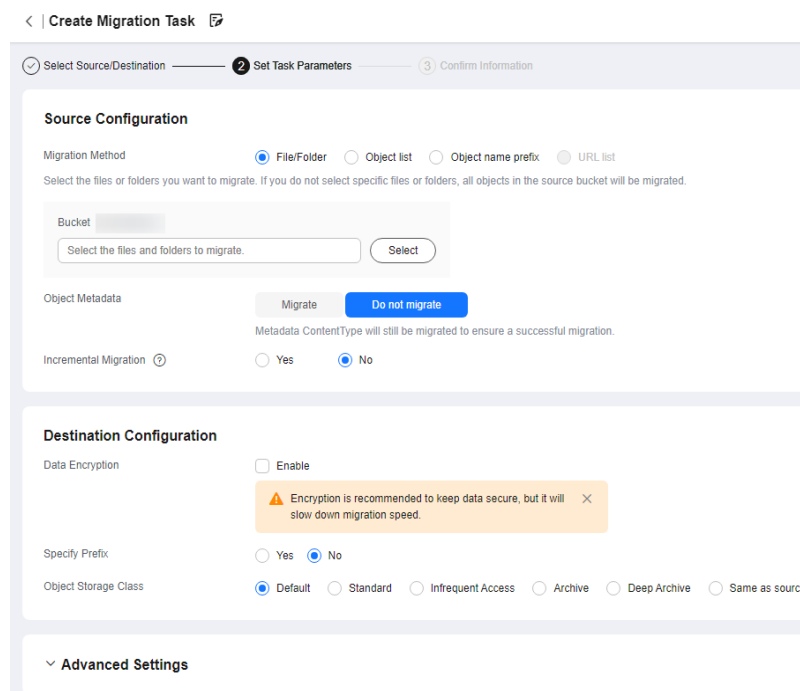
Step 7 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-35](#).

Table 5-35 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 8 Click **Next**. The **Set Task Parameters** page is displayed.

Figure 5-75 Set Task Parameters



Step 9 Select a migration method.

Migration Method	Scenario	Description
File/Folder	You have obtained the names of the files to be migrated or the folders where the files to be migrated are located.	<ul style="list-style-type: none"> If you select folders, all files in the selected folders will be migrated. If you select files, all selected files will be migrated. <p>You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.</p>

Migration Method	Scenario	Description
Object list	You have obtained the names of all the objects to be migrated, saved the object names in a .txt file, and uploaded the file to an OBS bucket on Huawei Cloud.	<ul style="list-style-type: none">• Object List Bucket (Huawei Cloud): The bucket where the list file is stored must be in the same region as the destination bucket. Otherwise, the list file cannot be selected.• Object List: Select the .txt file that contains the names of all objects to be migrated.

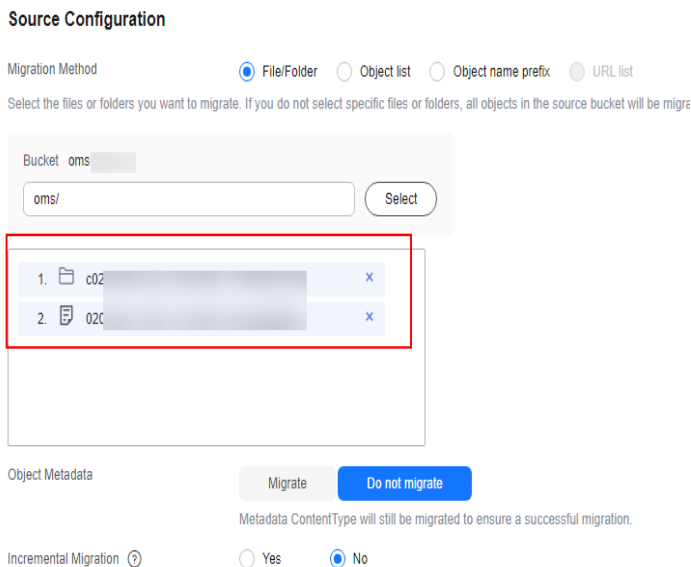
Migration Method	Scenario	Description
		<p>NOTE</p> <ul style="list-style-type: none"> • Each object list file cannot exceed 1,024 MB. • The first object in the object list must exist, or the pre-verification will fail. • The object list file must be a .txt file, and the ContentType metadata of the file must be text/plain. • The object list file must be in UTF-8 without BOM. • Each line in the object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in the object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in the object list file cannot exceed 65,535 characters, or the migration will fail. • ContentEncoding cannot be set in the metadata of the object list file, or the migration will fail. • Archive data can only be accessed and obtained by OMS after it is restored. If the object list files are archive, manually restore them before migration.

Migration Method	Scenario	Description
Object name prefix	You know the naming format of the objects to be migrated, and the objects to be migrated are named with the same prefix.	After a prefix is added, all objects whose names start with the prefix will be migrated. If this parameter is not specified, all objects in the bucket will be migrated.

- **File/Folder**

- Click **Select** under the bucket name. The **Select File/Folder** dialog box is displayed.
- Select the folders or files to be migrated. You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.
- Click **OK**. The selected files or folders are displayed.

Figure 5-76 Selected files and folders



- **Object list**

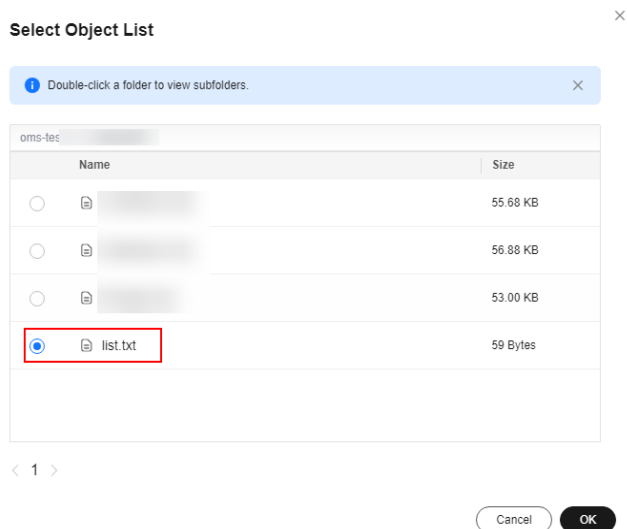
- In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the object list is stored.

CAUTION

The bucket used for storing object list must be located in the same region as the destination bucket, or you cannot select the object list.

- b. Click **Select** next to **Object List**. In the displayed **Object List File** dialog box, select the .txt file that contains the names of all objects to be migrated, and click **OK**.

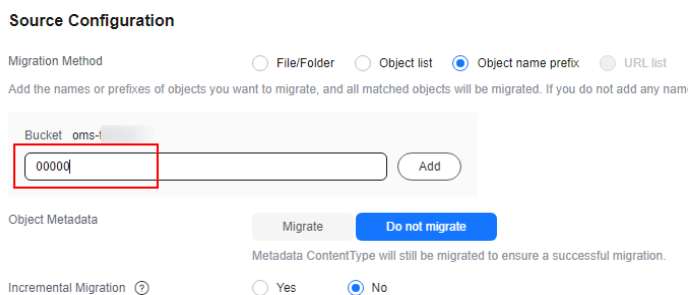
Figure 5-77 Selecting an object list file



- **Object name prefix**

- a. Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-78 Entering the names or name prefixes of objects to be migrated



- b. Click **Add**. The system will automatically list the matched objects. You can click **X** to delete the objects that do not need to be migrated from the list.

Step 10 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata ContentType.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 11 Set Incremental Migration.

- 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.

Step 12 (Optional) Set Use Source Custom Domain Name based on Table 5-36.

Use Source Custom Domain Name Yes No

⚠ If the CDN performance optimization function (such as Gzip compression function) is enabled on the source end, the migration may fail.

Transfer Protocol HTTP HTTPS

Custom Bucket Domain Name

Table 5-36 Parameters

Parameter	Configuration
Use Source Custom Domain Name	<p>This option is deselected by default.</p> <p>If the default domain name cannot meet your migration requirements, then if the source cloud service provider supports custom domain names, you can bind a custom domain name to the source bucket, and enable the CDN service on the source platform to reduce data download fees.</p> <p>NOTE If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.</p> <p>1. Select a transmission protocol for Transfer Protocol.</p> <p>NOTE HTTPS is more secure than HTTP and is recommended.</p> <p>2. Enter a custom domain name of the bucket in the Custom Bucket Domain Name box.</p>
Check	<p>Click Check to check whether the configuration is correct.</p> <ul style="list-style-type: none"> • If the configuration fails the check, click Details to view the failure causes. • If the configuration passes the check, complete other migration configurations.

Step 13 Configure parameters in the Destination Configuration area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

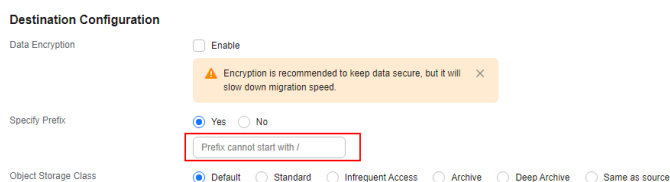
 **NOTE**

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-79 Specifying a prefix



The screenshot shows the 'Destination Configuration' panel. Under 'Data Encryption', the 'Enable' checkbox is unchecked. A yellow warning message states: 'Encryption is recommended to keep data secure, but it will slow down migration speed.' Under 'Specify Prefix', the 'Yes' radio button is selected. Below this, a text input field contains the error message 'Prefix cannot start with /'. Under 'Object Storage Class', the 'Default' radio button is selected, along with other options: Standard, Infrequent Access, Archive, Deep Archive, and Same as source.

 **NOTE**

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. **Object Storage Class**

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 14 Click **Advanced Settings**. Set parameters in the **Advanced Settings** area based on [Table 5-37](#).

Table 5-37 Advanced settings

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none"> ● If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again. ● If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none"> - For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket. - A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
Archive Data Restoration	<p>The default value is No.</p> <ul style="list-style-type: none"> ● If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects. ● If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none"> ● If this option is set to No, no SMN message is sent after the migration. ● If this option is set to Yes, you will receive an SMN message informing you of the migration results.
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none"> ● If you do not need to limit migration traffic, select No. ● If you need to limit migration traffic, select Yes.

Parameter	Description
Object Overwrite	<ul style="list-style-type: none"> ● 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. Otherwise, the source object will be skipped. ● Never overwrite: The system always skips source objects and keeps their paired destination objects. ● Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. <p>NOTE</p> <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. <ul style="list-style-type: none"> ● Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency check	<ul style="list-style-type: none"> ● By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. ● By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	If there are a large number of tasks, you can set task priorities to determine the migration sequence.

Step 15 Click **Next** to enter the confirmation page.

Step 16 Confirm the source information, destination information, task parameters, and advanced settings, and click **Migrate Now**. A message is displayed, indicating that the migration task is successfully created. The migration task is displayed in the migration task list.

 NOTE

After the task is created, a task ID is generated for quick identification. It is displayed in the upper left corner of the task list. It is composed of the source bucket name, destination bucket name, and time sequence ID.

----End

Related Operations

You can perform the following operations on a created migration task.

Operation	Description
View a migration task.	For details, see Viewing a Migration Task .
Manage a migration task.	For details, see Managing a Migration Task .

5.6.4 Creating a Migration Task Group

This section describes how to create a migration task group.

 CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
- If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.

Scenarios

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.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
 - The source platform account needs the **KS3ReadOnlyAccess** permission.
 - The destination platform account needs the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata, obtain object content, upload objects, list uploaded parts, and restore

archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).

- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


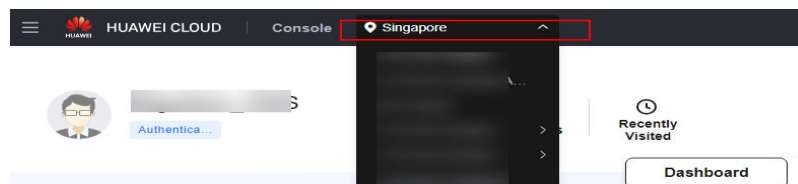
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

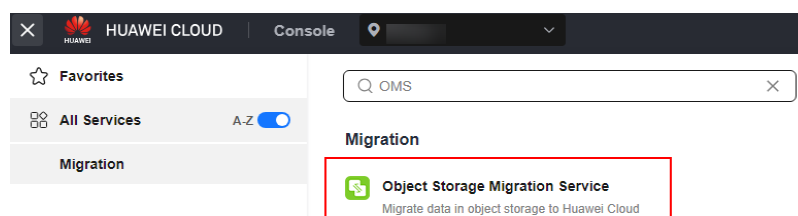
Figure 5-80 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

You can also enter **OMS** in the search box to quickly find OMS.

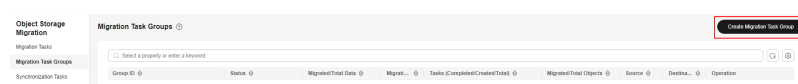
Figure 5-81 Choosing OMS



Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

Step 5 On the **Migration Task Groups** page, click **Create Migration Task** in the upper right corner.

Figure 5-82 Creating a migration task group



Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-83 Select Source/Destination

The screenshot shows a web interface for creating a migration task group. It has three steps: 1. Select Source/Destination, 2. Set Task Group Parameters, and 3. Confirm Information. The 'Select Source' section contains:

- Data Source: A dropdown menu.
- Access Key ID: A text input field with a help icon.
- Secret Access Key: A text input field with a help icon and a mask icon.
- Specify Source Bucket: A toggle switch that is currently turned off.
- Bucket: A dropdown menu, a 'List Buckets' button, and a 'Region' dropdown menu.

 The 'Select Destination' section contains:

- Access Key ID: A text input field with a help icon.
- Secret Access Key: A text input field with a help icon and a mask icon.
- Bucket: A dropdown menu, a 'List Buckets' button, and a 'Region' dropdown menu.

Step 7 Set parameters in the **Select Source** area. For details, see [Table 5-38](#).

Table 5-38 Parameters required for configuring a source bucket

Parameter	Configuration
Data Source	Select Kingsoft Cloud .
Access Key ID	Enter the AK of the Kingsoft Cloud account to which the source bucket belongs.
Secret Access Key	Enter the SK of the Kingsoft Cloud account to which the source bucket belongs.
Specify Source Bucket	<p>Disable Specify Source Bucket (This feature is disabled by default.)</p> <ol style="list-style-type: none"> Click List Buckets next to Bucket. All buckets in the account will be listed. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source platform account does not have the permissions required to list buckets, you need to enable Specify Source Bucket.</p> <p>Enable Specify Source Bucket.</p> <ol style="list-style-type: none"> Select the region where the source bucket resides from the Region drop-down list. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. Click Connect.

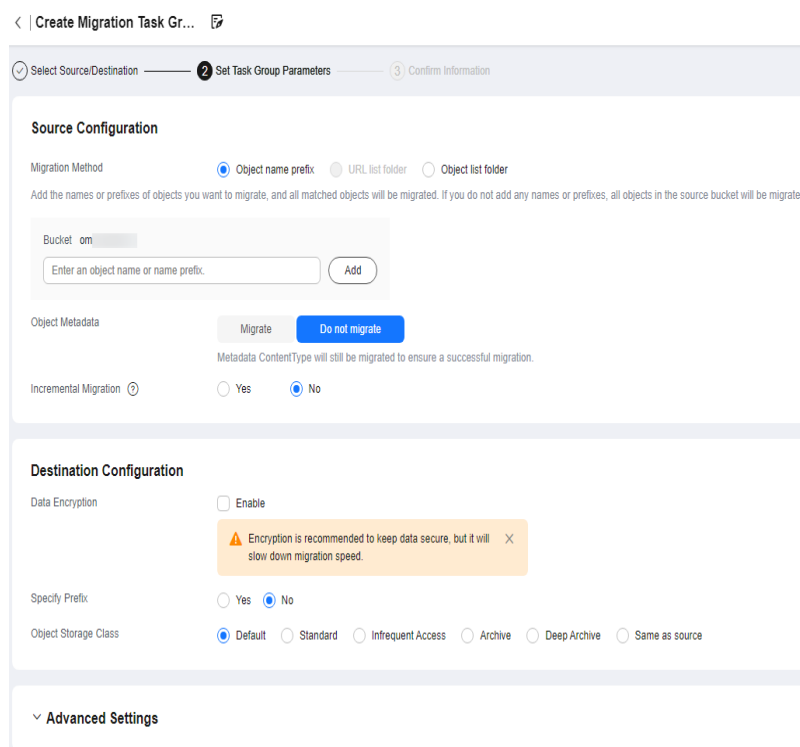
Step 8 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-39](#).

Table 5-39 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 9 Click **Next**. The **Set Task Group Parameters** page is displayed.

Figure 5-84 Set Task Group Parameters



Step 10 Select a migration method.

- **Object name prefix**
 - a. Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-85 Entering the names or name prefixes of objects to be migrated

Source Configuration

Migration Method Object name prefix URL list folder Object list folder

Add the names or prefixes of objects you want to migrate, and all matched objects will be migrated. If you do not add any names or prefixes, all c

Bucket oms-
00000 Add

Object Metadata Migrate Do not migrate

Metadata ContentType will still be migrated to ensure a successful migration.

Incremental Migration Yes No

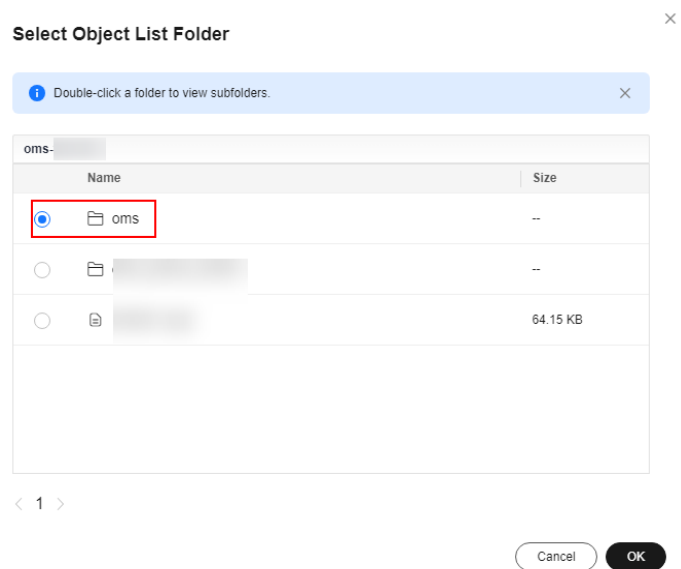
NOTE

- If the objects you want to migrate are stored in the root directory of the source bucket, add their prefixes directly. If these objects are stored in non-root directories, add their directories and prefixes in the format of *Bucket name/ Folder/ Prefix*.
 - If you do not add any object names or prefixes, all objects in the source bucket will be migrated.
 - The objects to be migrated are recorded in .txt files, and each migration task has a list file. The storage path of the files is **oms/taskgroup/** in the destination bucket. These list files will be retained after the migration, and you can manually delete them.
- b. Click **Add**. The system will automatically list the matched objects. You can click to delete the objects that do not need to be migrated from the list.
- **Object list folder**
 - a. In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the list files are stored.

CAUTION

The bucket used for storing the list files must be located in the same region as the destination bucket, or you cannot select the files.

- b. Click **Select** next to **Object List Folder**. In the displayed **Object List File** dialog box, select the folder where the list files are stored, and click **OK**.

Figure 5-86 Selecting the folder where the object list files are located**NOTE**

- An object list file cannot exceed 1,024 MB.
- The total number of files in the object list folder cannot exceed 2,000.
- An object list file must be a .txt file, and the **Content-Type** metadata of the file must be **text/plain**.
- An object list file must be in UTF-8 without BOM.
- Each line in the object list file can contain only one object name, and the object name must be URL encoded if it contains special characters or spaces.
- Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names.
- The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail.
- The **Content-Encoding** metadata of each object list file must be left empty, or the migration will fail.
- Archive data can only be accessed and obtained by OMS after it is restored. If the object list files are archive, manually restore them before migration.

Step 11 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata **ContentType**.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 12 Set **Incremental Migration**.

- 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.

Step 13 (Optional) Set **Use Source Custom Domain Name** based on [Table 5-40](#).

Use Source Custom Domain Name Yes No

⚠ If the CDN performance optimization function (such as Gzip compression function) is enabled on the source end, the migration may fail.

Transfer Protocol HTTP HTTPS

Custom Bucket Domain Name

Table 5-40 Parameters

Parameter	Configuration
Use Source Custom Domain Name	<p>This option is deselected by default.</p> <p>If the default domain name cannot meet your migration requirements, then if the source cloud service provider supports custom domain names, you can bind a custom domain name to the source bucket, and enable the CDN service on the source platform to reduce data download fees.</p> <p>NOTE If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.</p> <p>1. Select a transmission protocol for Transfer Protocol.</p> <p>NOTE HTTPS is more secure than HTTP and is recommended.</p> <p>2. Enter a custom domain name of the bucket in the Custom Bucket Domain Name box.</p>
Check	<p>Click Check to check whether the configuration is correct.</p> <ul style="list-style-type: none"> • If the configuration fails the check, click Details to view the failure causes. • If the configuration passes the check, complete other migration configurations.

Step 14 Configure parameters in the **Destination Configuration** area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

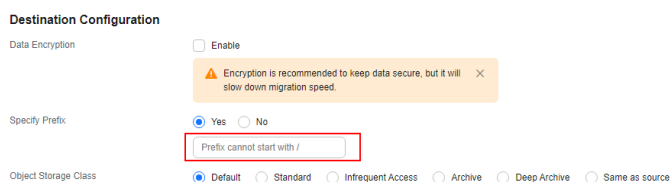
 **NOTE**

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-87 Specifying a prefix



The screenshot shows the 'Destination Configuration' panel. Under 'Data Encryption', the 'Enable' checkbox is unchecked. A warning message states: 'Encryption is recommended to keep data secure, but it will slow down migration speed.' Under 'Specify Prefix', the 'Yes' radio button is selected. A text input field below it contains the error message 'Prefix cannot start with /'. Under 'Object Storage Class', the 'Default' radio button is selected.

 **NOTE**

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. **Object Storage Class**

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 15 Click **Advanced Settings**. Set parameters in the **Advanced Settings** area based on [Table 5-41](#).

Table 5-41 Advanced settings

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none"> ● If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again. ● If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none"> - For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket. - A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
Archive Data Restoration	<p>The default value is No.</p> <ul style="list-style-type: none"> ● If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects. ● If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none"> ● If this option is set to No, no SMN message is sent after the migration. ● If this option is set to Yes, you will receive an SMN message informing you of the migration results.
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none"> ● If you do not need to limit migration traffic, select No. ● If you need to limit migration traffic, select Yes.

Parameter	Description
Object Overwrite	<ul style="list-style-type: none"> ● 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. Otherwise, the source object will be skipped. ● Never overwrite: The system always skips source objects and keeps their paired destination objects. ● Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. <p>NOTE</p> <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. <ul style="list-style-type: none"> ● Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency check	<ul style="list-style-type: none"> ● By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. ● By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	If there are a large number of tasks, you can set task priorities to determine the migration sequence.

Step 16 Click **Next** to enter the confirmation page.

Step 17 Confirm the source information, destination information, task group parameters, and advanced settings, and click **Migrate Now**. A message is displayed indicating

that the task group has been submitted. The task group is displayed in the migration task group list.

----End

Related Operations

You can perform the following operations on a created migration task group.

Operation	Description
View a migration task group.	For details, see Viewing a Migration Task .
Manage a migration task group.	For details, see Managing a Migration Task .

5.7 Migrating Data from QingCloud QingStor to Huawei Cloud OBS

5.7.1 Background

This tutorial walks you through the process of migrating data from Qing Cloud Object Storage Service (QingStor) to Huawei Cloud OBS.

As an online data migration service, Huawei Cloud OMS helps you migrate data from third-party data storage to Huawei Cloud OBS or between OBS buckets.

When you use OMS, you only need to specify a source data address and a destination OBS data address on the console, and then create a migration task or migration task group. For details about the differences between a migration task and a migration task group, see [What Are the Application Scenarios of Migration Tasks and Migration Task Groups?](#) After the migration task starts, you can view and manage it on the console.

Service Cutover

If service cutover is involved, see [Service Cutover](#) for more information.

⚠ CAUTION

You need to choose a cutover method based your requirements. The preceding solutions are for reference only.

Constraints

Use of OMS is limited as follows.

Table 5-42 OMS constraints

Item	Constraint
Objects with multiple versions	By default, OMS migrates only the latest version of objects in source buckets.
Storage class of destination buckets	The storage class of destination buckets can only be standard or infrequent access. You can change the storage class of destination buckets after the migration is complete.
Migration network	Only migrations over the Internet are supported.
Metadata migration	Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded. NOTE Even if you choose not to migrate metadata, the Content-Type metadata will still be migrated to ensure that the migration runs properly.
Migration scope	A single migration task or migration task group can only migrate data of one bucket. If data of multiple buckets needs to be migrated, you need to create multiple tasks or task groups.
Migration speed	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 transmission distance over the Internet 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. If more concurrent migrations are required, contact OMS technical support.
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: <ul style="list-style-type: none">• Create migration tasks after the restoration is complete.• Configure a validity period for restored data based on the total amount of data to be migrated. This helps prevent migration failures because restored data becomes archived again during the migration.• Pay your source cloud vendor for restoring archived data. To learn about the pricing details, contact your source cloud vendor.

Item	Constraint
Migration tasks	<p>A maximum of five concurrent migration tasks are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.</p>
	<p>A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.</p>
Migration task groups	<p>A maximum of five concurrent migration task groups are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.</p>
Synchronization tasks	<p>Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority.</p> <p>A maximum of five concurrent synchronization tasks are allowed for your account per region.</p>
Object list files	<ul style="list-style-type: none"> • An object list file cannot exceed 1,024 MB. • An object list file must be a .txt file, and its metadata Content-Type must be text/plain. • An object list file must be in UTF-8 without BOM. • Each line in an object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail. • The Content-Encoding metadata of an object list file must be left empty, or the migration will fail.

Item	Constraint
URL list files	<ul style="list-style-type: none">• A URL list file cannot exceed 1,024 MB.• A URL list file must be a .txt file, and its metadata Content-Type must be text/plain.• A URL list file must be in UTF-8 without BOM.• Each line in a URL list file can contain only one URL and one destination object name.• The length of each line in a URL list file cannot exceed 65,535 characters, or the migration will fail.• The Content-Encoding metadata of a URL list file must be left empty, or the migration will fail.• Spaces are not allowed in each line in a URL list file. Spaces may cause migration failures because they may be mistakenly identified as object names.• In a URL list file, each line uses a tab character (\t) to separate the URL and destination object name. The format is [<i>URL</i>][<i>Tab character</i>][<i>Destination object name</i>]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: <pre>http://xxx.xxx.xxx.xxx.com/doc/thefile2.txt doc/thefile2.txt http:// xxx.xxx.xxx.xxx.com/the%20file.txt the%20file.txt http://xxx.xxx.xxx.xxx.com/the%20file2.txt the+file2.txt http://xxx.xxx.xxx.xxx.com/doc/thefile.txt doc/thefile.txt</pre> <p>CAUTION The URL encoding starts from the second character after the domain name in a line. Do not encode the protocol header, domain name, or slash before or after the domain name. Otherwise, the format verification will fail.</p> <p>In each line, use a tab character (Tab key on the keyboard) to separate the URL and the destination object name. Do not use spaces.</p> <p>In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named doc/the file2.txt, the file.txt, the file2.txt, and doc/thefile.txt.</p>
Failed object list files	<p>A maximum of 100,000 failed objects can be recorded in a failed object list file.</p> <p>NOTE If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.</p>

5.7.2 Preparing for Migration

Before using OMS to migrate data, make preparations by referring to this section.

Registering a HUAWEI ID

[Register a HUAWEI ID and enable Huawei Cloud services.](#)

NOTE

[Real-name authentication](#) is required for migrations to regions within the Chinese mainland.

Creating Access Keys for the Source and Destination Accounts and Obtaining the Required Permissions

- Source (QingCloud): Check whether you have created an access key for and assigned the read-only permissions to your QingCloud account. If you have not, perform the following procedures:
 - a. Log in to the QingCloud console using your source account.
 - b. On the console, choose **Services > Access & Authorization > Access Keys**.
 - c. On the displayed page, click **Create**.
 - d. In the **Create API Access Key** dialog box, enter a name, for example, **My API Key**.

CAUTION

In the creation window, do not configure the advanced option **IP Whitelist**.

- e. Click **Submit**. The system generates a new API key pair which consists of an API access key ID and an API secret access key. In the displayed window box, download the CSV file that contains the access key information.

CAUTION

The access key file can only be downloaded once when created. If you do not download it, you need to create an API access key again.

- f. Open the downloaded CSV file to view the access key information. Keep this file secure.
- Destination (Huawei Cloud): Create an AK/SK pair for the destination account and obtain the required permissions. For more information, see [Creating an Access Key \(AK/SK\)](#) and [Destination Permissions](#).

Creating a Destination OBS Bucket

Create an OBS bucket for storing the migrated data. For details, see [Creating a Bucket](#).

5.7.3 Creating a Migration Task

This section describes how to create a migration task.

⚠ CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
- If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.

Scenarios

If there is less than 3 TB of data or less than 5 million objects in a source bucket, create a migration task to quickly migrate the source data.

📖 NOTE

If there is more than 3 TB of data or more than 5 million objects to migrate in a source bucket, [create a migration task group](#) to migrate the source data quickly.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
- Your source QingCloud account has the permissions to access QingStor.
- Your Huawei Cloud account has the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata, obtain object content, upload objects, list uploaded parts, and restore archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).
- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


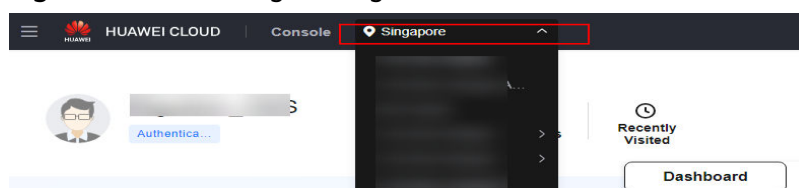
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

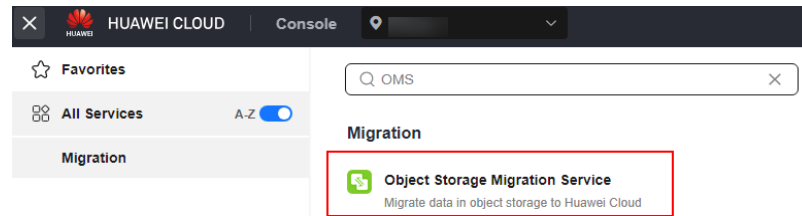
Figure 5-88 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

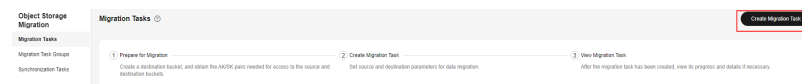
You can also enter **OMS** in the search box to quickly find OMS.

Figure 5-89 Choosing OMS



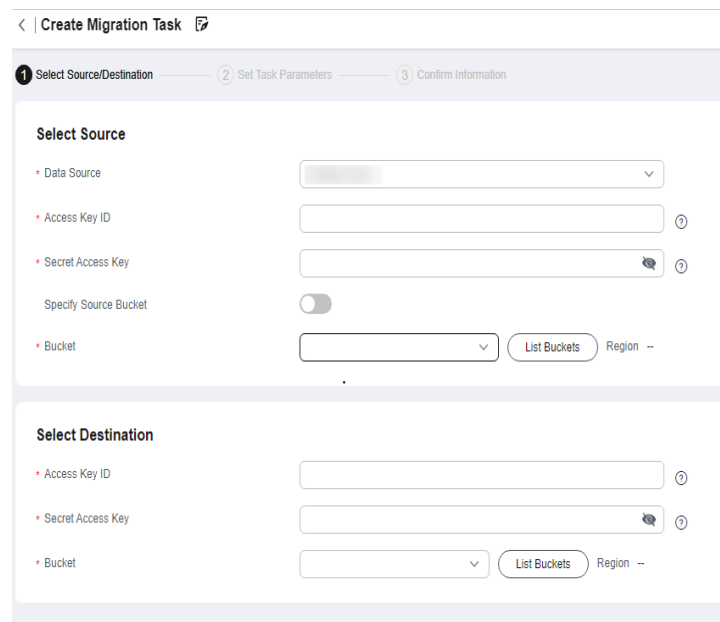
Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 5-90 Creating a migration task



Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

Figure 5-91 Select Source/Destination



Step 6 Set parameters in the **Select Source** area. For details, see [Table 5-43](#).

Table 5-43 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select QingCloud .

Parameter	Configuration
Access Key ID	Enter the AK for the QingCloud account that the source bucket belongs to.
Secret Access Key	Enter the SK for the QingCloud account that the source bucket belongs to.
Specify Source Bucket	<p>Disable Specify Source Bucket (This feature is disabled by default.)</p> <ol style="list-style-type: none"> Click List Buckets next to Bucket. All buckets in the account will be listed. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source account does not have the permissions required to list buckets, enable Specify Source Bucket.</p>
	<p>Enable Specify Source Bucket.</p> <ol style="list-style-type: none"> Select the region where the source bucket resides from the Region drop-down list. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. Click Connect.

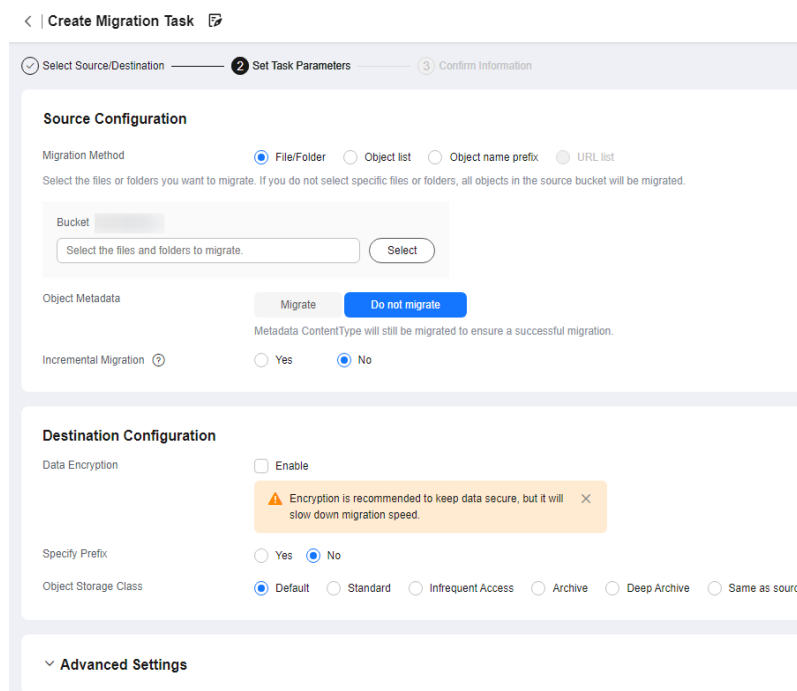
Step 7 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-44](#).

Table 5-44 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 8 Click **Next**. The **Set Task Parameters** page is displayed.

Figure 5-92 Set Task Parameters



Step 9 Select a migration method.

Migration Method	Scenario	Configuration
File/Folder	You have obtained the names of the files to be migrated or the folders where the files to be migrated are located.	<ul style="list-style-type: none"> If you select folders, all files in the selected folders will be migrated. If you select files, all selected files will be migrated. <p>You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.</p>

Migration Method	Scenario	Configuration
Object list	You have obtained the names of all the objects to be migrated, saved the object names in a .txt file, and uploaded the file to an OBS bucket on Huawei Cloud.	<ul style="list-style-type: none">• Object List Bucket (Huawei Cloud): The bucket where the list file is stored must be in the same region as the destination bucket. Otherwise, the list file cannot be selected.• Object List: Select the .txt file that contains the names of all objects to be migrated.

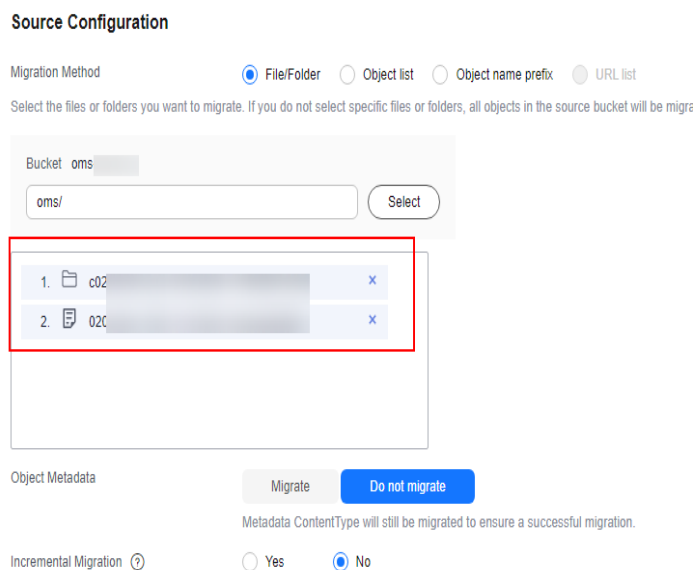
Migration Method	Scenario	Configuration
		<p>NOTE</p> <ul style="list-style-type: none"> • An object list file cannot exceed 1,024 MB. • The first object in the object list must exist, or the pre-verification will fail. • The object list file must be a .txt file, and the Content-Type metadata of the file must be text/plain. • The object list file must be in UTF-8 without BOM. • Each line in the object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in the object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in the object list file cannot exceed 65,535 characters, or the migration will fail. • The Content-Encoding metadata of the object list file must be left empty, or the migration will fail. • Archive data can only be accessed and obtained by OMS after it is restored. If the object list file is archive, manually restore it before migration.

Migration Method	Scenario	Configuration
Object name prefix	You know the naming format of the objects to be migrated, and the objects to be migrated are named with the same prefix.	After a prefix is added, all objects whose names start with the prefix will be migrated. If this parameter is not specified, all objects in the bucket will be migrated.

- **File/Folder**

- Click **Select** under the bucket name. The **Select File/Folder** dialog box is displayed.
- Select the folders or files to be migrated. You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.
- Click **OK**. The selected files or folders are displayed.

Figure 5-93 Selected files and folders



- **Object list**

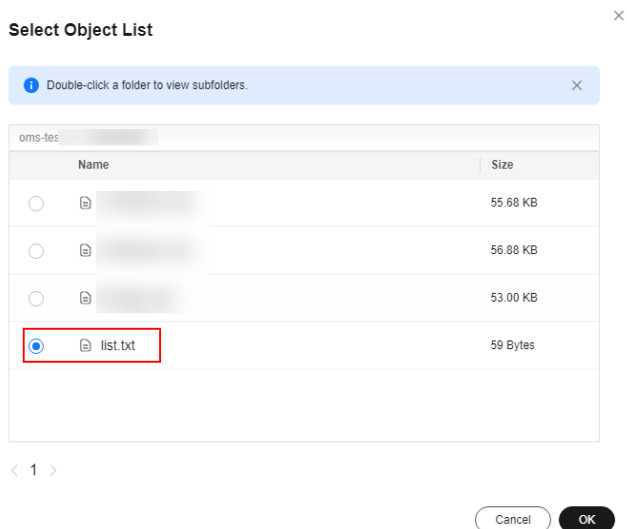
- In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the object list is stored.

CAUTION

The bucket used for storing object list must be located in the same region as the destination bucket, or you cannot select the object list.

- b. Click **Select** next to **Object List**. In the displayed **Object List File** dialog box, select the .txt file that contains the names of all objects to be migrated, and click **OK**.

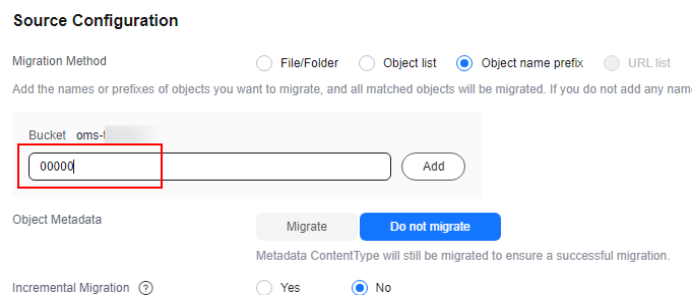
Figure 5-94 Selecting an object list file



- **Object name prefix**

- a. Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-95 Entering the names or name prefixes of objects to be migrated



- b. Click **Add**. The system will automatically list the matched objects. You can click **X** to delete the objects that do not need to be migrated from the list.

Step 10 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata ContentType.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 11 Set **Incremental Migration**.

- 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.

Step 12 Configure parameters in the **Destination Configuration** area.

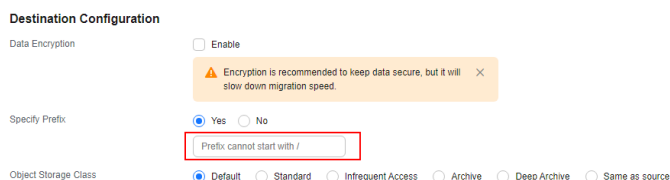
1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

NOTE

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-96 Specifying a prefix**NOTE**

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. **Object Storage Class**

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 13 Click **Advanced Settings**. Set parameters in the **Advanced Settings** area based on [Table 5-45](#).

Table 5-45 Parameters

Parameter	Configuration
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none">• If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again.• If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none">- For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket.- A maximum of 100,000 failed objects can be recorded in the failed object list. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
Archive Data Restoration	<p>The default value is No.</p> <ul style="list-style-type: none">• If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects.• If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none">• If this option is set to No, no SMN message is sent after the migration.• If this option is set to Yes, you will receive an SMN message informing you of the migration result.

Parameter	Configuration
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none"> • If you do not need to limit migration traffic, select No. • If you need to limit migration traffic, select Yes.
Object Overwrite	<ul style="list-style-type: none"> • 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. Otherwise, the source object will be skipped. • Never overwrite: The system always skips source objects and keeps their paired destination objects. • Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. NOTE <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. • Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency Check	<ul style="list-style-type: none"> • By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. • By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	<p>If there are a large number of tasks, you can set task priorities to determine the migration sequence.</p>

Step 14 Click **Next** to enter the confirmation page.

Step 15 Confirm the source information, destination information, task parameters, and advanced settings, and click **Migrate Now**. A message is displayed, indicating that the migration task is successfully created. The migration task is displayed in the migration task list.

 **NOTE**

After the task is created, a task ID is generated for quick identification. It is displayed in the upper left corner of the task list. It is composed of the source bucket name, destination bucket name, and time sequence ID.

----End

Related Operations

You can perform the following operations on a created migration task.

Operation	Description
View a migration task.	For details, see Viewing a Migration Task .
Manage a migration task.	For details, see Managing a Migration Task .

5.7.4 Creating a Migration Task Group

This section describes how to create a migration task group.

 **CAUTION**

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
 - If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.
-

Scenarios

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.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
- Your source QingCloud account has the permissions to access QingStor.
- Your Huawei Cloud account has the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata, obtain object content, upload objects, list uploaded parts, and restore archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).
- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


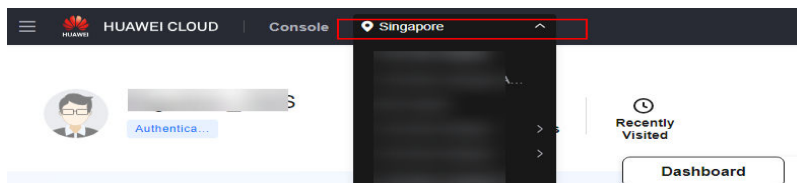
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

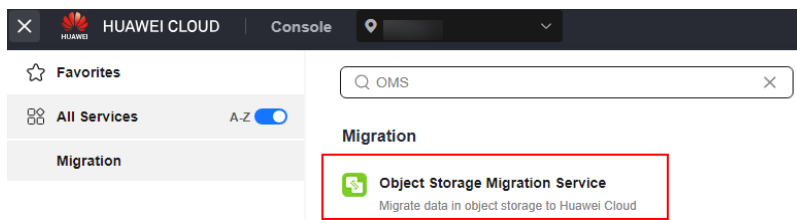
Figure 5-97 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

You can also enter **OMS** in the search box to quickly find OMS.

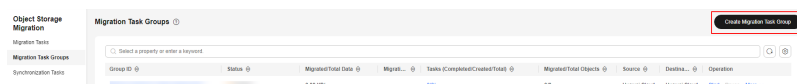
Figure 5-98 Choosing OMS



Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

Step 5 On the **Migration Task Groups** page, click **Create Migration Task** in the upper right corner.

Figure 5-99 Creating a migration task group



Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-100 Select Source/Destination

Step 7 Set parameters in the **Select Source** area. For details, see [Table 5-46](#).

Table 5-46 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select QingCloud .
Access Key ID	Enter the AK for the QingCloud account that the source bucket belongs to.
Secret Access Key	Enter the SK for the QingCloud account that the source bucket belongs to.
Specify Source Bucket	<p>Disable Specify Source Bucket (This feature is disabled by default.)</p> <ol style="list-style-type: none"> Click List Buckets next to Bucket. All buckets in the account will be listed. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source account does not have the permissions required to list buckets, enable Specify Source Bucket.</p>

Parameter	Configuration
	Enable Specify Source Bucket . 1. Select the region where the source bucket resides from the Region drop-down list. 2. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. 3. Click Connect .

Step 8 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-47](#).

Table 5-47 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 9 Click **Next**. The **Set Task Group Parameters** page is displayed.

Figure 5-101 Setting task group parameters


Step 10 Select a migration method.

- **Object name prefix**

- a. Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-102 Entering the names or name prefixes of objects to be migrated

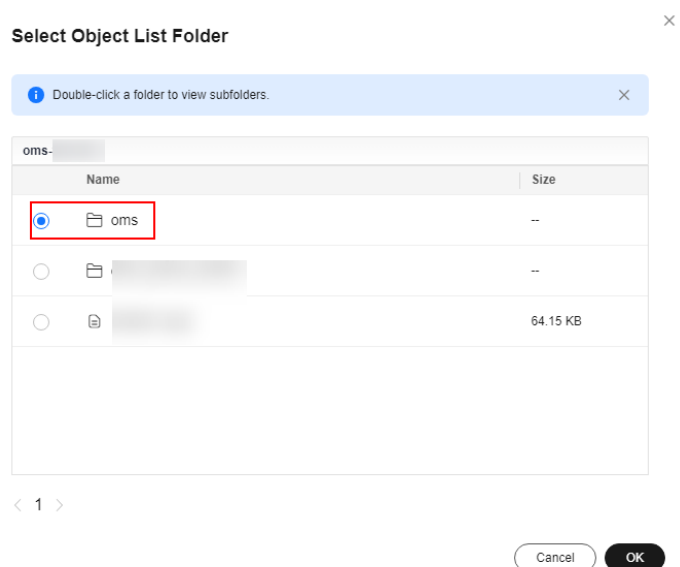
NOTE

- If the objects you want to migrate are stored in the root directory of the source bucket, add their prefixes directly. If these objects are stored in non-root directories, add their directories and prefixes in the format of *Bucket name/Folder/Prefix*.
 - If you do not add any object names or prefixes, all objects in the source bucket will be migrated.
 - The objects to be migrated are recorded in .txt files, and each migration task has a list file. The storage path of the files is **oms/taskgroup/** in the destination bucket. These list files will be retained after the migration, and you can manually delete them.
- b. Click **Add**. The system will automatically list the matched objects. You can click  to delete the objects that do not need to be migrated from the list.
- **Object list folder**
 - a. In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the list files are stored.

CAUTION

The bucket used for storing the list files must be located in the same region as the destination bucket, or you cannot select the files.

- b. Click **Select** next to **Object List Folder**. In the displayed **Object List File** dialog box, select the folder where the list files are stored, and click **OK**.

Figure 5-103 Selecting the folder where the object list files are located

 NOTE

- An object list file cannot exceed 1,024 MB.
- The total number of files in the object list folder cannot exceed 2,000.
- An object list file must be a .txt file, and the **Content-Type** metadata of the file must be **text/plain**.
- An object list file must be in UTF-8 without BOM.
- Each line in the object list file can contain only one object name, and the object name must be URL encoded if it contains special characters or spaces.
- Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names.
- The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail.
- The **Content-Encoding** metadata of each object list file must be left empty, or the migration will fail.
- Archive data can only be accessed and obtained by OMS after it is restored. If the object list files are archive, manually restore them before migration.

Step 11 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata **ContentType**.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 12 Set **Incremental Migration**.

- 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.

Step 13 Configure parameters in the **Destination Configuration** area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

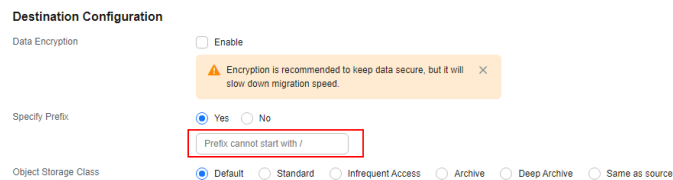
 NOTE

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-104 Specifying a prefix



 NOTE

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. **Object Storage Class**

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 14 Click **Advanced Settings**. Set parameters in the **Advanced Settings** area based on [Table 5-48](#).

Table 5-48 Parameters

Parameter	Configuration
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none">● If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again.● If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none">- For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket.- A maximum of 100,000 failed objects can be recorded in the failed object list. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
Archive Data Restoration	<p>The default value is No.</p> <ul style="list-style-type: none">● If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects.● If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none">● If this option is set to No, no SMN message is sent after the migration.● If this option is set to Yes, you will receive an SMN message informing you of the migration result.
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none">● If you do not need to limit migration traffic, select No.● If you need to limit migration traffic, select Yes.

Parameter	Configuration
Object Overwrite	<ul style="list-style-type: none"> ● 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. Otherwise, the source object will be skipped. ● Never overwrite: The system always skips source objects and keeps their paired destination objects. ● Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. <p>NOTE</p> <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. <ul style="list-style-type: none"> ● Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency Check	<ul style="list-style-type: none"> ● By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. ● By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	If there are a large number of tasks, you can set task priorities to determine the migration sequence.

Step 15 Click **Next** to enter the confirmation page.

Step 16 Confirm the source information, destination information, task group parameters, and advanced settings, and click **Migrate Now**. A message is displayed indicating

that the task group has been submitted. The task group is displayed in the migration task group list.

----End

Related Operations

You can perform the following operations on a created migration task group.

Operation	Description
View a migration task group.	For details, see Viewing a Migration Task .
Manage a migration task group.	For details, see Managing a Migration Task .

5.8 Migrating Data from Google Cloud Storage to Huawei Cloud OBS

5.8.1 Background

This tutorial walks you through the process of migrating data from Google Cloud Storage to Huawei Cloud OBS.

As an online data migration service, Huawei Cloud OMS helps you migrate data from third-party data storage to Huawei Cloud OBS or between OBS buckets.

When you use OMS, you only need to specify a source data address and a destination OBS data address on the console, and then create a migration task or migration task group. For details about the differences between a migration task and a migration task group, see [What Are the Application Scenarios of Migration Tasks and Migration Task Groups?](#) After the migration task starts, you can view and manage it on the console.

Service Cutover

If service cutover is involved, see [Service Cutover](#) for more information.

CAUTION

You need to choose a cutover method based your requirements. The preceding solutions are for reference only.

Constraints

Use of OMS is limited as follows.

Table 5-49 OMS constraints

Item	Constraint
Objects with multiple versions	By default, OMS migrates only the latest version of objects in source buckets.
Storage class of destination buckets	The storage class of destination buckets can only be standard or infrequent access. You can change the storage class of destination buckets after the migration is complete.
Migration network	Only migrations over the Internet are supported.
Metadata migration	Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded. NOTE Even if you choose not to migrate metadata, the Content-Type metadata will still be migrated to ensure that the migration runs properly.
Migration scope	A single migration task or migration task group can only migrate data of one bucket. If data of multiple buckets needs to be migrated, you need to create multiple tasks or task groups.
Migration speed	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 transmission distance over the Internet 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. If more concurrent migrations are required, contact OMS technical support.
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: <ul style="list-style-type: none">• Create migration tasks after the restoration is complete.• Configure a validity period for restored data based on the total amount of data to be migrated. This helps prevent migration failures because restored data becomes archived again during the migration.• Pay your source cloud vendor for restoring archived data. To learn about the pricing details, contact your source cloud vendor.

Item	Constraint
Migration tasks	<p>A maximum of five concurrent migration tasks are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.</p>
	<p>A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.</p>
Migration task groups	<p>A maximum of five concurrent migration task groups are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.</p>
Synchronization tasks	<p>Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority.</p> <p>A maximum of five concurrent synchronization tasks are allowed for your account per region.</p>
Object list files	<ul style="list-style-type: none"> • An object list file cannot exceed 1,024 MB. • An object list file must be a .txt file, and its metadata Content-Type must be text/plain. • An object list file must be in UTF-8 without BOM. • Each line in an object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail. • The Content-Encoding metadata of an object list file must be left empty, or the migration will fail.

Item	Constraint
URL list files	<ul style="list-style-type: none"> ● A URL list file cannot exceed 1,024 MB. ● A URL list file must be a .txt file, and its metadata Content-Type must be text/plain. ● A URL list file must be in UTF-8 without BOM. ● Each line in a URL list file can contain only one URL and one destination object name. ● The length of each line in a URL list file cannot exceed 65,535 characters, or the migration will fail. ● The Content-Encoding metadata of a URL list file must be left empty, or the migration will fail. ● Spaces are not allowed in each line in a URL list file. Spaces may cause migration failures because they may be mistakenly identified as object names. ● In a URL list file, each line uses a tab character (\t) to separate the URL and destination object name. The format is [<i>URL</i>][<i>Tab character</i>][<i>Destination object name</i>]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: <pre style="background-color: #f0f0f0; padding: 5px;">http://xxx.xxx.xxx.xxx.com/doc/thefile2.txt doc/thefile2.txt http://xxx.xxx.xxx.xxx.com/the%20file.txt the%20file.txt http://xxx.xxx.xxx.xxx.com/the%20file2.txt the+file2.txt http://xxx.xxx.xxx.xxx.com/doc/thefile.txt doc/thefile.txt</pre> <p>CAUTION The URL encoding starts from the second character after the domain name in a line. Do not encode the protocol header, domain name, or slash before or after the domain name. Otherwise, the format verification will fail.</p> <p>In each line, use a tab character (Tab key on the keyboard) to separate the URL and the destination object name. Do not use spaces.</p> <p>In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named doc/the file2.txt, the file.txt, the file2.txt, and doc/thefile.txt.</p>
Failed object list files	<p>A maximum of 100,000 failed objects can be recorded in a failed object list file.</p> <p>NOTE If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.</p>

5.8.2 Preparing for Migration

Before using OMS to migrate data, make preparations by referring to this section.

Registering a HUAWEI ID

[Register a HUAWEI ID and enable Huawei Cloud services.](#)

NOTE

[Real-name authentication](#) is required for migrations to regions within the Chinese mainland.

Creating Access Keys for the Source and Destination Accounts and Obtaining the Required Permissions

- Source (Google Cloud):
Perform the following steps to generate a key file and grant the basic **Viewer** role to your Google Cloud account.
 - a. Log in to the Google Cloud console using your source account.
 - b. On the console, select the project that your service account belongs to. Choose **IAM & Admin > Service Accounts**.
 - c. On the **Service accounts** page, click **CREATE SERVICE ACCOUNT**. Enter the basic information about the account, such as the name and description.
 - d. Choose **Quick access > Basic > Viewer** to assign the basic **Viewer** role to the service account.
 - e. Create a key for the account. Select the key type you want, for example, **JSON**. Click **CREATE** to download a service account key file to your computer.
 - f. Keep the downloaded key file secure. The file contains the credentials used for accessing Google Cloud.
- Destination (Huawei Cloud): Create an AK/SK pair for the destination account and obtain the required permissions. For more information, see [Creating an Access Key \(AK/SK\)](#) and [Destination Permissions](#).

Creating a Destination OBS Bucket

Create an OBS bucket for storing the migrated data. For details, see [Creating a Bucket](#).

5.8.3 Creating a Migration Task

This section describes how to create a migration task.

CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
 - If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.
-

Scenarios

If there is less than 3 TB of data or less than 5 million objects in a source bucket, create a migration task to quickly migrate the source data.

NOTE

If there is more than 3 TB of data or more than 5 million objects to migrate in a source bucket, [create a migration task group](#) to migrate the source data quickly.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the key files and required permissions for the source and destination platform accounts.
 - The source platform account needs the permissions to read data from Google Cloud Storage.
 - The destination platform account needs the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata, obtain object content, upload objects, list uploaded parts, and restore archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).
- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


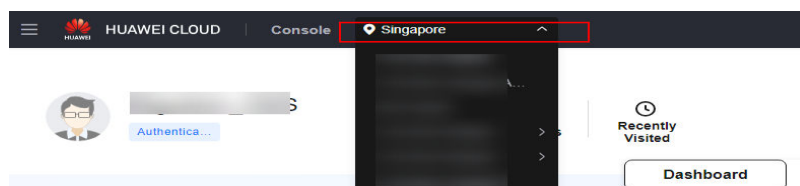
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

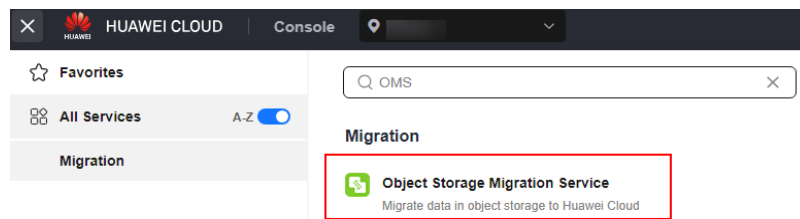
Figure 5-105 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

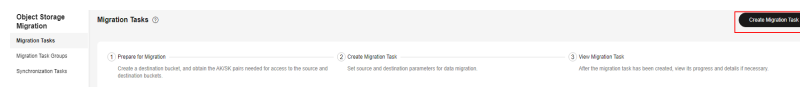
You can also enter **OMS** in the search box to quickly find OMS.

Figure 5-106 Choosing OMS



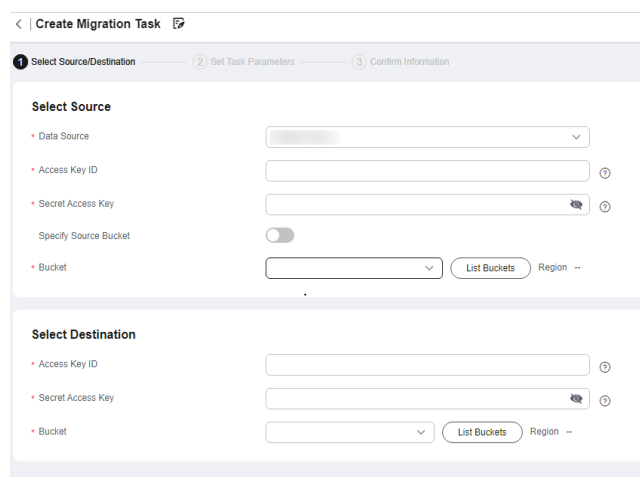
Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 5-107 Creating a migration task



Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

Figure 5-108 Select Source/Destination



Step 6 Set parameters in the **Select Source** area. For details, see [Table 5-50](#).

Table 5-50 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select Google Cloud .
Secret Access Key	Enter the access key of your Google Cloud account. You need to copy and paste all the information in the JSON key file.

Parameter	Configuration
Specify Source Bucket	<p>Disable Specify Source Bucket. This feature is disabled by default.</p> <ol style="list-style-type: none"> 1. Click List Buckets next to Bucket. All buckets in the account will be listed. 2. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source account does not have the permissions required to list buckets, enable Specify Source Bucket.</p>
	<p>Enable Specify Source Bucket.</p> <ol style="list-style-type: none"> 1. Select the region where the source bucket resides from the Region drop-down list. 2. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. 3. Click Connect.

Step 7 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-51](#).

Table 5-51 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 8 Click **Next**. The **Set Task Parameters** page is displayed.

Step 9 Select a migration method.

Migration Method	Scenario	Description
File/Folder	You have obtained the names of the files to be migrated or the folders where the files to be migrated are located.	<ul style="list-style-type: none">• If you select folders, all files in the selected folders will be migrated.• If you select files, all selected files will be migrated. <p>You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.</p>

Migration Method	Scenario	Description
Object list	You have obtained the names of all the objects to be migrated, saved the object names in a .txt file, and uploaded the file to an OBS bucket on Huawei Cloud.	<ul style="list-style-type: none">• Object List Bucket (Huawei Cloud): The bucket where the list file is stored must be in the same region as the destination bucket. Otherwise, the list file cannot be selected.• Object List: Select the .txt file that contains the names of all objects to be migrated.

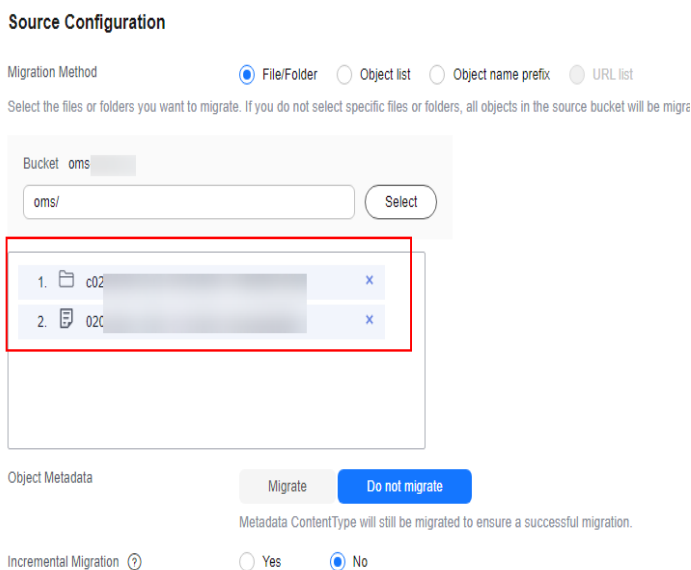
Migration Method	Scenario	Description
		<p>NOTE</p> <ul style="list-style-type: none"> • An object list file cannot exceed 1,024 MB. • The first object in the object list must exist, or the pre-verification will fail. • The object list file must be a .txt file, and the Content-Type metadata of the file must be text/plain. • The object list file must be in UTF-8 without BOM. • Each line in the object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in the object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in the object list file cannot exceed 65,535 characters, or the migration will fail. • The Content-Encoding metadata of the object list file must be left empty, or the migration will fail. • Archive data can only be accessed and obtained by OMS after it is restored. If the object list file is archive, manually restore it before migration.

Migration Method	Scenario	Description
Object name prefix	You know the naming format of the objects to be migrated, and the objects to be migrated are named with the same prefix.	After a prefix is added, all objects whose names start with the prefix will be migrated. If this parameter is not specified, all objects in the bucket will be migrated.

- **File/Folder**

- Click **Select** under the bucket name. The **Select File/Folder** dialog box is displayed.
- Select the folders or files to be migrated. You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.
- Click **OK**. The selected files or folders are displayed.

Figure 5-109 Selected files and folders



- **Object list**

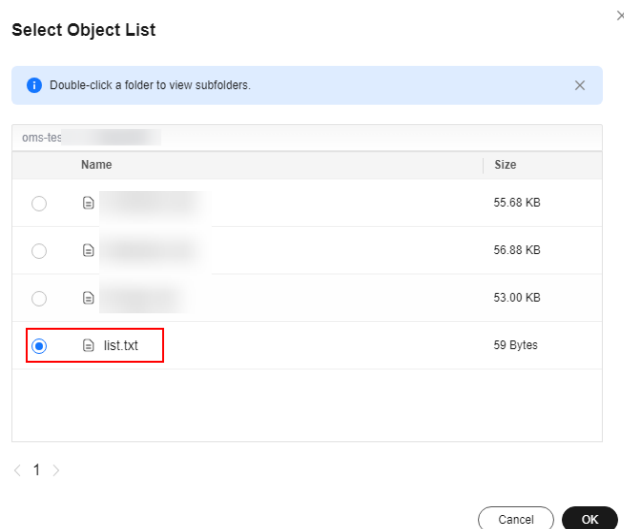
- In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the object list is stored.

CAUTION

The bucket used for storing object list must be located in the same region as the destination bucket, or you cannot select the object list.

- b. Click **Select** next to **Object List**. In the displayed **Object List File** dialog box, select the .txt file that contains the names of all objects to be migrated, and click **OK**.

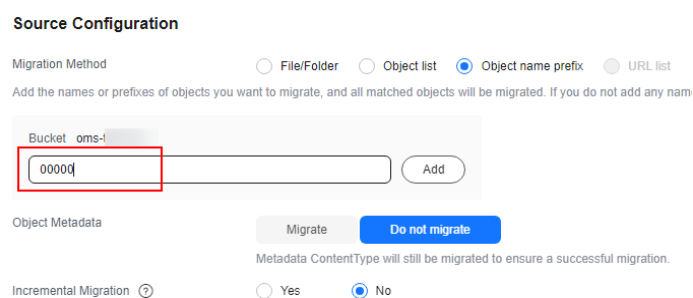
Figure 5-110 Selecting an object list file



- **Object name prefix**

- a. Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-111 Entering the names or name prefixes of objects to be migrated



- b. Click **Add**. The system will automatically list the matched objects. You can click **X** to delete the objects that do not need to be migrated from the list.

Step 10 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata ContentType.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE


Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 11 Set Incremental Migration.

- 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.

Step 12 (Optional) Set Use Source Custom Domain Name based on Table 5-52.

Use Source Custom Domain Name Yes No

 If the CDN performance optimization function (such as Gzip compression function) is enabled on the source end, the migration may fail.

Transfer Protocol HTTP HTTPS

Custom Bucket Domain Name

Table 5-52 Parameters

Parameter	Configuration
Use Source Custom Domain Name	<p>This option is deselected by default.</p> <p>If the default domain name cannot meet your migration requirements, then if the source cloud service provider supports custom domain names, you can bind a custom domain name to the source bucket, and enable the CDN service on the source platform to reduce data download fees.</p> <p>NOTE If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.</p> <ol style="list-style-type: none"> 1. Select a transmission protocol for Transfer Protocol. <p>NOTE HTTPS is more secure than HTTP and is recommended.</p> <ol style="list-style-type: none"> 2. Enter a custom domain name of the bucket in the Custom Bucket Domain Name box.
Check	<p>Click Check to check whether the configuration is correct.</p> <ul style="list-style-type: none"> • If the configuration fails the check, click Details to view the failure causes. • If the configuration passes the check, complete other migration configurations.

Step 13 Configure parameters in the **Destination Configuration** area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

NOTE

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-112 Specifying a prefix

The screenshot shows the 'Destination Configuration' interface. Under 'Data Encryption', there is an 'Enable' checkbox and a warning message: 'Encryption is recommended to keep data secure, but it will slow down migration speed.' Under 'Specify Prefix', there are radio buttons for 'Yes' (selected) and 'No'. A text input field is present with the error message 'Prefix cannot start with /'. Below this, there are radio buttons for 'Object Storage Class': 'Default' (selected), 'Standard', 'Infrequent Access', 'Archive', 'Deep Archive', and 'Same as source'.

NOTE

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. **Object Storage Class**

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 14 Click **Advanced Settings**. Set parameters in the **Advanced Settings** area based on [Table 5-53](#).

Table 5-53 Advanced settings

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none">● If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again.● If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none">- For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket.- A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
Archive Data Restoration	<p>The default value is No.</p> <ul style="list-style-type: none">● If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects.● If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none">● If this option is set to No, no SMN message is sent after the migration.● If this option is set to Yes, you will receive an SMN message informing you of the migration results.
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none">● If you do not need to limit migration traffic, select No.● If you need to limit migration traffic, select Yes.

Parameter	Description
Object Overwrite	<ul style="list-style-type: none"> ● 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. Otherwise, the source object will be skipped. ● Never overwrite: The system always skips source objects and keeps their paired destination objects. ● Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. <p>NOTE</p> <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. <ul style="list-style-type: none"> ● Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency check	<ul style="list-style-type: none"> ● By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. ● By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	If there are a large number of tasks, you can set task priorities to determine the migration sequence.

Step 15 Click **Next** to enter the confirmation page.

Step 16 Confirm the source information, destination information, task parameters, and advanced settings, and click **Migrate Now**. A message is displayed, indicating that the migration task is successfully created. The migration task is displayed in the migration task list.

 NOTE

After the task is created, a task ID is generated for quick identification. It is displayed in the upper left corner of the task list. It is composed of the source bucket name, destination bucket name, and time sequence ID.

----End

Related Operations

You can perform the following operations on a created migration task.

Operation	Description
View a migration task.	For details, see Viewing a Migration Task .
Manage a migration task.	For details, see Managing a Migration Task .

5.8.4 Creating a Migration Task Group

This section describes how to create a migration task group.

 CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
 - If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.
-

Scenarios

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.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the key files and required permissions for the source and destination platform accounts.
 - The source platform account needs the permissions to read data from Google Cloud Storage.
 - The destination platform account needs the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata,

obtain object content, upload objects, list uploaded parts, and restore archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).

- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


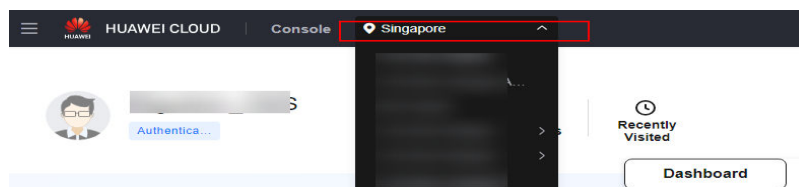
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

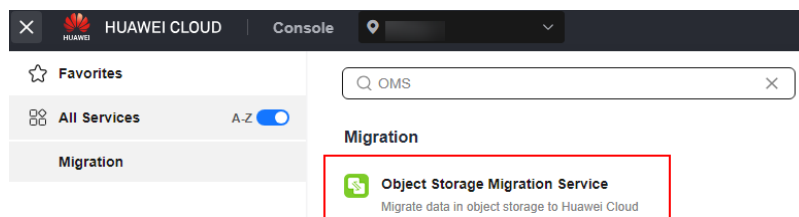
Figure 5-113 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

You can also enter **OMS** in the search box to quickly find OMS.

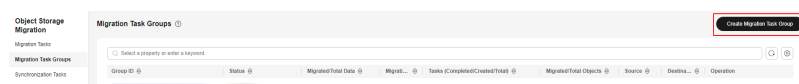
Figure 5-114 Choosing OMS



Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

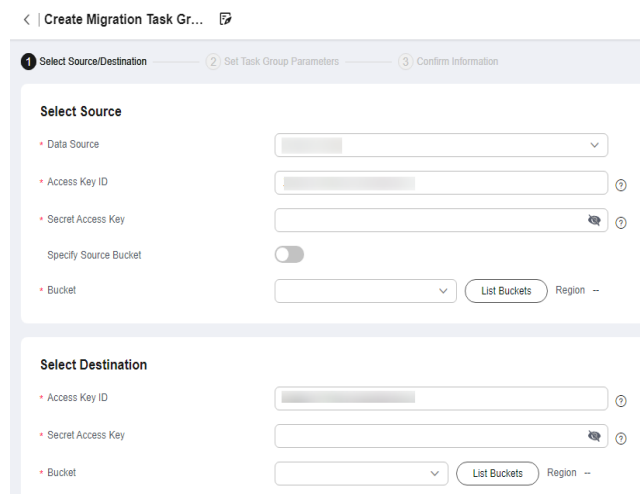
Step 5 On the **Migration Task Groups** page, click **Create Migration Task** in the upper right corner.

Figure 5-115 Creating a migration task group



Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-116 Select Source/Destination



Step 7 Set parameters in the **Select Source** area. For details, see [Table 5-54](#).

Table 5-54 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select Google Cloud .
Secret Access Key	Enter the access key of your Google Cloud account. You need to copy and paste all the information in the JSON key file.
Specify Source Bucket	<p>Disable Specify Source Bucket. This feature is disabled by default.</p> <ol style="list-style-type: none"> Click List Buckets next to Bucket. All buckets in the account will be listed. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source account does not have the permissions required to list buckets, enable Specify Source Bucket.</p> <p>Enable Specify Source Bucket.</p> <ol style="list-style-type: none"> Select the region where the source bucket resides from the Region drop-down list. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. Click Connect.

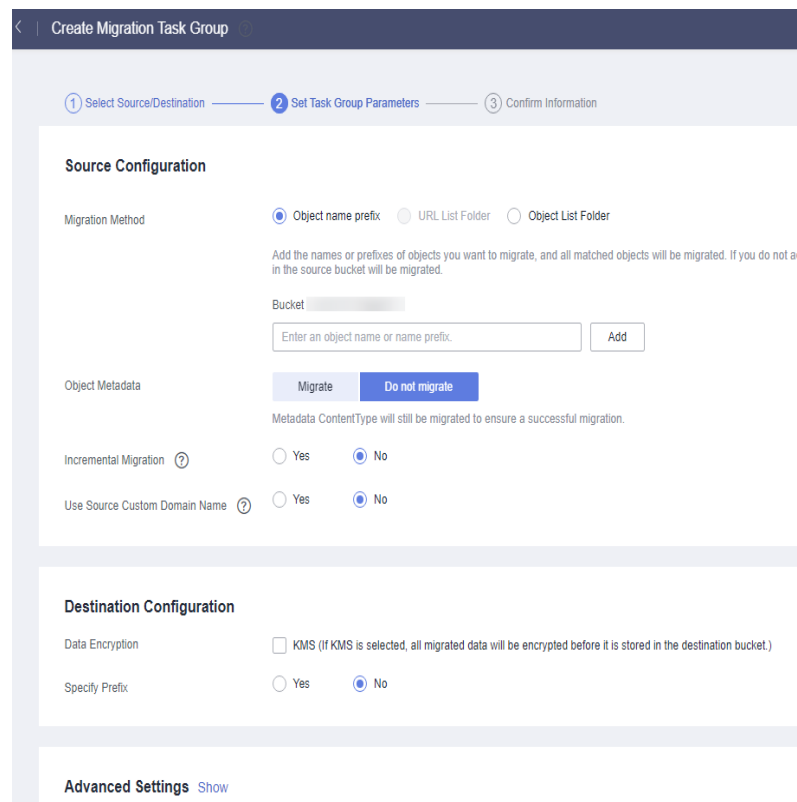
Step 8 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-55](#).

Table 5-55 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 9 Click **Next**. The **Set Task Group Parameters** page is displayed.

Figure 5-117 Setting task group parameters



Step 10 Select a migration method.

- **Object name prefix**
 - a. Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-118 Entering the names or name prefixes of objects to be migrated

Source Configuration

Migration Method Object name prefix URL list folder Object list folder

Add the names or prefixes of objects you want to migrate, and all matched objects will be migrated. If you do not add any names or prefixes, all c

Bucket oms-i


00000 Add

Object Metadata Migrate Do not migrate

Metadata ContentType will still be migrated to ensure a successful migration.

Incremental Migration Yes No

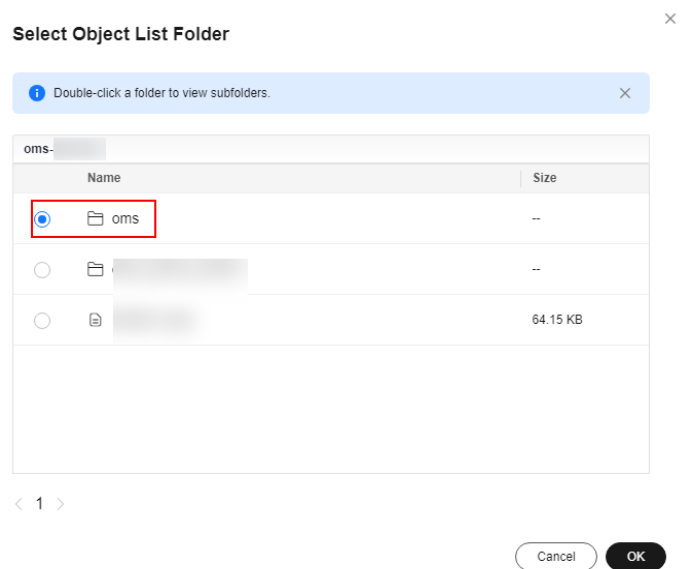
NOTE

- If the objects you want to migrate are stored in the root directory of the source bucket, add their prefixes directly. If these objects are stored in non-root directories, add their directories and prefixes in the format of *Bucket name/Folder/Prefix*.
 - If you do not add any object names or prefixes, all objects in the source bucket will be migrated.
 - The objects to be migrated are recorded in .txt files, and each migration task has a list file. The storage path of the files is **oms/taskgroup/** in the destination bucket. These list files will be retained after the migration, and you can manually delete them.
- b. Click **Add**. The system will automatically list the matched objects. You can click  to delete the objects that do not need to be migrated from the list.
- **Object list folder**
 - a. In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the list files are stored.

CAUTION

The bucket used for storing the list files must be located in the same region as the destination bucket, or you cannot select the files.

- b. Click **Select** next to **Object List Folder**. In the displayed **Object List File** dialog box, select the folder where the list files are stored, and click **OK**.

Figure 5-119 Selecting the folder where the object list files are located**NOTE**

- An object list file cannot exceed 1,024 MB.
- The total number of files in the object list folder cannot exceed 2,000.
- An object list file must be a .txt file, and the **Content-Type** metadata of the file must be **text/plain**.
- An object list file must be in UTF-8 without BOM.
- Each line in the object list file can contain only one object name, and the object name must be URL encoded if it contains special characters or spaces.
- Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names.
- The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail.
- The **Content-Encoding** metadata of each object list file must be left empty, or the migration will fail.
- Archive data can only be accessed and obtained by OMS after it is restored. If the object list files are archive, manually restore them before migration.

Step 11 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata **ContentType**.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 12 Set Incremental Migration.

- 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.

Step 13 (Optional) Set Use Source Custom Domain Name based on Table 5-56.

Use Source Custom Domain Name Yes No

⚠ If the CDN performance optimization function (such as Gzip compression function) is enabled on the source end, the migration may fail.

Transfer Protocol HTTP HTTPS

Custom Bucket Domain Name

Table 5-56 Parameters

Parameter	Configuration
Use Source Custom Domain Name	<p>This option is deselected by default.</p> <p>If the default domain name cannot meet your migration requirements, then if the source cloud service provider supports custom domain names, you can bind a custom domain name to the source bucket, and enable the CDN service on the source platform to reduce data download fees.</p> <p>NOTE If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.</p> <ol style="list-style-type: none"> 1. Select a transmission protocol for Transfer Protocol. <p>NOTE HTTPS is more secure than HTTP and is recommended.</p> <ol style="list-style-type: none"> 2. Enter a custom domain name of the bucket in the Custom Bucket Domain Name box.
Check	<p>Click Check to check whether the configuration is correct.</p> <ul style="list-style-type: none"> • If the configuration fails the check, click Details to view the failure causes. • If the configuration passes the check, complete other migration configurations.

Step 14 Configure parameters in the **Destination Configuration** area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

NOTE

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-120 Specifying a prefix

The screenshot shows the 'Destination Configuration' section of a migration tool. It includes three main settings: 'Data Encryption' (disabled), 'Specify Prefix' (set to 'Yes'), and 'Object Storage Class' (set to 'Default'). A warning message states: 'Encryption is recommended to keep data secure, but it will slow down migration speed.' The 'Specify Prefix' section has a text input field containing a slash '/' and a red border around it, with the error message 'Prefix cannot start with /' displayed below it. The 'Object Storage Class' section has radio buttons for 'Default', 'Standard', 'Infrequent Access', 'Archive', 'Deep Archive', and 'Same as source'.

NOTE

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. **Object Storage Class**

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 15 Click **Advanced Settings**. Set parameters in the **Advanced Settings** area based on [Table 5-57](#).

Table 5-57 Advanced settings

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none"> ● If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again. ● If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none"> - For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket. - A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
Archive Data Restoration	<p>The default value is No.</p> <ul style="list-style-type: none"> ● If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects. ● If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none"> ● If this option is set to No, no SMN message is sent after the migration. ● If this option is set to Yes, you will receive an SMN message informing you of the migration results.
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none"> ● If you do not need to limit migration traffic, select No. ● If you need to limit migration traffic, select Yes.

Parameter	Description
Object Overwrite	<ul style="list-style-type: none">• 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. Otherwise, the source object will be skipped.• Never overwrite: The system always skips source objects and keeps their paired destination objects.• Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. NOTE<ul style="list-style-type: none">- This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud.- This option is applied only when the source object has the same encryption status as the destination one.• Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency check	<ul style="list-style-type: none">• By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time.• By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	If there are a large number of tasks, you can set task priorities to determine the migration sequence.

Step 16 Click **Next** to enter the confirmation page.

Step 17 Confirm the source information, destination information, task group parameters, and advanced settings, and click **Migrate Now**. A message is displayed indicating

that the task group has been submitted. The task group is displayed in the migration task group list.

----End

Related Operations

You can perform the following operations on a created migration task group.

Operation	Description
View a migration task group.	For details, see Viewing a Migration Task .
Manage a migration task group.	For details, see Managing a Migration Task .

5.9 Migrating Data from Amazon S3 to Huawei Cloud OBS

5.9.1 Background

This tutorial walks you through the process of migrating data from Amazon Simple Storage Service (S3) to Huawei Cloud OBS.

As an online data migration service, Huawei Cloud OMS helps you migrate data from third-party data storage to Huawei Cloud OBS or between OBS buckets.

When you use OMS, you only need to specify a source data address and a destination OBS data address on the console, and then create a migration task or migration task group. For details about the differences between a migration task and a migration task group, see [What Are the Application Scenarios of Migration Tasks and Migration Task Groups?](#) After the migration task starts, you can view and manage it on the console.

Service Cutover

If service cutover is involved, see [Service Cutover](#) for more information.

CAUTION

You need to choose a cutover method based your requirements. The preceding solutions are for reference only.

Constraints

Use of OMS is limited as follows.

Table 5-58 OMS constraints

Item	Constraint
Objects with multiple versions	By default, OMS migrates only the latest version of objects in source buckets.
Storage class of destination buckets	The storage class of destination buckets can only be standard or infrequent access. You can change the storage class of destination buckets after the migration is complete.
Migration network	Only migrations over the Internet are supported.
Metadata migration	Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded. NOTE Even if you choose not to migrate metadata, the Content-Type metadata will still be migrated to ensure that the migration runs properly.
Migration scope	A single migration task or migration task group can only migrate data of one bucket. If data of multiple buckets needs to be migrated, you need to create multiple tasks or task groups.
Migration speed	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 transmission distance over the Internet 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. If more concurrent migrations are required, contact OMS technical support.
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: <ul style="list-style-type: none">• Create migration tasks after the restoration is complete.• Configure a validity period for restored data based on the total amount of data to be migrated. This helps prevent migration failures because restored data becomes archived again during the migration.• Pay your source cloud vendor for restoring archived data. To learn about the pricing details, contact your source cloud vendor.

Item	Constraint
Migration tasks	<p>A maximum of five concurrent migration tasks are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.</p>
	<p>A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.</p>
Migration task groups	<p>A maximum of five concurrent migration task groups are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.</p>
Synchronization tasks	<p>Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority.</p> <p>A maximum of five concurrent synchronization tasks are allowed for your account per region.</p>
Object list files	<ul style="list-style-type: none"> • An object list file cannot exceed 1,024 MB. • An object list file must be a .txt file, and its metadata Content-Type must be text/plain. • An object list file must be in UTF-8 without BOM. • Each line in an object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail. • The Content-Encoding metadata of an object list file must be left empty, or the migration will fail.

Item	Constraint
URL list files	<ul style="list-style-type: none"> ● A URL list file cannot exceed 1,024 MB. ● A URL list file must be a .txt file, and its metadata Content-Type must be text/plain. ● A URL list file must be in UTF-8 without BOM. ● Each line in a URL list file can contain only one URL and one destination object name. ● The length of each line in a URL list file cannot exceed 65,535 characters, or the migration will fail. ● The Content-Encoding metadata of a URL list file must be left empty, or the migration will fail. ● Spaces are not allowed in each line in a URL list file. Spaces may cause migration failures because they may be mistakenly identified as object names. ● In a URL list file, each line uses a tab character (\t) to separate the URL and destination object name. The format is [<i>URL</i>][<i>Tab character</i>][<i>Destination object name</i>]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: <pre style="background-color: #f0f0f0; padding: 5px;">http://xxx.xxx.xxx.xxx.com/doc/thefile2.txt doc/thefile2.txt http:// xxx.xxx.xxx.xxx.com/the%20file.txt the%20file.txt http://xxx.xxx.xxx.xxx.com/the%20file2.txt the+file2.txt http://xxx.xxx.xxx.xxx.com/doc/thefile.txt doc/thefile.txt</pre> <p>CAUTION The URL encoding starts from the second character after the domain name in a line. Do not encode the protocol header, domain name, or slash before or after the domain name. Otherwise, the format verification will fail.</p> <p>In each line, use a tab character (Tab key on the keyboard) to separate the URL and the destination object name. Do not use spaces.</p> <p>In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named doc/the file2.txt, the file.txt, the file2.txt, and doc/thefile.txt.</p>
Failed object list files	<p>A maximum of 100,000 failed objects can be recorded in a failed object list file.</p> <p>NOTE If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.</p>

5.9.2 Preparing for Migration

Before using OMS to migrate data between OBS buckets, make preparations by referring to this section.

Registering a HUAWEI ID

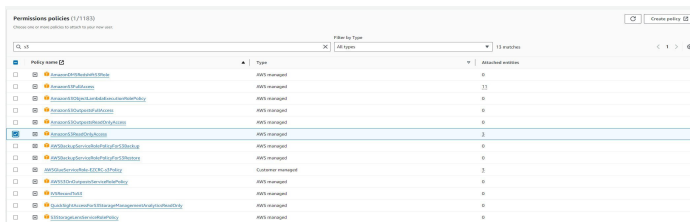
[Register a HUAWEI ID and enable Huawei Cloud services.](#)

 **NOTE**

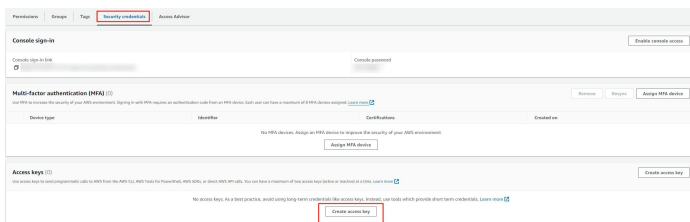
[Real-name authentication](#) is required for migrations to regions within the Chinese mainland.

Creating Access Keys for the Source and Destination Accounts and Obtaining the Required Permissions

- Source (AWS): Check whether you have obtained an AK/SK pair and the **AmazonS3ReadOnlyAccess** for your AWS account. If you have not, perform the following steps:
 - a. Log in to the AWS console.
 - b. On the **Console Home** page, select the IAM service.
 - c. In the navigation pane, choose **Users**. In the upper right corner, click **Create user**.
 - d. On the **Specify user details** page, under **User details**, in **User name**, enter the name for the new user.
 - e. Click **Next**. On the **Set permissions** page, select **Attach policy directly** and select the **AmazonS3ReadOnlyAccess** policy.



- f. Click **Next**. On the **Review and create** page, confirm the user information.
- g. Click **Create user**. After the creation is complete, click the username of the created user, select **Security credentials**, and click **Create access key**.



- h. View the AK and SK. You can also download and save the CSV file.

 **NOTE**

- If your source Amazon S3 bucket is on AWS China, it can only be migrated to Huawei Cloud regions within the Chinese mainland.
- If your source Amazon S3 bucket is on AWS Global, it can only be migrated to Huawei Cloud regions outside the Chinese mainland.
- Destination (Huawei Cloud): Create an AK/SK pair for the destination account and obtain the required permissions. For more information, see [Creating an Access Key \(AK/SK\)](#) and [Destination Permissions](#).

Creating a Destination OBS Bucket

Create an OBS bucket for storing the migrated data. For details, see [Creating a Bucket](#).

Restoring Archive Data in the Source Bucket

You need to restore data of the Archive storage class before you migrate it. Otherwise, the migration will take a long time. For details about how to restore archived data in Amazon S3, see [Migrating Archived Data in Amazon S3](#).

CAUTION

Perform the migration after all archive data is restored. Any data not restored will fail to be migrated.

5.9.3 Creating a Migration Task

This section describes how to create a migration task.

CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
 - If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.
-

Scenarios

If there is less than 3 TB of data or less than 5 million objects in a source bucket, create a migration task to quickly migrate the source data.

NOTE

If there is more than 3 TB of data or more than 5 million objects to migrate in a source bucket, [create a migration task group](#) to migrate the source data quickly.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
 - The source platform account needs the **AmazonS3ReadOnlyAccess** permissions.
 - The destination platform account needs the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata, obtain object content, upload objects, list uploaded parts, and restore

archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).

- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


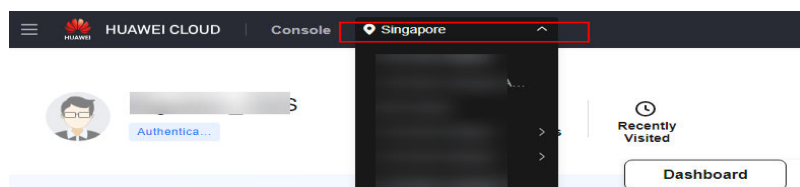
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

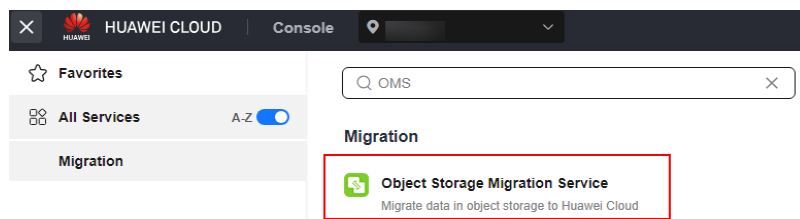
Figure 5-121 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

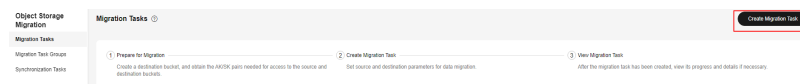
You can also enter **OMS** in the search box to quickly find OMS.

Figure 5-122 Choosing OMS



Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 5-123 Creating a migration task



Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

Figure 5-124 Select Source/Destination

The screenshot shows a web interface for creating a migration task. At the top, there's a breadcrumb 'Create Migration Task' with a refresh icon. Below it, a progress bar shows three steps: '1 Select Source/Destination', '2 Set Task Parameters', and '3 Confirm Information'. The main content is divided into two sections: 'Select Source' and 'Select Destination'.
Select Source: Contains a 'Data Source' dropdown menu, 'Access Key ID' and 'Secret Access Key' text input fields with help icons, a 'Specify Source Bucket' toggle switch (currently off), and a 'Bucket' dropdown menu with 'List Buckets' and 'Region' buttons.
Select Destination: Contains 'Access Key ID' and 'Secret Access Key' text input fields with help icons, and a 'Bucket' dropdown menu with 'List Buckets' and 'Region' buttons.

Step 6 Set parameters in the **Select Source** area. For details, see [Table 5-59](#).

Table 5-59 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select AWS .
Access Key ID	Enter the AK for the AWS account that the source bucket belongs to.
Secret Access Key	Enter the SK for the AWS account that the source bucket belongs to.
Specify Source Bucket	<p>Disable Specify Source Bucket (This feature is disabled by default.)</p> <ol style="list-style-type: none"> Click List Buckets next to Bucket. All buckets in the account will be listed. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source account does not have the permissions required to list buckets, enable Specify Source Bucket.</p> <p>Enable Specify Source Bucket.</p> <ol style="list-style-type: none"> Select the region where the source bucket resides from the Region drop-down list. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. Click Connect.

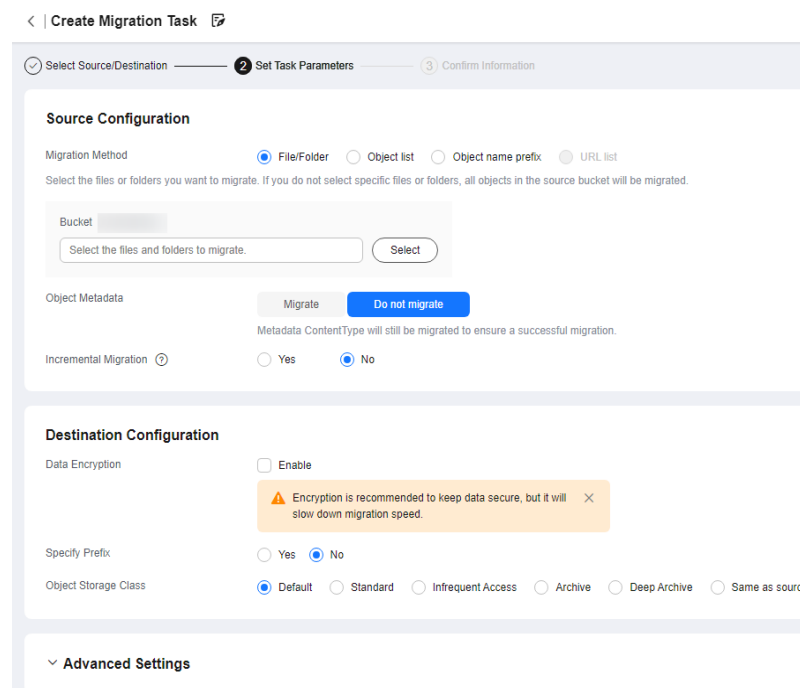
Step 7 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-60](#).

Table 5-60 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 8 Click **Next**. The **Set Task Parameters** page is displayed.

Figure 5-125 Set Task Parameters



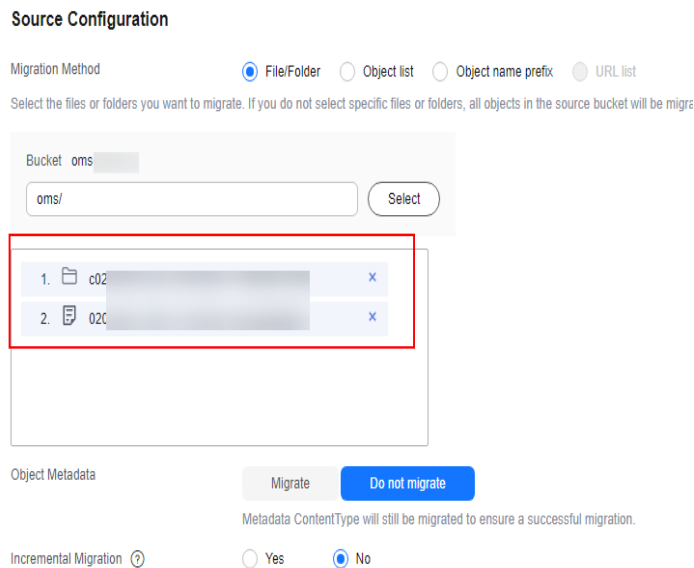
Step 9 Select a migration method.

Migration Method	Scenarios	Description
File/Folder	You have obtained the names of the files to be migrated or the folders where the files to be migrated are located.	<ul style="list-style-type: none">• If you select folders, all files in the selected folders will be migrated.• If you select files, all selected files will be migrated. <p>You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.</p>

Migration Method	Scenarios	Description
<p>Object list</p>	<p>You have obtained the names of all the objects to be migrated, saved the object names in a .txt file, and uploaded the file to an OBS bucket on Huawei Cloud.</p>	<ul style="list-style-type: none"> ● Object List Bucket (Huawei Cloud): The bucket where the list file is stored must be in the same region as the destination bucket. Otherwise, the list file cannot be selected. ● Object List: Select the .txt file that contains the names of all objects to be migrated. <p>NOTE</p> <ul style="list-style-type: none"> ● An object list file cannot exceed 1,024 MB. ● The first object in the object list must exist, or the pre-verification will fail. ● The object list file must be a .txt file, and the Content-Type metadata of the file must be text/plain. ● The object list file must be in UTF-8 without BOM. ● Each line in the object list file can contain only one object name, and the object name must be URL encoded. ● Spaces are not allowed in each line in the object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. ● The length of each line in the object list file cannot exceed 65,535 characters, or the migration will fail. ● The Content-Encoding metadata of the object list file must be left empty, or the migration will fail. ● Archive data can only be accessed and obtained by OMS after it is restored. If the object list file is archive, manually restore it before migration.
<p>Object name prefix</p>	<p>You know the naming format of the objects to be migrated, and the objects to be migrated are named with the same prefix.</p>	<p>After a prefix is added, all objects whose names start with the prefix will be migrated.</p> <p>If this parameter is not specified, all objects in the bucket will be migrated.</p>

- **File/Folder**
 - a. Click **Select** under the bucket name. The **Select File/Folder** dialog box is displayed.
 - b. Select the folders or files to be migrated. You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.
 - c. Click **OK**. The selected files or folders are displayed.

Figure 5-126 Selected files and folders



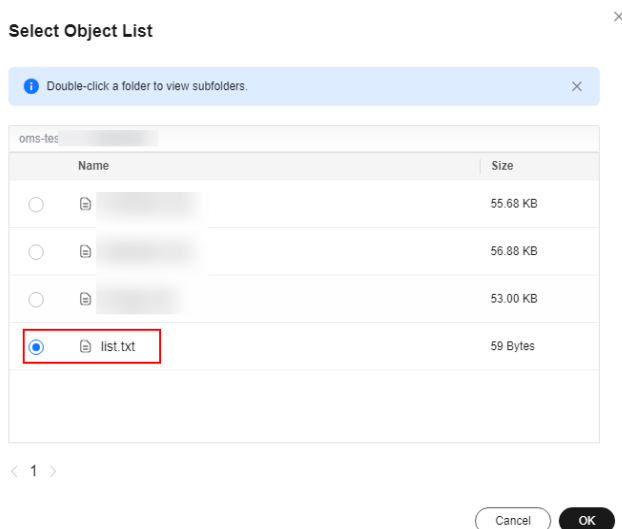
- **Object list**
 - a. In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the object list is stored.

CAUTION

The bucket used for storing object list must be located in the same region as the destination bucket, or you cannot select the object list.

- b. Click **Select** next to **Object List**. In the displayed **Object List File** dialog box, select the .txt file that contains the names of all objects to be migrated, and click **OK**.

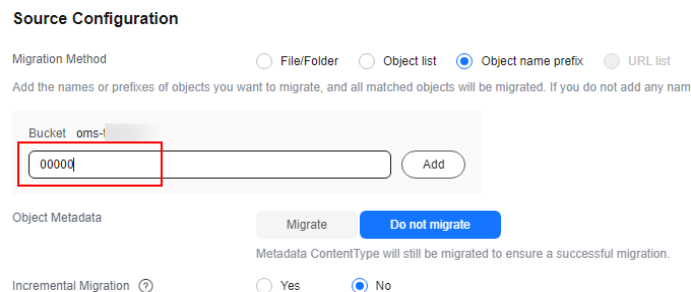
Figure 5-127 Selecting an object list file



- **Object name prefix**

- Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-128 Entering the names or name prefixes of objects to be migrated



- Click **Add**. The system will automatically list the matched objects. You can click **X** to delete the objects that do not need to be migrated from the list.

Step 10 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata ContentType.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 11 Set Incremental Migration.

- 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.

Step 12 (Optional) Set Use Source Custom Domain Name based on Table 5-61.

Use Source Custom Domain Name Yes No

⚠ If the CDN performance optimization function (such as Gzip compression function) is enabled on the source end, the migration may fail.

Transfer Protocol HTTP HTTPS

Custom Bucket Domain Name

Table 5-61 Parameters

Parameter	Configuration
Use Source Custom Domain Name	<p>This option is deselected by default.</p> <p>If the default domain name cannot meet your migration requirements, then if the source cloud service provider supports custom domain names, you can bind a custom domain name to the source bucket, and enable the CDN service on the source platform to reduce data download fees.</p> <p>NOTE If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.</p> <ol style="list-style-type: none"> 1. Select a transmission protocol for Transfer Protocol. <p>NOTE HTTPS is more secure than HTTP and is recommended.</p> <ol style="list-style-type: none"> 2. Enter a custom domain name of the bucket in the Custom Bucket Domain Name box.
Check	<p>Click Check to check whether the configuration is correct.</p> <ul style="list-style-type: none"> • If the configuration fails the check, click Details to view the failure causes. • If the configuration passes the check, complete other migration configurations.

Step 13 Configure parameters in the Destination Configuration area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.

- If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

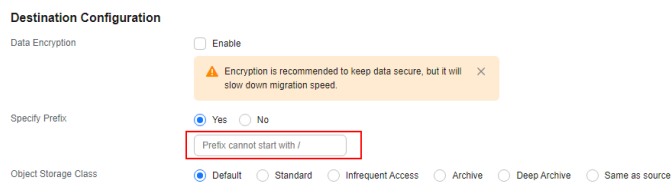
 **NOTE**

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. Specify Prefix

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-129 Specifying a prefix



 **NOTE**

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. Object Storage Class

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 14 Click **Advanced Settings**. Set parameters in the **Advanced Settings** area based on [Table 5-62](#).

Table 5-62 Advanced settings

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none">● If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again.● If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none">- For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket.- A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
Archive Data Restoration	<p>The default value is No.</p> <ul style="list-style-type: none">● If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects.● If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none">● If this option is set to No, no SMN message is sent after the migration.● If this option is set to Yes, you will receive an SMN message informing you of the migration results.
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none">● If you do not need to limit migration traffic, select No.● If you need to limit migration traffic, select Yes.

Parameter	Description
Object Overwrite	<ul style="list-style-type: none"> ● 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. Otherwise, the source object will be skipped. ● Never overwrite: The system always skips source objects and keeps their paired destination objects. ● Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. <p>NOTE</p> <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. <ul style="list-style-type: none"> ● Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency check	<ul style="list-style-type: none"> ● By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. ● By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	If there are a large number of tasks, you can set task priorities to determine the migration sequence.

Step 15 Click **Next** to enter the confirmation page.

Step 16 Confirm the source information, destination information, task parameters, and advanced settings, and click **Migrate Now**. A message is displayed, indicating that the migration task is successfully created. The migration task is displayed in the migration task list.

 NOTE

After the task is created, a task ID is generated for quick identification. It is displayed in the upper left corner of the task list. It is composed of the source bucket name, destination bucket name, and time sequence ID.

----End

Related Operations

You can perform the following operations on a created migration task.

Operation	Description
View a migration task.	For details, see Viewing a Migration Task .
Manage a migration task.	For details, see Managing a Migration Task .

5.9.4 Creating a Migration Task Group

This section describes how to create a migration task group.

 CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
- If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.

Scenarios

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.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
 - The source platform account needs the **AmazonS3ReadOnlyAccess** permissions.
 - The destination platform account needs the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata,

obtain object content, upload objects, list uploaded parts, and restore archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).

- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


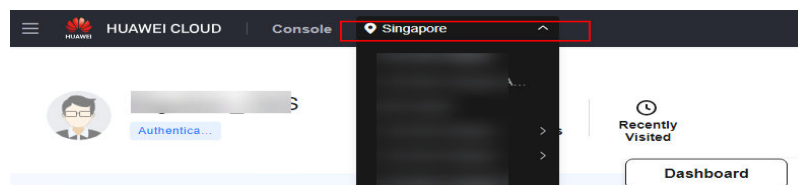
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

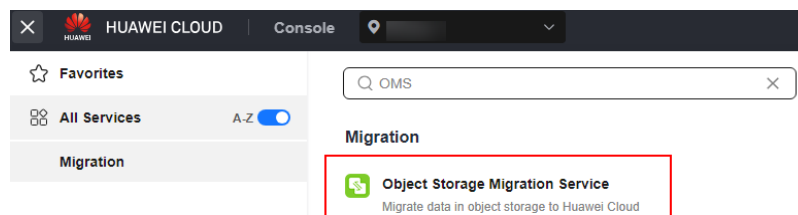
Figure 5-130 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

You can also enter **OMS** in the search box to quickly find OMS.

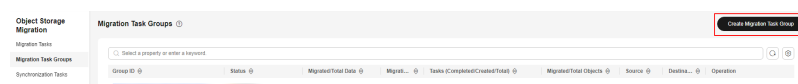
Figure 5-131 Choosing OMS



Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

Step 5 On the **Migration Task Groups** page, click **Create Migration Task** in the upper right corner.

Figure 5-132 Creating a migration task group



Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-133 Select Source/Destination

Step 7 Set parameters in the **Select Source** area. For details, see [Table 5-63](#).

Table 5-63 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select AWS .
Access Key ID	Enter the AK for the AWS account that the source bucket belongs to.
Secret Access Key	Enter the SK for the AWS account that the source bucket belongs to.
Specify Source Bucket	<p>Disable Specify Source Bucket (This feature is disabled by default.)</p> <ol style="list-style-type: none"> Click List Buckets next to Bucket. All buckets in the account will be listed. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source account does not have the permissions required to list buckets, enable Specify Source Bucket.</p> <p>Enable Specify Source Bucket.</p> <ol style="list-style-type: none"> Select the region where the source bucket resides from the Region drop-down list. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. Click Connect.

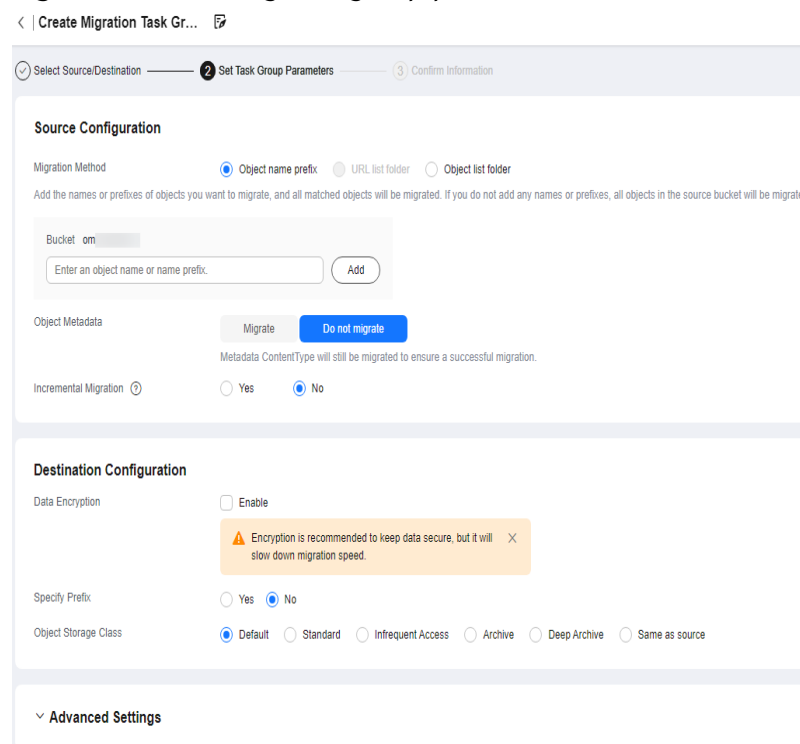
Step 8 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-64](#).

Table 5-64 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 9 Click **Next**. The **Set Task Group Parameters** page is displayed.

Figure 5-134 Setting task group parameters



Step 10 Select a migration method.

- **Object name prefix**
 - a. Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-135 Entering the names or name prefixes of objects to be migrated

Source Configuration

Migration Method Object name prefix URL list folder Object list folder

Add the names or prefixes of objects you want to migrate, and all matched objects will be migrated. If you do not add any names or prefixes, all c

Bucket oms-
00000

Object Metadata

Metadata ContentType will still be migrated to ensure a successful migration.

Incremental Migration Yes No

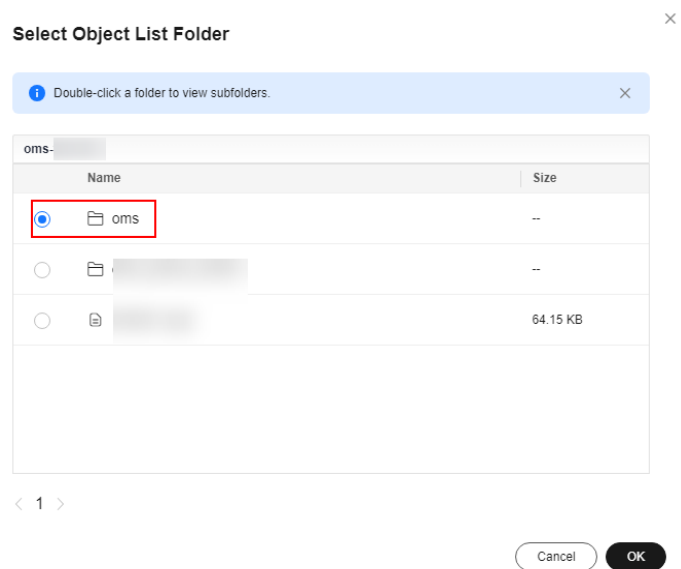
NOTE

- If the objects you want to migrate are stored in the root directory of the source bucket, add their prefixes directly. If these objects are stored in non-root directories, add their directories and prefixes in the format of *Bucket name/Folder/Prefix*.
 - If you do not add any object names or prefixes, all objects in the source bucket will be migrated.
 - The objects to be migrated are recorded in .txt files, and each migration task has a list file. The storage path of the files is **oms/taskgroup/** in the destination bucket. These list files will be retained after the migration, and you can manually delete them.
- b. Click **Add**. The system will automatically list the matched objects. You can click to delete the objects that do not need to be migrated from the list.
- **Object list folder**
 - a. In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the list files are stored.

CAUTION

The bucket used for storing the list files must be located in the same region as the destination bucket, or you cannot select the files.

- b. Click **Select** next to **Object List Folder**. In the displayed **Object List File** dialog box, select the folder where the list files are stored, and click **OK**.

Figure 5-136 Selecting the folder where the object list files are located**NOTE**

- An object list file cannot exceed 1,024 MB.
- The total number of files in the object list folder cannot exceed 2,000.
- An object list file must be a .txt file, and the **Content-Type** metadata of the file must be **text/plain**.
- An object list file must be in UTF-8 without BOM.
- Each line in the object list file can contain only one object name, and the object name must be URL encoded if it contains special characters or spaces.
- Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names.
- The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail.
- The **Content-Encoding** metadata of each object list file must be left empty, or the migration will fail.
- Archive data can only be accessed and obtained by OMS after it is restored. If the object list files are archive, manually restore them before migration.

Step 11 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata **ContentType**.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE


Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 12 Set Incremental Migration.

- 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.

Step 13 (Optional) Set Use Source Custom Domain Name based on Table 5-65.

Use Source Custom Domain Name Yes No

 If the CDN performance optimization function (such as Gzip compression function) is enabled on the source end, the migration may fail.

Transfer Protocol HTTP HTTPS

Custom Bucket Domain Name

Table 5-65 Parameters

Parameter	Configuration
Use Source Custom Domain Name	<p>This option is deselected by default.</p> <p>If the default domain name cannot meet your migration requirements, then if the source cloud service provider supports custom domain names, you can bind a custom domain name to the source bucket, and enable the CDN service on the source platform to reduce data download fees.</p> <p>NOTE If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.</p> <ol style="list-style-type: none"> 1. Select a transmission protocol for Transfer Protocol. <p>NOTE HTTPS is more secure than HTTP and is recommended.</p> <ol style="list-style-type: none"> 2. Enter a custom domain name of the bucket in the Custom Bucket Domain Name box.
Check	<p>Click Check to check whether the configuration is correct.</p> <ul style="list-style-type: none"> • If the configuration fails the check, click Details to view the failure causes. • If the configuration passes the check, complete other migration configurations.

Step 14 Configure parameters in the **Destination Configuration** area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

NOTE

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-137 Specifying a prefix

The screenshot shows the 'Destination Configuration' interface. Under 'Data Encryption', there is an 'Enable' checkbox and a warning message: 'Encryption is recommended to keep data secure, but it will slow down migration speed.' Under 'Specify Prefix', there are radio buttons for 'Yes' (selected) and 'No'. A text input field is present with the error message 'Prefix cannot start with /'. Below this, there are radio buttons for 'Object Storage Class': 'Default' (selected), 'Standard', 'Infrequent Access', 'Archive', 'Deep Archive', and 'Same as source'.

NOTE

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. **Object Storage Class**

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 15 Click **Advanced Settings**. Set parameters in the **Advanced Settings** area based on [Table 5-66](#).

Table 5-66 Advanced settings

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none">● If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again.● If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none">- For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket.- A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
Archive Data Restoration	<p>The default value is No.</p> <ul style="list-style-type: none">● If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects.● If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none">● If this option is set to No, no SMN message is sent after the migration.● If this option is set to Yes, you will receive an SMN message informing you of the migration results.
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none">● If you do not need to limit migration traffic, select No.● If you need to limit migration traffic, select Yes.

Parameter	Description
Object Overwrite	<ul style="list-style-type: none"> ● 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. Otherwise, the source object will be skipped. ● Never overwrite: The system always skips source objects and keeps their paired destination objects. ● Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. <p>NOTE</p> <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. <ul style="list-style-type: none"> ● Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency check	<ul style="list-style-type: none"> ● By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. ● By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	If there are a large number of tasks, you can set task priorities to determine the migration sequence.

Step 16 Click **Next** to enter the confirmation page.

Step 17 Confirm the source information, destination information, task parameters, and advanced settings, and click **Migrate Now**. A message is displayed, indicating that the migration task is successfully created. The migration task is displayed in the migration task list.

 NOTE

After the task is created, a task ID is generated for quick identification. It is displayed in the upper left corner of the task list. It is composed of the source bucket name, destination bucket name, and time sequence ID.

----End

Related Operations

You can perform the following operations on a created migration task.

Operation	Description
View a migration task.	For details, see Viewing a Migration Task .
Manage a migration task.	For details, see Managing a Migration Task .

5.10 Migrating Data from Azure Blob Storage to Huawei Cloud OBS

5.10.1 Background

This tutorial walks you through the process of migrating data from Azure Blob Storage to Huawei Cloud OBS.

As an online data migration service, Huawei Cloud OMS helps you migrate data from third-party data storage to Huawei Cloud OBS or between OBS buckets.

When you use OMS, you only need to specify a source data address and a destination OBS data address on the console, and then create a migration task or migration task group. For details about the differences between a migration task and a migration task group, see [What Are the Application Scenarios of Migration Tasks and Migration Task Groups?](#) After the migration task starts, you can view and manage it on the console.

Service Cutover

If service cutover is involved, see [Service Cutover](#) for more information.

 CAUTION

You need to choose a cutover method based your requirements. The preceding solutions are for reference only.

Constraints

Use of OMS is limited as follows.

Table 5-67 OMS constraints

Item	Constraint
Objects with multiple versions	By default, OMS migrates only the latest version of objects in source buckets.
Storage class of destination buckets	The storage class of destination buckets can only be standard or infrequent access. You can change the storage class of destination buckets after the migration is complete.
Migration network	Only migrations over the Internet are supported.
Metadata migration	Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded. NOTE Even if you choose not to migrate metadata, the Content-Type metadata will still be migrated to ensure that the migration runs properly.
Migration scope	A single migration task or migration task group can only migrate data of one bucket. If data of multiple buckets needs to be migrated, you need to create multiple tasks or task groups.
Migration speed	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 transmission distance over the Internet 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. If more concurrent migrations are required, contact OMS technical support.
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: <ul style="list-style-type: none">• Create migration tasks after the restoration is complete.• Configure a validity period for restored data based on the total amount of data to be migrated. This helps prevent migration failures because restored data becomes archived again during the migration.• Pay your source cloud vendor for restoring archived data. To learn about the pricing details, contact your source cloud vendor.

Item	Constraint
Migration tasks	<p>A maximum of five concurrent migration tasks are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.</p>
	<p>A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.</p>
Migration task groups	<p>A maximum of five concurrent migration task groups are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.</p>
Synchronization tasks	<p>Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority.</p> <p>A maximum of five concurrent synchronization tasks are allowed for your account per region.</p>
Object list files	<ul style="list-style-type: none"> • An object list file cannot exceed 1,024 MB. • An object list file must be a .txt file, and its metadata Content-Type must be text/plain. • An object list file must be in UTF-8 without BOM. • Each line in an object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail. • The Content-Encoding metadata of an object list file must be left empty, or the migration will fail.

Item	Constraint
URL list files	<ul style="list-style-type: none"> ● A URL list file cannot exceed 1,024 MB. ● A URL list file must be a .txt file, and its metadata Content-Type must be text/plain. ● A URL list file must be in UTF-8 without BOM. ● Each line in a URL list file can contain only one URL and one destination object name. ● The length of each line in a URL list file cannot exceed 65,535 characters, or the migration will fail. ● The Content-Encoding metadata of a URL list file must be left empty, or the migration will fail. ● Spaces are not allowed in each line in a URL list file. Spaces may cause migration failures because they may be mistakenly identified as object names. ● In a URL list file, each line uses a tab character (\t) to separate the URL and destination object name. The format is [<i>URL</i>][<i>Tab character</i>][<i>Destination object name</i>]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: <pre style="background-color: #f0f0f0; padding: 5px;">http://xxx.xxx.xxx.xxx.com/doc/thefile2.txt doc/thefile2.txt http:// xxx.xxx.xxx.xxx.com/the%20file.txt the%20file.txt http://xxx.xxx.xxx.xxx.com/the%20file2.txt the+file2.txt http://xxx.xxx.xxx.xxx.com/doc/thefile.txt doc/thefile.txt</pre> <p>CAUTION The URL encoding starts from the second character after the domain name in a line. Do not encode the protocol header, domain name, or slash before or after the domain name. Otherwise, the format verification will fail.</p> <p>In each line, use a tab character (Tab key on the keyboard) to separate the URL and the destination object name. Do not use spaces.</p> <p>In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named doc/the file2.txt, the file.txt, the file2.txt, and doc/thefile.txt.</p>
Failed object list files	<p>A maximum of 100,000 failed objects can be recorded in a failed object list file.</p> <p>NOTE If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.</p>

5.10.2 Preparing for Migration

Before using OMS to migrate data, make preparations by referring to this section.

Registering a HUAWEI ID

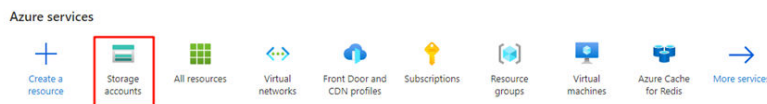
Register a HUAWEI ID and enable Huawei Cloud services.

NOTE

Real-name authentication is required for migrations to regions within the Chinese mainland.

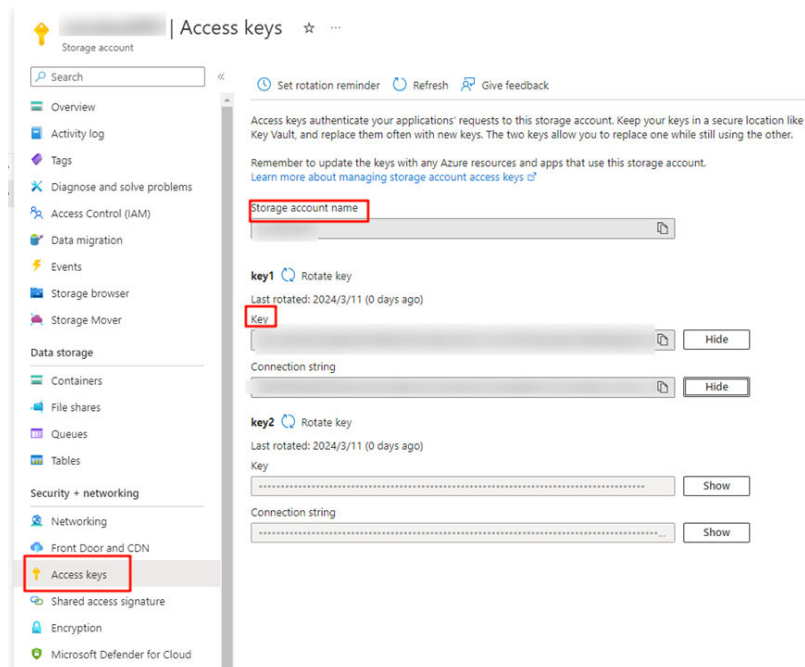
Creating Access Keys for the Source and Destination Accounts and Obtaining the Required Permissions

- Source (Microsoft Azure):
 - a. On the Azure portal, click **Storage accounts** and select the storage account that owns the data you want to migrate.



- b. Under **Security+networking**, select **Access keys**. Your account access keys appear, as well as the complete connection string for each key.
- c. Select **Show keys** to show your access keys and connection strings and to enable buttons to copy the values.

You can use either of the two keys to access Azure Storage, but in general it is a good practice to use the first key, and reserve the use of the second key for when you are rotating keys.



- Destination (Huawei Cloud): Create an AK/SK pair for the destination account and obtain the required permissions. For more information, see [Creating an Access Key \(AK/SK\)](#) and [Destination Permissions](#).

Creating a Destination OBS Bucket

Create an OBS bucket for storing the migrated data. For details, see [Creating a Bucket](#).

Restoring Archive Data in the Source Bucket

You need to restore data of the Archive storage class before you migrate it. Otherwise, the migration will take a long time. For details about how to restore archived data in Azure Blob Storage, see [Migrating Archived Data in Azure Blob Storage](#).

CAUTION

Perform the migration after all archive data is restored. Any data not restored will fail to be migrated.

5.10.3 Creating a Migration Task

This section describes how to create a migration task.

CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
 - If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.
-

Scenarios

If there is less than 3 TB of data or less than 5 million objects in a source bucket, create a migration task to quickly migrate the source data.

NOTE

If there is more than 3 TB of data or more than 5 million objects to migrate in a source bucket, [create a migration task group](#) to migrate the source data quickly.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
 - The source platform account needs the permissions to read data from Azure.
 - The destination platform account needs the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata,

obtain object content, upload objects, list uploaded parts, and restore archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).

- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


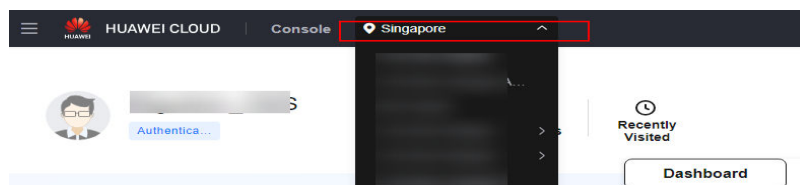
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

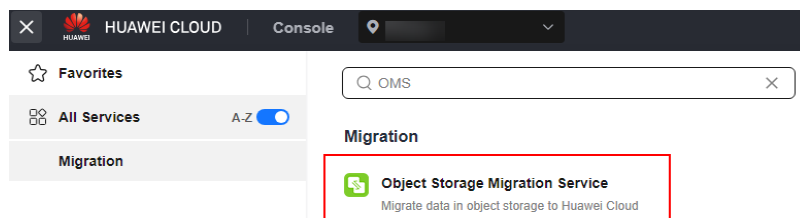
Figure 5-138 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

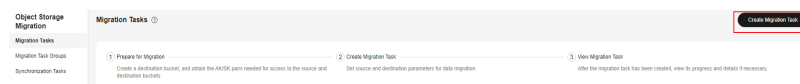
You can also enter **OMS** in the search box to quickly find OMS.

Figure 5-139 Choosing OMS



Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 5-140 Creating a migration task



Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

Figure 5-141 Select Source/Destination

Step 6 Set parameters in the **Select Source** area. For details, see [Table 5-68](#).

Table 5-68 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select Microsoft Azure .
Storage Account	Enter your storage account on Microsoft Azure.
Access Key	Enter the access key of your Azure storage account.
Specify Source Bucket	<p>Disable Specify Source Bucket (This feature is disabled by default.)</p> <ol style="list-style-type: none"> Click List Buckets next to Bucket. All buckets in the account will be listed. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source account does not have the permissions required to list buckets, enable Specify Source Bucket.</p> <p>Enable Specify Source Bucket.</p> <ol style="list-style-type: none"> Select the region where the source bucket resides from the Region drop-down list. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. Click Connect.

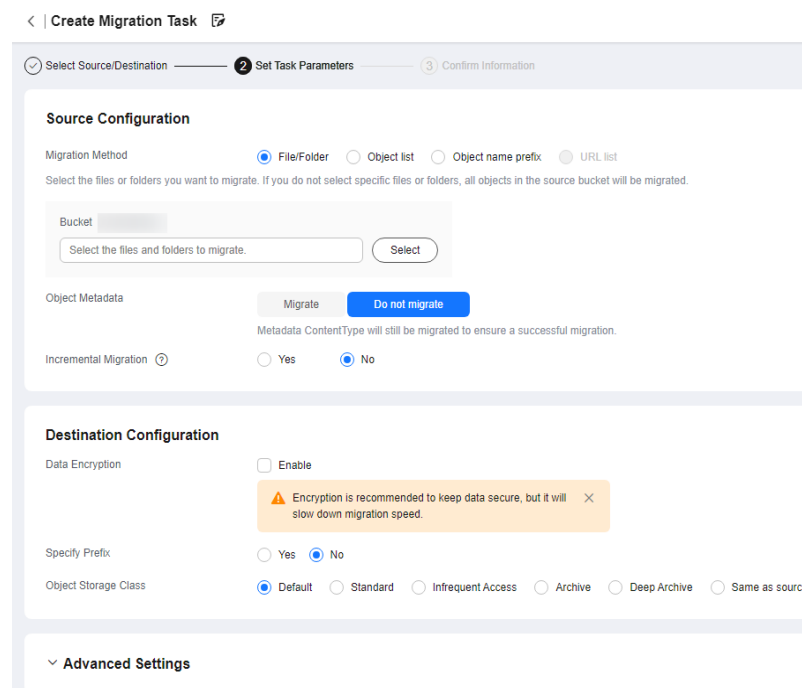
Step 7 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-69](#).

Table 5-69 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 8 Click **Next**. The **Set Task Parameters** page is displayed.

Figure 5-142 Set Task Parameters



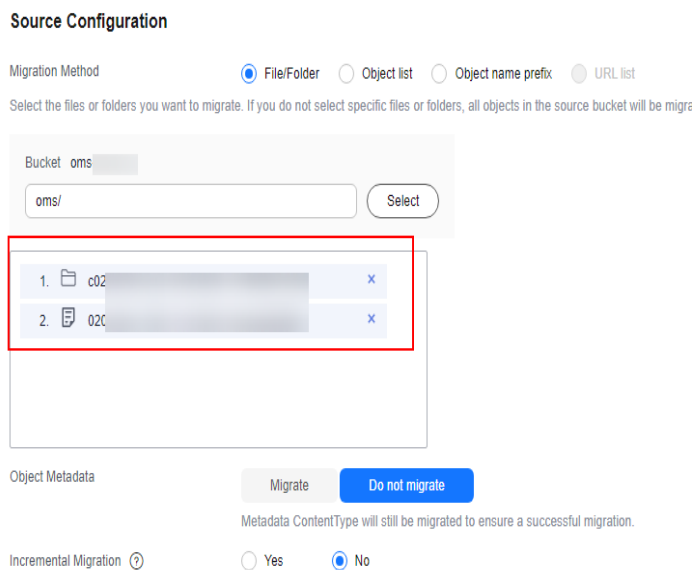
Step 9 Select a migration method.

Migration Method	Scenarios	Configuration
File/Folder	You have obtained the names of files to be migrated, or the folders where the files to be migrated are located.	<ul style="list-style-type: none">• If you select folders, all files in the selected folders will be migrated.• If you select files, all selected files will be migrated. <p>You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.</p>

Migration Method	Scenarios	Configuration
<p>Object list</p>	<p>You have obtained the names of all the objects to be migrated, saved the object names in a .txt file, and uploaded the file to an OBS bucket on Huawei Cloud.</p>	<ul style="list-style-type: none"> ● Object List Bucket (Huawei Cloud): The bucket where the list file is stored must be in the same region as the destination bucket. Otherwise, the list file cannot be selected. ● Object List: Select the .txt file that contains the names of all objects to be migrated. <p>NOTE</p> <ul style="list-style-type: none"> ● An object list file cannot exceed 1,024 MB. ● The first object in the object list must exist, or the pre-verification will fail. ● The object list file must be a .txt file, and the ContentType metadata of the file must be text/plain. ● The object list file must be in UTF-8 without BOM. ● Each line in the object list file can contain only one object name, and the object name must be URL encoded. ● Spaces are not allowed in each line in the object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. ● The length of each line in the object list file cannot exceed 65,535 characters, or the migration will fail. ● The Content-Encoding metadata of the object list file must be left empty, or the migration will fail. ● Archive data can only be accessed and obtained by OMS after it is restored. If the object list file is archive, manually restore it before migration.
<p>Object name prefix</p>	<p>You know the naming format of the objects to be migrated, and the objects to be migrated are named with the same prefix.</p>	<p>After a prefix is added, all objects whose names start with the prefix will be migrated.</p> <p>If this parameter is not specified, all objects in the bucket will be migrated.</p>

- **File/Folder**
 - a. Click **Select** under the bucket name. The **Select File/Folder** dialog box is displayed.
 - b. Select the folders or files to be migrated. You can select both folders and files for migration. If you do not select specific files or folders, all objects in the bucket will be migrated by default.
 - c. Click **OK**. The selected files or folders are displayed.

Figure 5-143 Selected files and folders



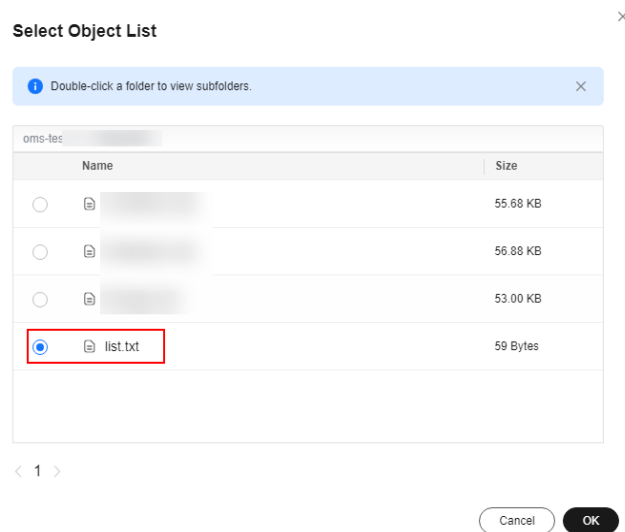
- **Object list**
 - a. In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the object list is stored.

CAUTION

The bucket used for storing object list must be located in the same region as the destination bucket, or you cannot select the object list.

- b. Click **Select** next to **Object List**. In the displayed **Object List File** dialog box, select the .txt file that contains the names of all objects to be migrated, and click **OK**.

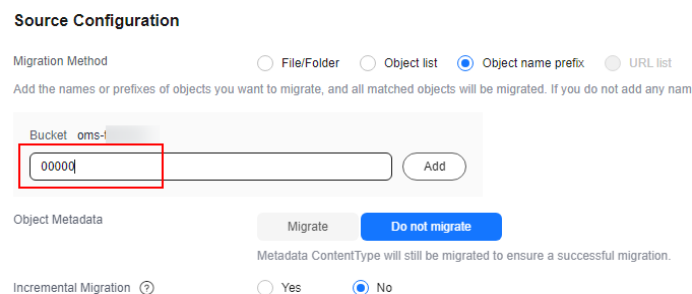
Figure 5-144 Selecting an object list file



- **Object name prefix**

- Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-145 Entering the names or name prefixes of objects to be migrated



- Click **Add**. The system will automatically list the matched objects. You can click **X** to delete the objects that do not need to be migrated from the list.

Step 10 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata ContentType.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 11 Set Incremental Migration.

- 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.

Step 12 (Optional) Set Use Source Custom Domain Name based on [Table 5-70](#).

Use Source Custom Domain Name Yes No

Transfer Protocol HTTP HTTPS

Custom Bucket Domain Name

Enable CDN Authentication Yes No

SAS Token

Table 5-70 Parameters

Parameter	Configuration
Use Source Custom Domain Name	<p>This option is deselected by default.</p> <p>If the default domain name cannot meet your migration requirements, then if the source cloud service provider supports custom domain names, you can bind a custom domain name to the source bucket, and enable the CDN service on the source platform to reduce data download fees.</p> <p>NOTE If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.</p> <ol style="list-style-type: none"> 1. Select a transmission protocol for Transfer Protocol. <p>NOTE HTTPS is more secure than HTTP and is recommended.</p> <ol style="list-style-type: none"> 2. Enter a custom domain name of the bucket in the Custom Bucket Domain Name box.
Enable CDN Authentication	<p>This option is deselected by default.</p> <p>If you have enabled CDN authentication on Azure, select this option and enter the SAS token.</p>
Check	<p>Click Check to check whether the configuration is correct.</p> <ul style="list-style-type: none"> • If the configuration fails the check, click Details to view the failure causes. • If the configuration passes the check, complete other migration configurations.

Step 13 Configure parameters in the **Destination Configuration** area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

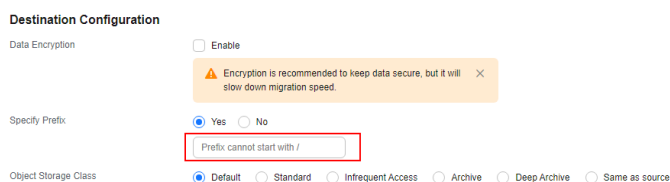
 **NOTE**

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-146 Specifying a prefix



The screenshot shows the 'Destination Configuration' panel. Under 'Data Encryption', the 'Enable' checkbox is unchecked. A warning message states: 'Encryption is recommended to keep data secure, but it will slow down migration speed.' Under 'Specify Prefix', the 'Yes' radio button is selected. The text input field below it contains the error message 'Prefix cannot start with /'. Under 'Object Storage Class', the 'Default' radio button is selected.

 **NOTE**

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. **Object Storage Class**

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 14 Click **Advanced Settings**. Set parameters in the **Advanced Settings** area based on [Table 5-71](#).

Table 5-71 Parameters

Parameter	Configuration
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none">● If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again.● If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none">- For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket.- A maximum of 100,000 failed objects can be recorded in the failed object list. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
Archive Data Restoration	<p>The default value is No.</p> <ul style="list-style-type: none">● If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects.● If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none">● If this option is set to No, no SMN message is sent after the migration.● If this option is set to Yes, you will receive an SMN message informing you of the migration result.
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none">● If you do not need to limit migration traffic, select No.● If you need to limit migration traffic, select Yes.

Parameter	Configuration
Object Overwrite	<ul style="list-style-type: none"> ● 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. Otherwise, the source object will be skipped. ● Never overwrite: The system always skips source objects and keeps their paired destination objects. ● Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. <p>NOTE</p> <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. <ul style="list-style-type: none"> ● Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency check	<ul style="list-style-type: none"> ● By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. ● By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	If there are a large number of tasks, you can set task priorities to determine the migration sequence.

Step 15 Click **Next** to enter the confirmation page.

Step 16 Confirm the source information, destination information, task parameters, and advanced settings, and click **Migrate Now**. A message is displayed, indicating that the migration task is successfully created. The migration task is displayed in the migration task list.

 NOTE

After the task is created, a task ID is generated for quick identification. It is displayed in the upper left corner of the task list. It is composed of the source bucket name, destination bucket name, and time sequence ID.

----End

Related Operations

You can perform the following operations on a created migration task.

Operation	Description
View a migration task.	For details, see Viewing a Migration Task .
Manage a migration task.	For details, see Managing a Migration Task .

5.10.4 Creating a Migration Task Group

This section describes how to create a migration task group.

 CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
- If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.

Scenarios

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.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
 - The source platform account needs the permissions to read data from Azure.
 - The destination platform account needs the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata,

obtain object content, upload objects, list uploaded parts, and restore archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).

- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


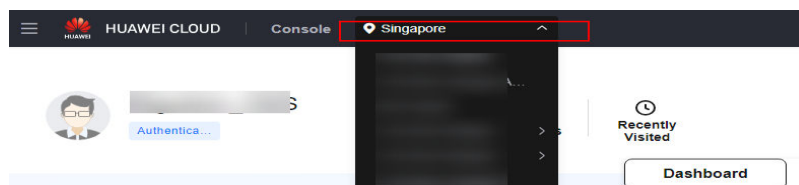
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

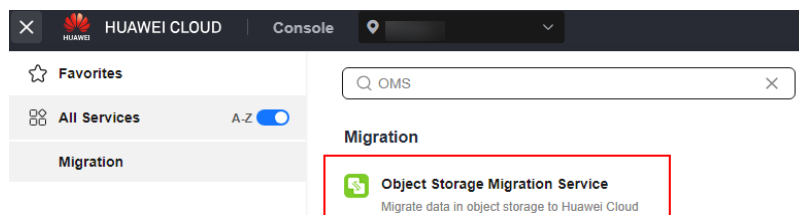
Figure 5-147 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

You can also enter **OMS** in the search box to quickly find OMS.

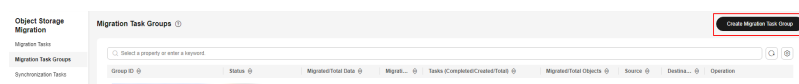
Figure 5-148 Choosing OMS



Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

Step 5 On the **Migration Task Groups** page, click **Create Migration Task** in the upper right corner.

Figure 5-149 Creating a migration task group



Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-150 Select Source/Destination

Step 7 Set parameters in the **Select Source** area. For details, see [Table 5-72](#).

Table 5-72 Parameters for configuring a source bucket

Parameter	Configuration
Data Source	Select Microsoft Azure .
Storage Account	Enter your storage account on Microsoft Azure.
Access Key	Enter the access key of your Azure storage account.
Specify Source Bucket	<p>Disable Specify Source Bucket (This feature is disabled by default.)</p> <ol style="list-style-type: none"> Click List Buckets next to Bucket. All buckets in the account will be listed. Select the bucket you want to migrate from the drop-down list. <p>NOTE If the source account does not have the permissions required to list buckets, enable Specify Source Bucket.</p> <p>Enable Specify Source Bucket.</p> <ol style="list-style-type: none"> Select the region where the source bucket resides from the Region drop-down list. In the Bucket text box, enter the name of the bucket or the directory to be migrated. The directory must have the bucket name included. Click Connect.

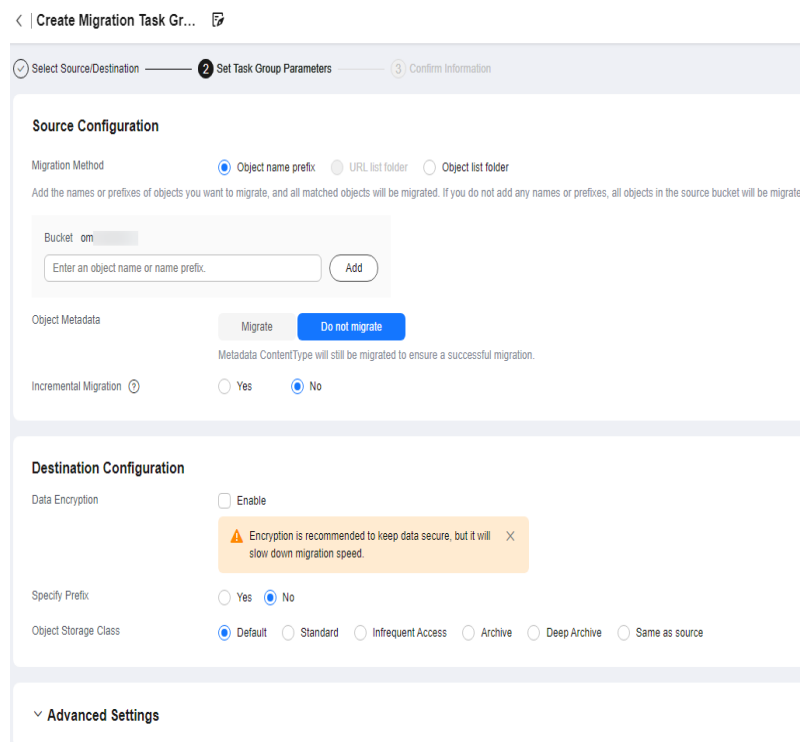
Step 8 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-73](#).

Table 5-73 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 9 Click **Next**. The **Set Task Group Parameters** page is displayed.

Figure 5-151 Setting task group parameters



Step 10 Select a migration method.

- **Object name prefix**
 - a. Enter the names or name prefixes of the objects to be migrated in the text box under **Bucket**. If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

Figure 5-152 Entering the names or name prefixes of objects to be migrated

Source Configuration

Migration Method Object name prefix URL list folder Object list folder

Add the names or prefixes of objects you want to migrate, and all matched objects will be migrated. If you do not add any names or prefixes, all c

Bucket oms-i


00000 Add

Object Metadata

Metadata ContentType will still be migrated to ensure a successful migration.

Incremental Migration Yes No

NOTE

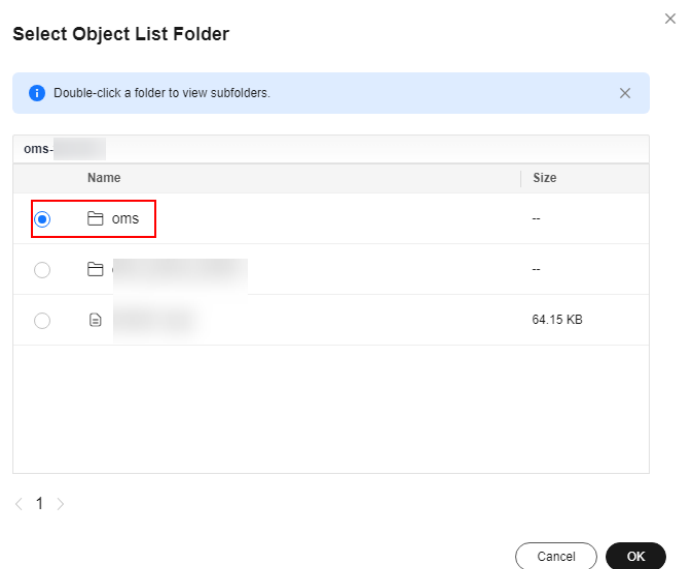
- If the objects you want to migrate are stored in the root directory of the source bucket, add their prefixes directly. If these objects are stored in non-root directories, add their directories and prefixes in the format of *Bucket name/ Folder/ Prefix*.
 - If you do not add any object names or prefixes, all objects in the source bucket will be migrated.
 - The objects to be migrated are recorded in .txt files, and each migration task has a list file. The storage path of the files is **oms/taskgroup/** in the destination bucket. These list files will be retained after the migration, and you can manually delete them.
- b. Click **Add**. The system will automatically list the matched objects. You can click  to delete the objects that do not need to be migrated from the list.
- **Object list folder**
 - a. In the **Object List Bucket (Huawei Cloud)** drop-down list, select the bucket where the list files are stored.

CAUTION

The bucket used for storing the list files must be located in the same region as the destination bucket, or you cannot select the files.

- b. Click **Select** next to **Object List Folder**. In the displayed **Object List File** dialog box, select the folder where the list files are stored, and click **OK**.

Figure 5-153 Selecting the folder where the object list files are located



NOTE

- An object list file cannot exceed 1,024 MB.
- The total number of files in the object list folder cannot exceed 2,000.
- An object list file must be a .txt file, and the **Content-Type** metadata of the file must be **text/plain**.
- An object list file must be in UTF-8 without BOM.
- Each line in the object list file can contain only one object name, and the object name must be URL encoded if it contains special characters or spaces.
- Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names.
- The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail.
- The **Content-Encoding** metadata of each object list file must be left empty, or the migration will fail.
- Archive data can only be accessed and obtained by OMS after it is restored. If the object list files are archive, manually restore them before migration.

Step 11 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata **ContentType**.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 12 Set Incremental Migration.

- 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.

Step 13 (Optional) Set Use Source Custom Domain Name based on Table 5-74.

Use Source Custom Domain Name Yes No

Transfer Protocol HTTP HTTPS

Custom Bucket Domain Name

Enable CDN Authentication Yes No

SAS Token

Table 5-74 Parameters

Parameter	Configuration
Use Source Custom Domain Name	<p>This option is deselected by default.</p> <p>If the default domain name cannot meet your migration requirements, then if the source cloud service provider supports custom domain names, you can bind a custom domain name to the source bucket, and enable the CDN service on the source platform to reduce data download fees.</p> <p>NOTE If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.</p> <ol style="list-style-type: none"> 1. Select a transmission protocol for Transfer Protocol. <p>NOTE HTTPS is more secure than HTTP and is recommended.</p> <ol style="list-style-type: none"> 2. Enter a custom domain name of the bucket in the Custom Bucket Domain Name box.
Enable CDN Authentication	<p>This option is deselected by default.</p> <p>If you have enabled CDN authentication on Azure, select this option and enter the SAS token.</p>

Parameter	Configuration
Check	<p>Click Check to check whether the configuration is correct.</p> <ul style="list-style-type: none"> • If the configuration fails the check, click Details to view the failure causes. • If the configuration passes the check, complete other migration configurations.

Step 14 Configure parameters in the **Destination Configuration** area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

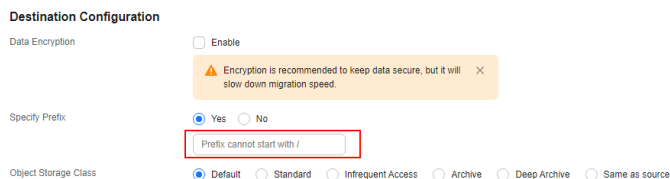
NOTE

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-154 Specifying a prefix



NOTE

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. **Object Storage Class**

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 15 Click **Advanced Settings**. Set parameters in the **Advanced Settings** area based on [Table 5-75](#).

Table 5-75 Advanced settings

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none">• If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again.• If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none">- For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket.- A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
Archive Data Restoration	<p>The default value is No.</p> <ul style="list-style-type: none">• If this option is set to No, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects.• If this option is set to Yes, the system automatically restores and migrates archive objects.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none">• If this option is set to No, no SMN message is sent after the migration.• If this option is set to Yes, you will receive an SMN message informing you of the migration results.
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none">• If you do not need to limit migration traffic, select No.• If you need to limit migration traffic, select Yes.

Parameter	Description
Object Overwrite	<ul style="list-style-type: none"> ● 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. Otherwise, the source object will be skipped. ● Never overwrite: The system always skips source objects and keeps their paired destination objects. ● Overwrite if different CRC64 checksum: If a source object has a CRC64 checksum different from the paired destination object, the source object will overwrite the destination object. Otherwise, the source object will be skipped. If either of them does not have a CRC64 checksum, their sizes and last modification times are checked. <p>NOTE</p> <ul style="list-style-type: none"> - This option is only available for migration on Huawei Cloud or from Alibaba Cloud or Tencent Cloud. - This option is applied only when the source object has the same encryption status as the destination one. <ul style="list-style-type: none"> ● Always overwrite: The system always allows source objects to overwrite their paired destination objects.
Consistency check	<ul style="list-style-type: none"> ● By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. ● By CRC64 checksum: The system checks object consistency with CRC64 checksums. If a source object and the paired destination object have CRC64 checksums, the checksums are checked. Otherwise, their sizes and last modification times are checked.
Priority	If there are a large number of tasks, you can set task priorities to determine the migration sequence.

Step 16 Click **Next** to enter the confirmation page.

Step 17 Confirm the source information, destination information, task group parameters, and advanced settings, and click **Migrate Now**. A message is displayed indicating

that the task group has been submitted. The task group is displayed in the migration task group list.

----End

Related Operations

You can perform the following operations on a created migration task group.

Operation	Description
View a migration task group.	For details, see Viewing a Migration Task .
Manage a migration task group.	For details, see Managing a Migration Task .

5.11 Migrating Data from HTTP/HTTPS Sources to Huawei Cloud OBS

5.11.1 Background

This tutorial describes how to migrate web page data to Huawei Cloud OBS.

As an online data migration service, Huawei Cloud OMS helps you migrate data from third-party data storage to Huawei Cloud OBS or between OBS buckets.

When you use OMS, you only need to specify a source data address and a destination OBS data address on the console, and then create a migration task or migration task group. For details about the differences between a migration task and a migration task group, see [What Are the Application Scenarios of Migration Tasks and Migration Task Groups?](#) After the migration task starts, you can view and manage it on the console.

Service Cutover

If service cutover is involved, see [Service Cutover](#) for more information.

⚠ CAUTION

You need to choose a cutover method based your requirements. The preceding solutions are for reference only.

Constraints

Use of OMS is limited as follows.

Table 5-76 OMS constraints

Item	Constraint
Objects with multiple versions	By default, OMS migrates only the latest version of objects in source buckets.
Storage class of destination buckets	The storage class of destination buckets can only be standard or infrequent access. You can change the storage class of destination buckets after the migration is complete.
Migration network	Only migrations over the Internet are supported.
Metadata migration	Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded. NOTE Even if you choose not to migrate metadata, the Content-Type metadata will still be migrated to ensure that the migration runs properly.
Migration scope	A single migration task or migration task group can only migrate data of one bucket. If data of multiple buckets needs to be migrated, you need to create multiple tasks or task groups.
Migration speed	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 transmission distance over the Internet 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. If more concurrent migrations are required, contact OMS technical support.
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: <ul style="list-style-type: none">• Create migration tasks after the restoration is complete.• Configure a validity period for restored data based on the total amount of data to be migrated. This helps prevent migration failures because restored data becomes archived again during the migration.• Pay your source cloud vendor for restoring archived data. To learn about the pricing details, contact your source cloud vendor.

Item	Constraint
Migration tasks	<p>A maximum of five concurrent migration tasks are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.</p>
	<p>A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.</p>
Migration task groups	<p>A maximum of five concurrent migration task groups are allowed for your account per region.</p> <p>NOTE If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.</p>
Synchronization tasks	<p>Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority.</p> <p>A maximum of five concurrent synchronization tasks are allowed for your account per region.</p>
Object list files	<ul style="list-style-type: none"> • An object list file cannot exceed 1,024 MB. • An object list file must be a .txt file, and its metadata Content-Type must be text/plain. • An object list file must be in UTF-8 without BOM. • Each line in an object list file can contain only one object name, and the object name must be URL encoded. • Spaces are not allowed in each line in an object list file. Spaces may cause migration failures because they may be mistakenly identified as object names. • The length of each line in an object list file cannot exceed 65,535 characters, or the migration will fail. • The Content-Encoding metadata of an object list file must be left empty, or the migration will fail.

Item	Constraint
URL list files	<ul style="list-style-type: none"> ● A URL list file cannot exceed 1,024 MB. ● A URL list file must be a .txt file, and its metadata Content-Type must be text/plain. ● A URL list file must be in UTF-8 without BOM. ● Each line in a URL list file can contain only one URL and one destination object name. ● The length of each line in a URL list file cannot exceed 65,535 characters, or the migration will fail. ● The Content-Encoding metadata of a URL list file must be left empty, or the migration will fail. ● Spaces are not allowed in each line in a URL list file. Spaces may cause migration failures because they may be mistakenly identified as object names. ● In a URL list file, each line uses a tab character (\t) to separate the URL and destination object name. The format is [<i>URL</i>][<i>Tab character</i>][<i>Destination object name</i>]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: <pre style="background-color: #f0f0f0; padding: 5px;">http://xxx.xxx.xxx.xxx.com/doc/thefile2.txt doc/thefile2.txt http:// xxx.xxx.xxx.xxx.com/the%20file.txt the%20file.txt http://xxx.xxx.xxx.xxx.com/the%20file2.txt the+file2.txt http://xxx.xxx.xxx.xxx.com/doc/thefile.txt doc/thefile.txt</pre> <p>CAUTION The URL encoding starts from the second character after the domain name in a line. Do not encode the protocol header, domain name, or slash before or after the domain name. Otherwise, the format verification will fail.</p> <p>In each line, use a tab character (Tab key on the keyboard) to separate the URL and the destination object name. Do not use spaces.</p> <p>In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named doc/the file2.txt, the file.txt, the file2.txt, and doc/thefile.txt.</p>
Failed object list files	<p>A maximum of 100,000 failed objects can be recorded in a failed object list file.</p> <p>NOTE If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.</p>

5.11.2 Preparing for Migration

Before using OMS to migrate data between OBS buckets, make preparations by referring to this section.

Registering a HUAWEI ID

[Register a HUAWEI ID and enable Huawei Cloud services.](#)

NOTE

[Real-name authentication](#) is required for migrations to regions within the Chinese mainland.

Creating an AK/SK Pair for Your Huawei Cloud Account and Obtaining the Required Permissions

- Destination (Huawei Cloud): Create an AK/SK pair for the destination account and obtain the required permissions. For more information, see [Creating an Access Key \(AK/SK\)](#) and [Destination Permissions](#).

Creating a Destination OBS Bucket

Create an OBS bucket for storing the migrated data. For details, see [Creating a Bucket](#).

Creating URL Lists and Uploading Them to an OBS Bucket

If you need to create a migration task, write the URLs and destination names of the files to be migrated into a URL list, and store the list in an OBS bucket that is in the same region as the destination bucket.

If you need to create a migration task group, write the URLs and destination names of the files to be migrated into multiple URL lists, and store the lists in a folder in an OBS bucket that is in the same region as the destination bucket. The folder can store only the object list files.

CAUTION

The bucket used for storing the URL list must be in the same region as the destination bucket, or you cannot select this list.

5.11.3 Creating a Migration Task

This section describes how to create a migration task.

CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
 - If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.
-

Scenario

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.

NOTE

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.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the destination platform account.
 - The destination platform account needs the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata, obtain object content, upload objects, list uploaded parts, and restore archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).
- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


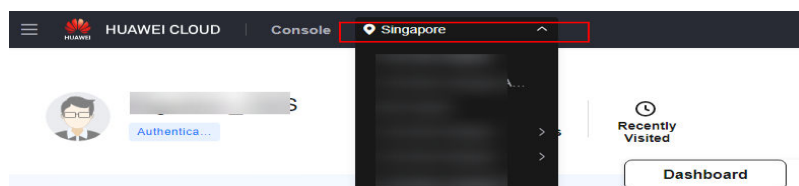
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

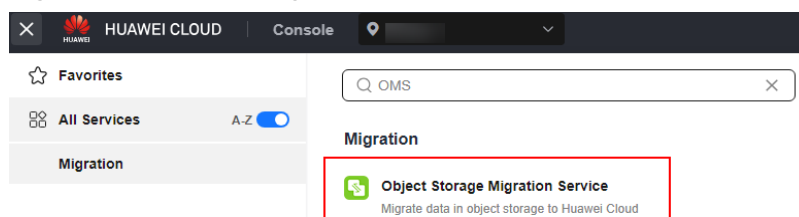
Figure 5-155 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

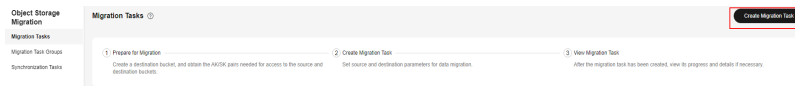
You can also enter **OMS** in the search box to quickly find OMS.

Figure 5-156 Choosing OMS



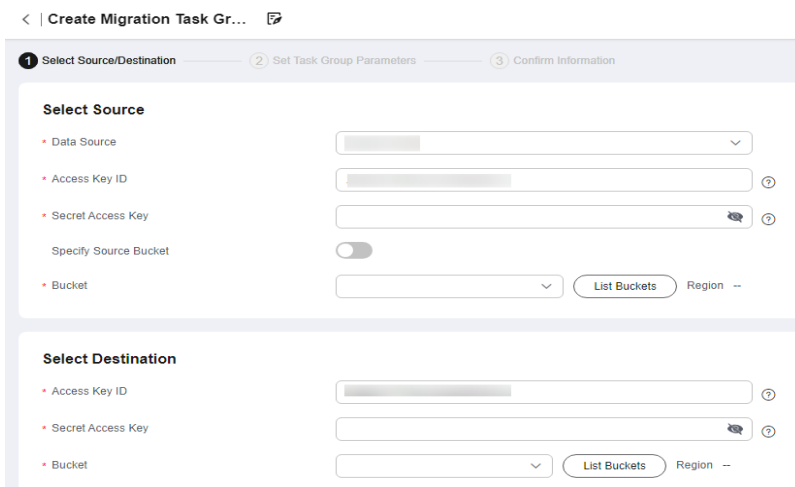
Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 5-157 Creating a migration task



Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

Figure 5-158 Select Source/Destination



Step 6 In the **Select Source** area, select **HTTP/HTTPS data sources** for **Data Source**.

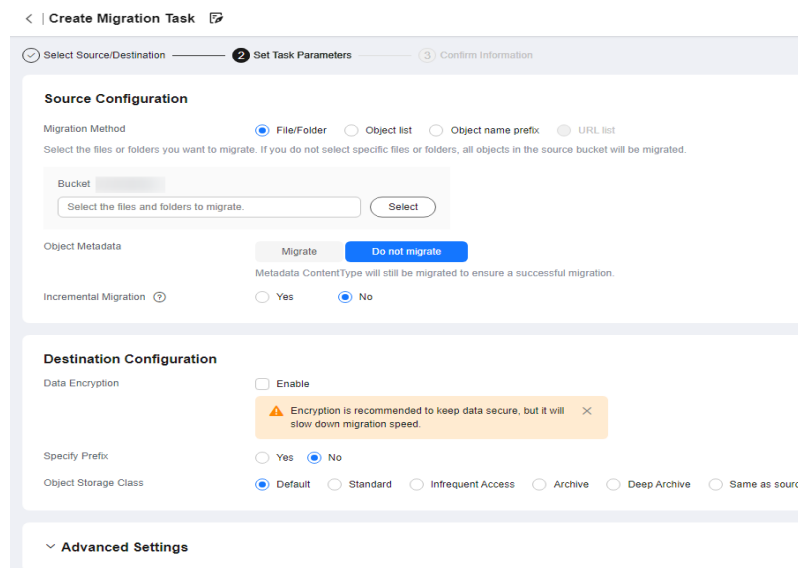
Step 7 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-77](#).

Table 5-77 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 8 On the displayed **Set Task Parameters** page, configure the task parameters.

Figure 5-159 Setting task parameters



Step 9 Select **URL List**.

1. In the **URL List Bucket (Huawei Cloud)** drop-down list, select the bucket where the URL list is stored.

CAUTION

The bucket used for storing the URL list must be in the same region as the destination bucket, or you cannot select this list.

2. Click **Select** next to **Select a URL List File**. In the displayed dialog box, select the URL list and click **OK**.

Step 10 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata ContentType.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 11 Set **Incremental Migration**.

- 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.

Step 12 Configure parameters in the **Destination Configuration** area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.

- If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
- If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

NOTE

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. Specify Prefix

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-160 Specifying a prefix

The screenshot shows the 'Destination Configuration' interface. Under 'Data Encryption', the 'Enable' checkbox is unchecked. A warning message states: 'Encryption is recommended to keep data secure, but it will slow down migration speed.' Under 'Specify Prefix', the 'Yes' radio button is selected. The text input field contains a red box around the text 'Prefix cannot start with /'. Under 'Object Storage Class', the 'Default' radio button is selected.

NOTE

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. Object Storage Class

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 13 Click **Advanced Settings**. Set parameters in **Advanced Settings** based on [Table 5-78](#).

Table 5-78 Parameters

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none"> ● If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again. ● If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none"> - For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket. - A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none"> ● If this option is set to No, no SMN message is sent after the migration. ● If this option is set to Yes, you will receive an SMN message informing you of the migration results.
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none"> ● If you do not need to limit migration traffic, select No. ● If you need to limit migration traffic, select Yes.

Parameter	Description
Object Overwrite	<ul style="list-style-type: none"> • 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. Otherwise, the source object will be skipped. • 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.
Consistency Check	<ul style="list-style-type: none"> • By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. • No required: <ul style="list-style-type: none"> – This option takes effect for source objects whose sizes cannot be obtained using the content-length field in the standard HTTP protocol. These source objects will overwrite their paired destination objects directly. – If the size of a source object can be obtained, its size and last modification time will be checked.
Priority	If there are a large number of tasks, you can set task priorities to determine the migration sequence.

Step 14 Click **Next** to enter the confirmation page.

Step 15 Confirm the source information, destination information, task parameters, and advanced settings, and click **Migrate Now**. A message is displayed, indicating that the migration task is successfully created. The migration task is displayed in the migration task list.

 **NOTE**

After the task is created, a task ID is generated for quick identification. It is displayed in the upper left corner of the task list. It is composed of the source bucket name, destination bucket name, and time sequence ID.

----End

Related Operations

You can perform the following operations on a created migration task.

Operation	Description
View a migration task.	For details, see Viewing a Migration Task .
Manage a migration task.	For details, see Managing a Migration Task .

5.11.4 Creating a Migration Task Group

This section describes how to create a migration task group.

CAUTION

- By default, if a task stays in waiting state for more than 30 days, OMS automatically puts the task into **Failed** state and clears the AK/SK pair used by the task. To prevent task failures caused by blocking, do not create tasks too frequently.
 - If an object is larger than 500 GB, migrating it takes a long time. You can [submit a service ticket](#) to whitelist the object for migration in segments.
-

Scenarios

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.

Prerequisites

- You have [registered a HUAWEI ID and enabled Huawei Cloud services](#).
- You have obtained the AK/SK pairs and required permissions for the destination platform account.
 - The destination platform account needs the permissions required to list buckets, obtain bucket locations, list objects, obtain object metadata, obtain object content, upload objects, list uploaded parts, and restore archive objects. For details about how to obtain these permissions, see [Destination Permissions](#).
- You have created at least one bucket on OBS.
- You have created less than 1,000,000 migration tasks within the past 24 hours.
- You have less than 1,000,000 migration tasks in **Waiting** state.

Procedure

Step 1 Log in to the Huawei Cloud [console](#).


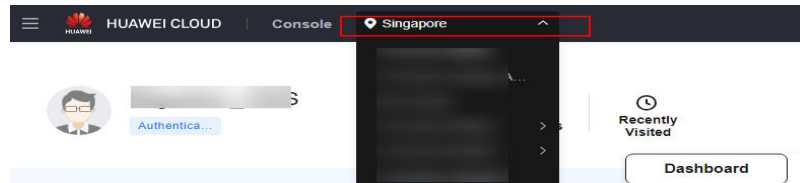
Step 2 Click  in the upper left corner and select the region where the destination bucket is located from the drop-down list.

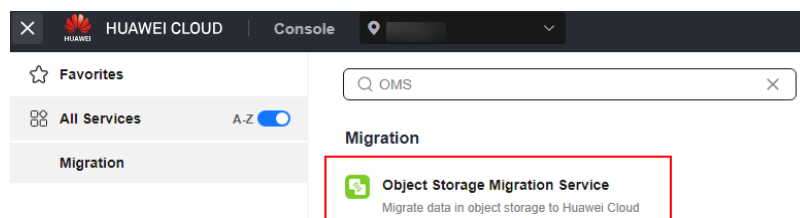
Figure 5-161 Selecting the region where the destination bucket is located



Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.

You can also enter **OMS** in the search box to quickly find OMS.

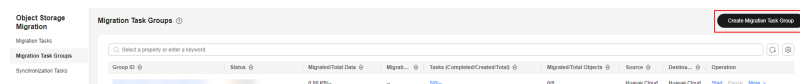
Figure 5-162 Choosing OMS



Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

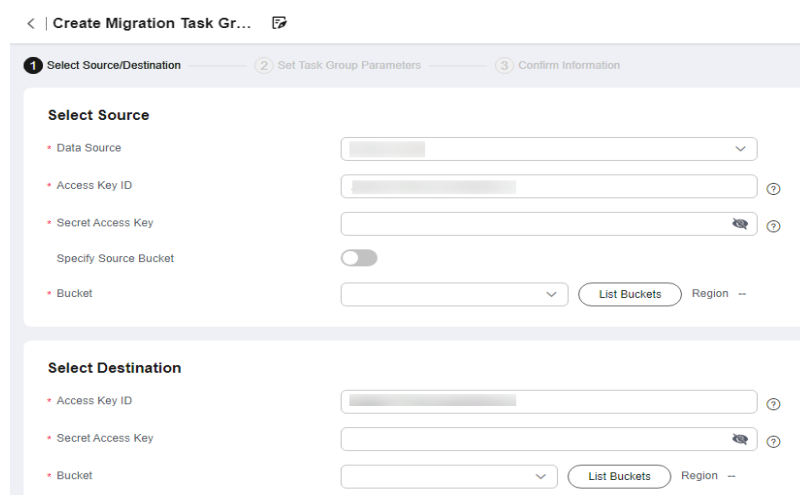
Step 5 On the **Migration Task Groups** page, click **Create Migration Task** in the upper right corner.

Figure 5-163 Creating a migration task group



Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-164 Select Source/Destination



Step 7 In the **Select Source** area, select **HTTP/HTTPS data sources** for **Data Source**.

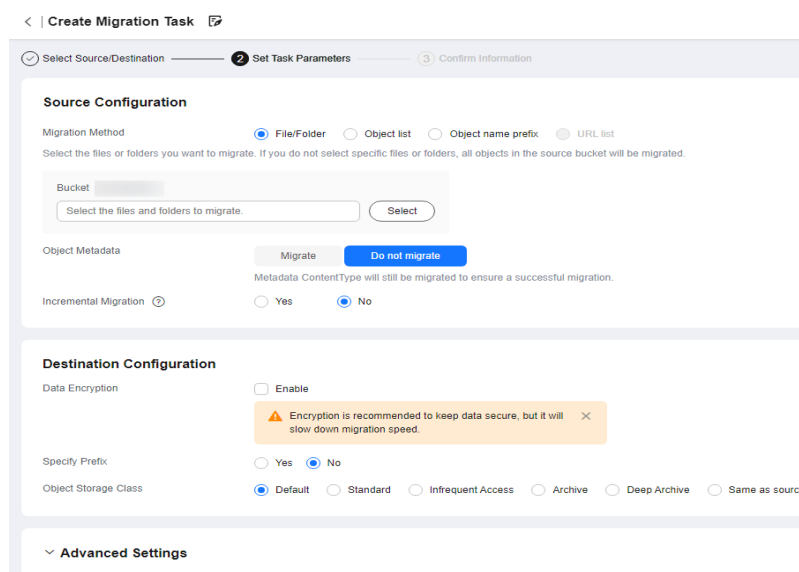
Step 8 Set parameters in the **Select Destination** area and click **Next**. For details, see [Table 5-79](#).

Table 5-79 Parameters for configuring a destination bucket

Parameter	Configuration
Access Key ID	Enter the AK for the Huawei Cloud account to which the destination bucket belongs.
Secret Access Key	Enter the SK for the Huawei Cloud account to which the destination bucket belongs. Click List Buckets .
Bucket	Select a destination OBS bucket for storing the migrated data.

Step 9 On the displayed **Set Task Parameters** page, configure the task parameters.

Figure 5-165 Setting task parameters



Step 10 Select **URL List Folder**.

1. In the **URL List Bucket (Huawei Cloud)** drop-down list, select the bucket where the list files are stored.

CAUTION

The bucket used for storing the URL lists must be in the same region as the destination bucket, or you cannot select these lists.

2. Click **Select** next to **Select a URL List File**. In the displayed dialog box, select the folder for storing the URL list files and click **OK**.

Step 11 Determine whether to migrate metadata.

- If you select **Do not migrate**, OMS will only migrate the metadata ContentType.
- If you select **Migrate**, OMS will migrate supported metadata.

NOTICE

Only English characters, numbers, and hyphens (-) in metadata can be migrated. Chinese characters and symbols cannot be migrated, regardless of whether they are encoded.

Step 12 Set **Incremental Migration**.

- 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.

Step 13 Configure parameters in the **Destination Configuration** area.

1. **Data Encryption** If the destination bucket is a parallel file system (PFS), KMS encryption is not supported.
 - If **KMS** is not selected, all migrated objects will not be encrypted before they are stored into the destination bucket.
 - If **KMS** is selected, all migrated objects will be encrypted before they are stored into the destination bucket.

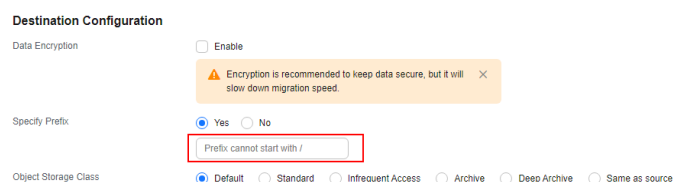
 **NOTE**

- Using KMS to encrypt migrated data may decrease the migration speed by about 10%.
- Data encryption is only available if KMS encryption is supported in the region you are migrating to.

2. **Specify Prefix**

- If this option is set to **No**, the names of objects remain unchanged before and after the migration.
- If this option is set to **Yes**, you can specify a prefix, and the configured prefix will be added to the names of objects migrated to the destination bucket.

Figure 5-166 Specifying a prefix



 NOTE

To learn how to use **Specify Prefix**, see [Adding a Name Prefix or Path Prefix to Migrated Objects](#).

3. **Object Storage Class**

Choose the storage class that your data will be migrated to. For details about storage classes, see [Introduction to Storage Classes](#).

Step 14 Click **Advanced Settings**. Set parameters in **Advanced Settings** based on [Table 5-80](#).

Table 5-80 Parameters

Parameter	Description
Failed Object Record	<p>The default value is Yes.</p> <ul style="list-style-type: none"> • If this option is set to No, the system will not record the objects that fail to be migrated. If the migration fails and needs to be retried, all objects in the source bucket need to be migrated again. • If this option is set to Yes, the system will record the objects that fail to be migrated. If the migration fails and needs to be retried, only failed objects need to be migrated again. <p>NOTE</p> <ul style="list-style-type: none"> - For a migration task, no matter it is contained in a task group or not, the objects that fail to be migrated are recorded in a list named after the task name, and the list is uploaded to the oms/failed_object_lists/ directory of the destination bucket. - A maximum of 100,000 failed objects can be recorded in a failed object list file. If more than 100,000 objects fail to be migrated in a migration task, you are advised to rectify the fault based on the existing failed object list and perform the migration again.
SMN Notification	<p>Determine whether to use SMN to get notifications about migration results. The default value is No.</p> <ul style="list-style-type: none"> • If this option is set to No, no SMN message is sent after the migration. • If this option is set to Yes, you will receive an SMN message informing you of the migration results.

Parameter	Description
Traffic Limiting	<p>Set the maximum bandwidth for the migration task during a specified period of time.</p> <ul style="list-style-type: none"> • If you do not need to limit migration traffic, select No. • If you need to limit migration traffic, select Yes.
Object Overwrite	<ul style="list-style-type: none"> • 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. Otherwise, the source object will be skipped. • 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.
Consistency Check	<ul style="list-style-type: none"> • By size and last modification time: This is the default setting. The system checks object consistency with object size and last modification time. • No required: <ul style="list-style-type: none"> – This option takes effect for source objects whose sizes cannot be obtained using the content-length field in the standard HTTP protocol. These source objects will overwrite their paired destination objects directly. – If the size of a source object can be obtained, its size and last modification time will be checked.
Priority	<p>If there are a large number of tasks, you can set task priorities to determine the migration sequence.</p>

Step 15 Click **Next** to enter the confirmation page.

Step 16 Confirm the source information, destination information, task group parameters, and advanced settings, and click **Migrate Now**. A message is displayed indicating that the task group has been submitted. The task group is displayed in the migration task group list.

----End

Related Operations

You can perform the following operations on a created migration task group.

Operation	Description
View a migration task group.	For details, see Viewing a Migration Task .
Manage a migration task group.	For details, see Managing a Migration Task .

6 Configuring Synchronization Requests on Source Platforms

6.1 Configuring Alibaba Cloud OSS to Send Synchronization Requests

Background

After you create a synchronization task, you need to configure the source object storage service to request OMS to migrate newly added and modified source objects. To do so, you can use a message notification or function service on the source platform.

Desired Effects

- The names of newly added and modified objects in the source bucket can be obtained in real time.
- The OMS synchronization API can be invoked to migrate the newly added and modified objects to the destination bucket.

Configuration Methods

The following describes how to use the function service on the source platform to send synchronization requests.

Procedure

- Step 1** Log in to the Alibaba Cloud console. In the left navigation pane, choose **Functions**.
- Step 2** In the top menu bar, select a region. On the **Functions** page, click **Create Function**.

CAUTION

The created function must be in the same region as the source bucket.

- Step 3** On the **Create Function** page, select **Event Function**, set the following parameters, and click **Create**.

Table 6-1 Parameters required for creating an event function

Parameter	Description
Function Name	Enter a name.
Runtime	Select Python 3 .
Code Upload Method	Select Upload ZIP . Compress the index.py and signer.py files into a .zip package and upload it.

- **index.py**

```
# -*- coding: utf-8 -*-
import logging
import json

import requests
import oss2
import signer

# Alibaba Cloud information
# Do not use the source bucket as the log bucket.
LOG_BUCKET = "****oss log bucket****"
OSS_ENDPOINT = "****oss endpoint****"

# Huawei Cloud information
# Use the AK/SK pair of an account that has only the required IAM and OMS permissions.
HW_AK = "****Access Key****"
HW_SK = "****Secret Access Key****"
# The address for receiving synchronization requests. Get it from the synchronization task details.
SYNC_URL = "****Synchronization Request Receiving Address****"

def handler(event, context):
    logger = logging.getLogger()

    # Initialize an OSS client instance.
    creds = context.credentials
    auth = oss2.StsAuth(creds.access_key_id, creds.access_key_secret, creds.security_token)
    oss_client = oss2.Bucket(auth, OSS_ENDPOINT, LOG_BUCKET)

    # Parse OSS events and synchronize them to OMS.
    send_oms_result = False
    success_prefix = "oms_source_record/{0}/success_object/".format(SYNC_URL.split("/")[-2])
    failed_prefix = "oms_source_record/{0}/failed_object/".format(SYNC_URL.split("/")[-2])
    evt = json.loads(event)["events"][0]
    object_key = evt["oss"]["object"]["key"]
    try:
        logger.info("start sync to oms!")
        resp = send_oms(object_key)
        if resp.status_code == 200:
            logger.info("call oms api success, object_key: {0}".format(object_key))
            record_list(logger, oss_client, success_prefix, object_key)
            send_oms_result = True
```



```
    else:
        logger.error(
            "call oms api fail, status_code: {0}, response_msg: {1}".format(resp.status_code,
str(resp.content)))
        record_list(logger, oss_client, failed_prefix, object_key)
    except:
        logger.error("Internet error, call oms api failed!")
        record_list(logger, oss_client, failed_prefix, object_key)
    return send_oms_result

def send_oms(object_key):
    """
    After APIG authentication succeeds, the changed object information in the OSS bucket is sent to
    OMS. For details about API Gateway authentication, see https://support.huaweicloud.com/intl/en-us/devg-apisign/api-sign-sdk-python.html.
    :param object_key: The name of a new or modified object.
    :return: The response result.
    """
    sig = signer.Signer()
    sig.Key = HW_AK
    sig.Secret = HW_SK

    url = SYNC_URL
    body = json.dumps({"object_keys": [object_key]})
    r = signer.HttpRequest("POST", url)
    r.headers = {"content-type": "application/json"}
    r.body = body
    sig.Sign(r)
    resp = requests.request(r.method, r.scheme + "://" + r.host + r.uri, headers=r.headers, data=r.body)
    return resp

def record_list(logger, log_bucket_client, prefix, object_key):
    """
    Record the requested and unrequested objects.
    :param log_bucket_client: The log bucket client.
    :param prefix: Prefixes of the requested and unrequested objects.
    :param object_key: The names of requested and unrequested objects.
    :return: None
    """
    record_key = prefix + object_key
    try:
        resp = log_bucket_client.put_object(record_key, "")
        if resp.status == 200:
            logger.info("record success or failed object success.")
        else:
            logger.error("record success or failed object failed, object_key: {0}".format(object_key))
    except:
        logger.error("record success or failed object failed, object_key: {0}".format(object_key))
```

- **signer.py**

```
import copy
import sys
import hashlib
import hmac
import binascii
from datetime import datetime

if sys.version_info.major < 3:
    from urllib import quote, unquote

def hmacsha256(keyByte, message):
    return hmac.new(keyByte, message, digestmod=hashlib.sha256).digest()

# Create a "String to Sign".
def StringToSign(canonicalRequest, t):
    bytes = HexEncodeSHA256Hash(canonicalRequest)
```

```
        return "%s\n%s\n%s" % (Algorithm, datetime.strftime(t, BasicDateFormat), bytes)
else:
    from urllib.parse import quote, unquote

    def hmacsha256(keyByte, message):
        return hmac.new(keyByte.encode('utf-8'), message.encode('utf-8'),
            digestmod=hashlib.sha256).digest()

    # Create a "String to Sign".
    def StringToSign(canonicalRequest, t):
        bytes = HexEncodeSHA256Hash(canonicalRequest.encode('utf-8'))
        return "%s\n%s\n%s" % (Algorithm, datetime.strftime(t, BasicDateFormat), bytes)

def urlencode(s):
    return quote(s, safe='~')

def findHeader(r, header):
    for k in r.headers:
        if k.lower() == header.lower():
            return r.headers[k]
    return None

# HexEncodeSHA256Hash returns hexcode of sha256
def HexEncodeSHA256Hash(data):
    sha256 = hashlib.sha256()
    sha256.update(data)
    return sha256.hexdigest()

# HWS API Gateway Signature
class HttpRequest:
    def __init__(self, method="", url="", headers=None, body=""):
        self.method = method
        spl = url.split("://", 1)
        scheme = 'http'
        if len(spl) > 1:
            scheme = spl[0]
            url = spl[1]
        query = {}
        spl = url.split('?', 1)
        url = spl[0]
        if len(spl) > 1:
            for kv in spl[1].split("&"):
                spl = kv.split("=", 1)
                key = spl[0]
                value = ""
                if len(spl) > 1:
                    value = spl[1]
                if key != "":
                    key = unquote(key)
                    value = unquote(value)
                    if key in query:
                        query[key].append(value)
                    else:
                        query[key] = [value]
        spl = url.split('/', 1)
        host = spl[0]
        if len(spl) > 1:
            url = '/' + spl[1]
        else:
            url = '/'

        self.scheme = scheme
```

```
self.host = host
self.uri = url
self.query = query
if headers is None:
    self.headers = {}
else:
    self.headers = copy.deepcopy(headers)
if sys.version_info.major < 3:
    self.body = body
else:
    self.body = body.encode("utf-8")

BasicDateFormat = "%Y%m%dT%H%M%SZ"
Algorithm = "SDK-HMAC-SHA256"
HeaderXDate = "X-Sdk-Date"
HeaderHost = "host"
HeaderAuthorization = "Authorization"
HeaderContentSha256 = "x-sdk-content-sha256"

# Build a CanonicalRequest from a regular request string
#
# CanonicalRequest =
# HTTPRequestMethod + '\n' +
# CanonicalURI + '\n' +
# CanonicalQueryString + '\n' +
# CanonicalHeaders + '\n' +
# SignedHeaders + '\n' +
# HexEncode(Hash(RequestPayload))
def CanonicalRequest(r, signedHeaders):
    canonicalHeaders = CanonicalHeaders(r, signedHeaders)
    hexencode = findHeader(r, HeaderContentSha256)
    if hexencode is None:
        hexencode = HexEncodeSHA256Hash(r.body)
    return "%s\n%s\n%s\n%s\n%s\n%s\n%s" % (r.method.upper(), CanonicalURI(r),
    CanonicalQueryString(r),
        canonicalHeaders, ";".join(signedHeaders), hexencode)

def CanonicalURI(r):
    pattens = unquote(r.uri).split('/')
    uri = []
    for v in pattens:
        uri.append(urlencode(v))
    urlpath = "/".join(uri)
    if urlpath[-1] != '/':
        urlpath = urlpath + "/" # always end with /
    # r.uri = urlpath
    return urlpath

def CanonicalQueryString(r):
    keys = []
    for key in r.query:
        keys.append(key)
    keys.sort()
    a = []
    for key in keys:
        k = urlencode(key)
        value = r.query[key]
        if type(value) is list:
            value.sort()
            for v in value:
                kv = k + "=" + urlencode(str(v))
                a.append(kv)
        else:
            kv = k + "=" + urlencode(str(value))
            a.append(kv)
```

```
return '&'.join(a)

def CanonicalHeaders(r, signedHeaders):
    a = []
    __headers = {}
    for key in r.headers:
        keyEncoded = key.lower()
        value = r.headers[key]
        valueEncoded = value.strip()
        __headers[keyEncoded] = valueEncoded
        if sys.version_info.major == 3:
            r.headers[key] = valueEncoded.encode("utf-8").decode('iso-8859-1')
    for key in signedHeaders:
        a.append(key + ":" + __headers[key])
    return '\n'.join(a) + "\n"

def SignedHeaders(r):
    a = []
    for key in r.headers:
        a.append(key.lower())
    a.sort()
    return a

# Create the HWS Signature.
def SignStringToSign(stringToSign, signingKey):
    hm = hmacsha256(signingKey, stringToSign)
    return binascii.hexlify(hm).decode()

# Get the finalized value for the "Authorization" header. The signature
# parameter is the output from SignStringToSign
def AuthHeaderValue(signature, AppKey, signedHeaders):
    return "%s Access=%s, SignedHeaders=%s, Signature=%s" % (
        Algorithm, AppKey, ";".join(signedHeaders), signature)

class Signer:
    def __init__(self):
        self.Key = ""
        self.Secret = ""

    def Verify(self, r, authorization):
        if sys.version_info.major == 3 and isinstance(r.body, str):
            r.body = r.body.encode('utf-8')
        headerTime = findHeader(r, HeaderXDate)
        if headerTime is None:
            return False
        else:
            t = datetime.strptime(headerTime, BasicDateFormat)

        signedHeaders = SignedHeaders(r)
        canonicalRequest = CanonicalRequest(r, signedHeaders)
        stringToSign = StringToSign(canonicalRequest, t)
        return authorization == SignStringToSign(stringToSign, self.Secret)

# SignRequest set Authorization header
def Sign(self, r):
    if sys.version_info.major == 3 and isinstance(r.body, str):
        r.body = r.body.encode('utf-8')
    headerTime = findHeader(r, HeaderXDate)
    if headerTime is None:
        t = datetime.utcnow()
        r.headers[HeaderXDate] = datetime.strftime(t, BasicDateFormat)
    else:
        t = datetime.strptime(headerTime, BasicDateFormat)
```

```
haveHost = False
for key in r.headers:
    if key.lower() == 'host':
        haveHost = True
        break
if not haveHost:
    r.headers["host"] = r.host
signedHeaders = SignedHeaders(r)
canonicalRequest = CanonicalRequest(r, signedHeaders)
stringToSign = StringToSign(canonicalRequest, t)
signature = SignStringToSign(stringToSign, self.Secret)
authValue = AuthHeaderValue(signature, self.Key, signedHeaders)
r.headers[HeaderAuthorization] = authValue
r.headers["content-length"] = str(len(r.body))
queryString = CanonicalQueryString(r)
if queryString != "":
    r.uri = r.uri + "?" + queryString
```

Step 4 Go to the function details page and on the **Code** tab page, modify the following configuration items in **index.py**.

- LOG_BUCKET = "oss log bucket"
- OSS_ENDPOINT = "oss endpoint"
- HW_AK = "Access Key"
- HW_SK = "Secret Access Key"
- SYNC_URL = "Synchronization Request Receiving Address"

Step 5 On the **Configuration** tab page, choose **Trigger** on the left and click **Create Trigger**. Create an OSS event trigger by referring to [Table 6-2](#) and click **OK**.

Table 6-2 Parameters required for creating a trigger

Parameter	Description
Trigger Type	Choose OSS .
Name	Enter a name.
Version or Alias	Retain the default value.
Bucket Name	Select the source bucket. The bucket must be the one in the synchronization task.
Trigger Event	Retain the default value.
Role Name	Retain the default value.

Step 6 Click the **Test** tab, set **Event Template** to **OSS**, customize an event name, and click **Test Function** to perform the test. If the execution result is **true**, the test is successful. If the test fails, check whether the function parameters are configured correctly and whether you have required permissions.

----End

6.2 Configuring Tencent Cloud COS to Send Synchronization Requests

Background

After you create a synchronization task, you need to configure the source object storage service to request OMS to migrate newly added and modified source objects. To do so, you can use a message notification or function service on the source platform.

Desired Effects

- The names of newly added and modified objects in the source bucket can be obtained in real time.
- The OMS synchronization API can be invoked to migrate the newly added and modified objects to the destination bucket.

Configuration Methods

The following describes how to use the function service on the source platform to send synchronization requests.

Procedure

- Step 1** Log in to the Tencent Cloud Serverless Cloud Function console. In the left navigation pane, choose **Function Service**.
- Step 2** Select a region at the top of the page and click **Create**.

CAUTION

The created function must be in the same region as the source bucket.

- Step 3** On the **Create Function** page, select **Create from scratch**.
 - **Function type:** Select **Event-triggered function**.
 - **Function name:** The function name is automatically populated by default and can be modified as needed.
 - **Runtime environment:** Choose **Python 3.6**
- Step 4** Select **Local ZIP file** for **Submitting method**. Compress the [index.py](#) and [signer.py](#) files into a .zip package, and upload the package.

- **index.py**

```
# -*- coding: utf8 -*-  
  
from qcloud_cos_v5 import CosConfig  
from qcloud_cos_v5 import CosS3Client
```

```
import requests
import os
import json
import logging

import signer

# Tencent Cloud information
# Do not use the source bucket as the log bucket.
LOG_BUCKET = "****cos log bucket****" # Consists of a bucket name and APPID.

# Huawei Cloud information
# Use the AK/SK pair of an account that has only the required IAM and OMS permissions.
HW_AK = "****Access Key****"
HW_SK = "****Secret Access Key****"
# The address for receiving synchronization requests. Get it from the synchronization task details.
SYNC_URL = "****Synchronization Request Receiving Address****"

def main_handler(event, context):
    logger = logging.getLogger()

    # Initialize a COS client instance.
    # Secret ID of a user. You are advised to use the member account key and grant the minimum
    # permissions to reduce risks. For details about how to obtain the member account key, see https://www.tencentcloud.com/en/document/product/598/32675.
    secret_id = "****secret_id****"
    # Secret Key of the user. You are advised to use the member account key and grant the minimum
    # permissions to reduce risks. For details about how to obtain the member account key, see https://www.tencentcloud.com/en/document/product/598/32675.
    secret_key = "****secret_key****"
    # Replace it with the source region. Get it from https://console.cloud.tencent.com/cos5/bucket.
    region = 'ap-beijing'
    # Regions supported by COS. See https://www.tencentcloud.com/en/document/product/436/6224.
    token = None # If a permanent key is used, you do not need to enter the token. If a temporary key
    # is used, you need to enter the token. For details about how to generate and use a temporary key, see
    # https://www.tencentcloud.com/en/document/product/436/14048.
    scheme = 'https' # Specify the protocol used to access COS. The value can be http or https. The
    # default value is https. This parameter is optional.

    config = CosConfig(Region=region, SecretId=secret_id, SecretKey=secret_key, Token=token,
    Scheme=scheme)
    cos_log_client = CosS3Client(config)

    # Parse COS events and synchronize them to OMS.
    send_oms_result = False
    success_prefix = "oms_source_record/{0}/success_object/".format(SYNC_URL.split("/")[-2])
    failed_prefix = "oms_source_record/{0}/failed_object/".format(SYNC_URL.split("/")[-2])
    evt = event["Records"][0]
    object_key = evt["cos"]["cosObject"]["key"]
    try:
        logger.info("start sync to oms!")
        resp = send_oms(object_key)
        if resp.status_code == 200:
            logger.info("call oms api success, object_key: {}".format(object_key))
            record_list(logger, cos_log_client, success_prefix, object_key)
            send_oms_result = True
        else:
            logger.error(
                "call oms api fail, status_code: {0}, response_msg: {1}".format(resp.status_code,
                str(resp.content)))
            record_list(logger, cos_log_client, failed_prefix, object_key)
    except Exception as e:
        logger.error("Internet error, call oms api failed!")
        record_list(logger, cos_log_client, failed_prefix, object_key)
    return send_oms_result

def send_oms(object_key):
```

```
"""
    After APIG authentication succeeds, the changed object information in the COS bucket is sent to
    OMS. For details about API Gateway authentication, see https://support.huaweicloud.com/intl/en-us/devg-apisign/api-sign-sdk-python.html.
    :param object_key: The name of a new or modified object.
    :return: The response result.
    """
    sig = signer.Signer()
    sig.Key = HW_AK
    sig.Secret = HW_SK

    url = SYNC_URL
    body = json.dumps({"object_keys": [object_key]})
    r = signer.HttpRequest("POST", url)
    r.headers = {"content-type": "application/json"}
    r.body = body
    sig.Sign(r)
    resp = requests.request(r.method, r.scheme + "://" + r.host + r.uri, headers=r.headers, data=r.body)
    return resp

def record_list(logger, log_bucket_client, prefix, object_key):
    """
    Record the objects that are successfully migrated to or fail to be migrated to OMS.
    :param log_bucket_client: The log bucket client.
    :param prefix: Prefixes of the requested and unrequested objects.
    :param object_key: The names of requested and unrequested objects.
    :return: None
    """
    record_key = prefix + object_key
    try:
        resp = log_bucket_client.put_object(
            Bucket=LOG_BUCKET,
            Body=b"",
            Key=record_key
        )
        if resp.status == 200:
            logger.info("record success or failed object success.")
        else:
            logger.error("record success or failed object failed, object_key: {}".format(object_key))
    except:
        logger.error("record success or failed object failed, object_key: {}".format(object_key))
```

- **signer.py**

```
import copy
import sys
import hashlib
import hmac
import binascii
from datetime import datetime

if sys.version_info.major < 3:
    from urllib import quote, unquote

def hmacsha256(keyByte, message):
    return hmac.new(keyByte, message, digestmod=hashlib.sha256).digest()

# Create a "String to Sign".
def StringToSign(canonicalRequest, t):
    bytes = HexEncodeSHA256Hash(canonicalRequest)
    return "%s\n%s\n%s" % (Algorithm, datetime.strftime(t, BasicDateFormat), bytes)

else:
    from urllib.parse import quote, unquote

def hmacsha256(keyByte, message):
    return hmac.new(keyByte.encode('utf-8'), message.encode('utf-8'),
```



```
digestmod=hashlib.sha256).digest()

# Create a "String to Sign".
def StringToSign(canonicalRequest, t):
    bytes = HexEncodeSHA256Hash(canonicalRequest.encode('utf-8'))
    return "%s\n%s\n%s" % (Algorithm, datetime.strftime(t, BasicDateFormat), bytes)

def urlencode(s):
    return quote(s, safe='~')

def findHeader(r, header):
    for k in r.headers:
        if k.lower() == header.lower():
            return r.headers[k]
    return None

# HexEncodeSHA256Hash returns hexcode of sha256
def HexEncodeSHA256Hash(data):
    sha256 = hashlib.sha256()
    sha256.update(data)
    return sha256.hexdigest()

# HWS API Gateway Signature
class HttpRequest:
    def __init__(self, method="", url="", headers=None, body=""):
        self.method = method
        spl = url.split("://", 1)
        scheme = 'http'
        if len(spl) > 1:
            scheme = spl[0]
            url = spl[1]
        query = {}
        spl = url.split('?', 1)
        url = spl[0]
        if len(spl) > 1:
            for kv in spl[1].split("&"):
                spl = kv.split("=", 1)
                key = spl[0]
                value = ""
                if len(spl) > 1:
                    value = spl[1]
                if key != "":
                    key = unquote(key)
                    value = unquote(value)
                    if key in query:
                        query[key].append(value)
                    else:
                        query[key] = [value]
        spl = url.split('/', 1)
        host = spl[0]
        if len(spl) > 1:
            url = '/' + spl[1]
        else:
            url = '/'

        self.scheme = scheme
        self.host = host
        self.uri = url
        self.query = query
        if headers is None:
            self.headers = {}
        else:
            self.headers = copy.deepcopy(headers)
        if sys.version_info.major < 3:
```

```
        self.body = body
    else:
        self.body = body.encode("utf-8")

BasicDateFormat = "%Y%m%dT%H%M%SZ"
Algorithm = "SDK-HMAC-SHA256"
HeaderXDate = "X-Sdk-Date"
HeaderHost = "host"
HeaderAuthorization = "Authorization"
HeaderContentSha256 = "x-sdk-content-sha256"

# Build a CanonicalRequest from a regular request string
#
# CanonicalRequest =
# HTTPRequestMethod + '\n' +
# CanonicalURI + '\n' +
# CanonicalQueryString + '\n' +
# CanonicalHeaders + '\n' +
# SignedHeaders + '\n' +
# HexEncode(Hash(RequestPayload))
def CanonicalRequest(r, signedHeaders):
    canonicalHeaders = CanonicalHeaders(r, signedHeaders)
    hexencode = findHeader(r, HeaderContentSha256)
    if hexencode is None:
        hexencode = HexEncodeSHA256Hash(r.body)
    return "%s\n%s\n%s\n%s\n%s\n%s" % (r.method.upper(), CanonicalURI(r),
CanonicalQueryString(r),
                                canonicalHeaders, ",".join(signedHeaders), hexencode)

def CanonicalURI(r):
    pattens = unquote(r.uri).split('/')
    uri = []
    for v in pattens:
        uri.append(urlencode(v))
    urlpath = "/".join(uri)
    if urlpath[-1] != '/':
        urlpath = urlpath + "/" # always end with /
    # r.uri = urlpath
    return urlpath

def CanonicalQueryString(r):
    keys = []
    for key in r.query:
        keys.append(key)
    keys.sort()
    a = []
    for key in keys:
        k = urlencode(key)
        value = r.query[key]
        if type(value) is list:
            value.sort()
            for v in value:
                kv = k + "=" + urlencode(str(v))
                a.append(kv)
        else:
            kv = k + "=" + urlencode(str(value))
            a.append(kv)
    return '&'.join(a)

def CanonicalHeaders(r, signedHeaders):
    a = []
    _headers = {}
    for key in r.headers:
        keyEncoded = key.lower()
```

```
value = r.headers[key]
valueEncoded = value.strip()
__headers[keyEncoded] = valueEncoded
if sys.version_info.major == 3:
    r.headers[key] = valueEncoded.encode("utf-8").decode('iso-8859-1')
for key in signedHeaders:
    a.append(key + ":" + __headers[key])
return '\n'.join(a) + "\n"

def SignedHeaders(r):
    a = []
    for key in r.headers:
        a.append(key.lower())
    a.sort()
    return a

# Create the HWS Signature.
def SignStringToSign(stringToSign, signingKey):
    hm = hmacsha256(signingKey, stringToSign)
    return binascii.hexlify(hm).decode()

# Get the finalized value for the "Authorization" header. The signature
# parameter is the output from SignStringToSign
def AuthHeaderValue(signature, AppKey, signedHeaders):
    return "%s Access=%s, SignedHeaders=%s, Signature=%s" % (
        Algorithm, AppKey, ";".join(signedHeaders), signature)

class Signer:
    def __init__(self):
        self.Key = ""
        self.Secret = ""

    def Verify(self, r, authorization):
        if sys.version_info.major == 3 and isinstance(r.body, str):
            r.body = r.body.encode('utf-8')
        headerTime = findHeader(r, HeaderXDate)
        if headerTime is None:
            return False
        else:
            t = datetime.strptime(headerTime, BasicDateFormat)

        signedHeaders = SignedHeaders(r)
        canonicalRequest = CanonicalRequest(r, signedHeaders)
        stringToSign = StringToSign(canonicalRequest, t)
        return authorization == SignStringToSign(stringToSign, self.Secret)

# SignRequest set Authorization header
def Sign(self, r):
    if sys.version_info.major == 3 and isinstance(r.body, str):
        r.body = r.body.encode('utf-8')
    headerTime = findHeader(r, HeaderXDate)
    if headerTime is None:
        t = datetime.utcnow()
        r.headers[HeaderXDate] = datetime.strftime(t, BasicDateFormat)
    else:
        t = datetime.strptime(headerTime, BasicDateFormat)

    haveHost = False
    for key in r.headers:
        if key.lower() == 'host':
            haveHost = True
            break
    if not haveHost:
        r.headers["host"] = r.host
    signedHeaders = SignedHeaders(r)
```

```
canonicalRequest = CanonicalRequest(r, signedHeaders)
stringToSign = StringToSign(canonicalRequest, t)
signature = SignStringToSign(stringToSign, self.Secret)
authValue = AuthHeaderValue(signature, self.Key, signedHeaders)
r.headers[HeaderAuthorization] = authValue
r.headers["content-length"] = str(len(r.body))
queryString = CanonicalQueryString(r)
if queryString != "":
    r.uri = r.uri + "?" + queryString
```

Step 5 (Optional) In **Advanced configuration**, configure the environment, permission, layer, and network of the function as needed. For more information, see [Function](#).

Step 6 Configure a trigger. Select **Custom** for **Create trigger**.

- **Trigger method:** Select **COS triggering**.
- **COS Bucket:** Select the source bucket in the synchronization task.
- **Event Type:** Select **All Creation Events**.

Step 7 Click Finish. The function is created. You can view the created function on the **Function Service** page.

Step 8 Click the name of the target function. On the **Function Management** page, click the **Function Code** tab, and modify the following configuration items in **index.py**:

- HW_AK = "****Access Key****"
- HW_SK = "****Secret Access Key****"
- SYNC_URL = "****Synchronization Request Receiving Address****"
- secret_id = "****secret_id****"
- secret_key = "****secret_key****"
- region = 'ap-beijing'

Step 9 Select a test event (**COS PUT event template** or **COS POST event template**) and click **Test**.

Step 10 If the returned result is **true**, the test is successful. If the test fails, check whether the function parameters are configured correctly and whether you have required permissions.

----End

7 Archive Data Migration

This tutorial describes how to restore archive data on other clouds and migrate it to Huawei Cloud OBS.

7.1 Migrating Archived Data in Huawei Cloud OBS

Huawei Cloud OBS provides the obsutil tool to restore archive objects.

 **NOTE**

obsutil is compatible with Windows, Linux, and macOS. Download and install the required version.

Procedure

- Step 1** [Download and Install obsutil.](#)
- Step 2** [Restore archive objects.](#)
- Step 3** Migrate restored data by referring to [Migrating Data Between Huawei Cloud OBS Buckets.](#)

----End

7.2 Migrating Archived Data in Alibaba Cloud OSS

Alibaba Cloud OSS provides the ossutil tool to restore archive objects with specified prefixes.

 **NOTE**

ossutil is compatible with Windows, Linux, and macOS. Download and install the required version.

This section uses Windows as an example.

Procedure

- Step 1** Download the ossutil tool.

- [Windows x86 32-bit](#)
- [Windows x86 64-bit](#)

Step 2 Decompress the installation package and double-click **ossutil.bat**.

Step 3 Run the following command to generate a configuration file:

```
Decompression path\ossutil& >ossutil64.exe config
```

Step 4 Configure the generated file in interactive mode.

1. Run the following **config** command:

```
./ossutil64 config
```

2. Configure the path of the configuration file as prompted.

You are advised to press **Enter** to use the default path of the configuration file.

3. Configure the interface language of ossutil as prompted.

Enter **CH** or **EN**. By default, the interface of ossutil is using the same language as the operating system. This configuration takes effect after you run the **config** command.

4. Follow the prompts to configure parameters **Endpoint**, **AccessKey ID**, **AccessKey Secret**, and **STSToken**.

Parameter description:

- **Endpoint**: specifies the endpoint of the region in which your source bucket is located. You can also add **http://** or **https://** to the endpoint to specify that you want ossutil to use to OSS. The default protocol is HTTP. For example, if you want to access an OSS bucket in the China (Shenzhen) region by using HTTPS, set the endpoint to **https://oss-cn-shenzhen.aliyuncs.com**.
- **AccessKey ID** and **AccessKey Secret**: specify the access key pair of your Alibaba Cloud account.
- **stsToken**: This parameter is required only when you use temporary access credentials to access an OSS bucket.

Example:

```
./ossutil64 config
```

Enter the name configuration file name. The file name can contain a path. The default path is **/home/user/ossutilconfig**. If you press the **Enter** key without specifying a different path, the file is generated in the default path.

If you want to generate the file in another path, set the **-config-file** option to the path when you run this command.

If you do not specify the configuration file path, the default configuration file **/home/user/ossutilconfig** is used.

If you press the **Enter** key without configuring the following parameters, these parameters are ignored. To obtain more information about the parameters, run the **help config** command.

Enter the endpoint:

Enter the AccessKey ID:

Enter the AccessKey Secret:

Enter the STS Token:

Step 5 Run the **restore** command to restore archive files.

Command syntax:

```
Binary name restore oss://bucketname[/prefix][local_xml_file]  
[--encoding-type <value>]  
[--payer <value>]  
[--version-id <value>]  
[-r, --recursive]
```

```
[-f, --force]  
[--retry-times <value>]  
[-j, --job <value>]
```

⚠ CAUTION

The binary name at the beginning of the command line needs to be replaced based on the operating system. For example, replace the binary name with `./ossutil64` in a 64-bit Linux operating system. For details, see *Getting Started with Alibaba Cloud OSS ossutil*.

The following table describes the parameters you can configure to run the restore command.

Parameter	Description
bucketname	The name of the bucket in which the objects to restore are stored.
prefix	The prefixes that are used to filter objects in the bucket.
local_xml_file	The local XML file used to store parameters that you can configure to restore archive objects.
--encoding-type	The method that is used to encode the value of the prefix parameter. The valid value is <code>url</code> . If you do not specify this parameter, the value of the prefix parameter is not encoded.
--payer	The payer of the traffic and request fees incurred when the command is run. To enable the requester to pay the traffic and request fees for accessing the resources in the specific path, set this parameter to requester .
--version-id	The version ID of the object that you want to restore. This parameter applies only to objects in buckets for which versioning is enabled or suspended.
-r, --recursive	If you specify this parameter, <code>ossutil</code> restores all objects whose names contain the specified prefix in the bucket. If you do not specify this parameter, <code>ossutil</code> restores only the specified object.
-f, --force	The operation that is forcibly performed without prompts.
--retry-times	The number of retries after the command fails to be run. The default value is 10 . The value ranges from 1 to 500 .

Parameter	Description
-j, --job	The number of concurrent tasks performed across multiple objects. The default value is 3 . The value ranges from 1 to 10,000 .

For details, see the documents related to Alibaba Cloud OSS restore.

Step 6 Migrate restored data by referring to [Migrating Data from Alibaba Cloud OSS to Huawei Cloud OBS](#).

----End

7.3 Migrating Archived Data in Tencent Cloud COS

You can use the Tencent Cloud console or the coscmd tool to restore archive objects.

Console

Step 1 Log in to Tencent Cloud COS console.

Step 2 In the navigation pane on the left, click **Bucket List**.

Step 3 Locate the bucket where the objects reside and click the bucket name.

Step 4 In the navigation pane on the left, click **File List**.

Step 5 Locate the object to be restored and click **Restore** in the **Operation** column.

To restore multiple archive objects at a time, select them all in the object list, and choose **More Actions** > **Restore** above the list.

Step 6 In the displayed dialog box, set the restore mode and the validity period (in days) of the copy.

NOTE

- **Expedited:** This is the fastest mode. Archive files can be restored within 1 to 5 minutes. This mode is not available for files in Deep Archive storage.
- **Standard:** Files can be restored from Archive within 3 to 5 hours and from Deep Archive within 12 hours.
- **Bulk:** Files can be restored from Archive within 5 to 12 hours and from Deep Archive within 12 hours.

Step 7 Click **OK**. The object enters the restoration process.

During this process, you can click **Details** to go to the object details page to check the restoration progress.

Step 8 After confirming that the object has been restored, click **Restore** again to modify the validity period of the copy.

Step 9 Migrate restored data by referring to [Migrating Data from Tencent Cloud COS to Huawei Cloud OBS](#).

----End

COSCMD

Step 1 Run the following **pip** command to install COSCMD:

```
pip install coscmd
```

Step 2 Run the following **config** command to generate a configuration file:

```
coscmd config -a ak -s sk -b bucket -r region
```

The parameters are described as follows:

Parameter	Description
-a	SecretId, which can be obtained by choosing Access Management > API Key Management at the Tencent Cloud console.
-s	SecretKey, which can be obtained by choosing Access Management > API Key Management at the Tencent Cloud console.
-b	The name of the specified bucket. If this is your first time using COSCMD, you need to create a bucket in the COS console to configure COSCMD.
-r	The region where the bucket resides.

Step 3 Restore archive files in the specified bucket.

- Format of the command for restoring an archive file

```
coscmd restore <cospath>
```

For example, running the following command to restore **picture.jpg** in the expedited mode and remain the file in the restored state for 7 days.

```
coscmd restore -d 7 -t Expedited picture.jpg
```

- Format of the command for batch restoring archive files

```
coscmd restore -r <cospath>
```

For example, running the following command to restore **examplefolder/** in the expedited mode and remain the files in the directory in the restored state for 7 days.

```
coscmd restore -r -d 7 -t Expedited examplefolder/
```

NOTE

- Replace <cospath> with the path of the files on COS that you want to restore.
- Use **-d <day>** to specify the expiration time of the temporary copies of files to be restored. The default value is **7**.
- Use **-t <tier>** to specify the restore mode. The value can be **Expedited** (fast restore), **Standard** (standard restore), or **Bulk** (batch restore). The default value is **Standard**.

For details, see the Tencent Cloud Object Storage COSCMD Tool Documentation.

Step 4 Migrate restored data by referring to [Migrating Data from Tencent Cloud COS to Huawei Cloud OBS](#).

----End

7.4 Migrating Archived Data in Kingsoft Cloud KS3

Kingsoft Cloud KS3 allows you to restore archive objects on the console or by calling the **Restore Object API**.

Procedure

Step 1 Log in to the KS3 console and click **Bucket** in the left navigation pane.

Step 2 On the page that appears, click the name of the target bucket. On the **Bucket Details** tab, click the **Content Management** tab.

Step 3 Click the name of the object to restore, or click **Details** in the **Action** column of the object.

Step 4 In the **File details** panel, click **Restore** and then **OK**.

NOTE

It takes about 1 minute to restore an archive object.

After an object is restored, it is in the restored state for 24 hours by default. You can extend this period for up to seven days. After this period expires, the object will return to the archive storage.

You can also call the Restore Object API to restore archive objects. For details, see the documents related to Kingsoft Cloud KS3 Restore Object API.

Step 5 Migrate restored data by referring to [Migrating Data from Kingsoft Cloud KS3 to Huawei Cloud OBS](#).

----End

7.5 Migrating Archived Data in UCloud US3

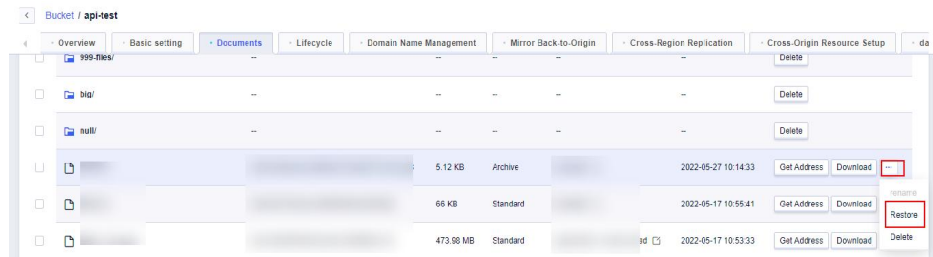
UCloud US3 allows you to restore an archive object on the console or restore multiple archive objects at a time using the us3cli tool.

Console

Step 1 Log in to the UCloud US3 console.

Step 2 On the **Bucket** page, locate the bucket, and click **File Manage** in the **Operation** column.

Step 3 Locate the file to be restored, click  in the **Operation** column, and select **Restore**.



Step 4 Click **OK**. The file enters the restoration process. After its storage class changes to **Standard**, the file is restored.

CAUTION

Restoring a file will incur data retrieval fees.

----End

US3CLI

US3CLI is compatible with Windows, Linux, and macOS. Download and install the required version.

NOTE

This section uses Windows as an example.

Step 1 Download US3CLI.

[us3cli-windows.exe](#)

Step 2 Open the CLI as an administrator and switch to the directory where the **us3cli-windows.exe** file is stored.

Step 3 Run the following command to generate a configuration file.

```
us3cli-windows.exe config
```

CAUTION

1. Open the CLI as an administrator.
2. After downloading **us3cli-windows.exe**, do not directly click the file to run it. Use the CLI to open and run this tool.
3. If you cannot download the tool by clicking the proceeding link, copy the link to the address box of your browser and press **Enter**.

Step 4 Configure the generated file in interactive mode.

```
./us3cli config
Enter the configuration item name: config1
Create the configuration item: [config1]
Enable encryption (y or n)? n
Enter the API/Token public key [Current:]: xxxxxxxxxxxxxxxxxxxxxx
Enter the API/Token private key [Current:]: xxxxxxxxxxxxxxxxxxxxxx
Region list:
No.  RegionName  Region
```

```

0 Beijing cn-bj
1 Shanghai 2 cn-sh2
2 Guangzhou cn-gd
3 Hong Kong hk
4 Los Angeles us-ca
5 Singapore sg
6 Jakarta idn-jakarta
7 Taipei tw-tp
8 Lagos afr-nigeria
9 Sao Paulo bra-saopaulo
10 Dubai uae-dubai
11 Frankfurt ge-fra
12 Ho Chi Minh City vn-sng
13 Washington us-ws
14 Mumbai ind-mumbai
15 Seoul kr-seoul
Enter a region No.: 0
Intranet and extranet list:
No. Network
0 extranet
1 intranet
Select or enter the intranet or extranet No.: 0
The selected endpoint is [cn-bj.ufileos.com],[Current:]. Press Enter to use the default endpoint or customize one.
Final configurations:
ConfigName: config1
AccessKey: xxxxxxxxxxxxxxxxxxxxxxxx
SecretKey: xxxxxxxxxxxxxxxxxxxxxxxx
Endpoint: cn-bj.ufileos.com Check the endpoint and press Enter.
Enable HTTPS (y or n)? n
Enable proxy (y or n):n
Configuration file [ config1 ] has been modified.
Whether to use the configuration as the default configuration (the current default configuration is < config >)(y or n)?

```

 **CAUTION**

1. When a profile is created for the first time, this configuration is automatically used as the default configuration.
2. Only the public and private keys are encrypted. The current configuration file can be encrypted only when it is created for the first time.
3. When entering the proxy address, you only need to specify **ip:port**. The client will add **https://** to the address if HTTPS is enabled or add **http://** if HTTPS is not enabled.

Step 5 Run the following **restore** commands to restore files in the bucket. For details, see the **restore** section in the US3CLI document.

- Command for restoring a single file
`./us3cli restore us3://bucket/test.txtCopyErrorSuccess`
- Command for restoring all files in a directory
`./us3cli restore -r us3://bucket/test`
- Command for restoring 10 files at a time
`./us3cli restore us3://bucket/test --parallel 10`

 **NOTE**

- Replace **bucket** with your bucket name.
- Replace **test** with the names of files or folders to be restored.
- **--parallel** specifies the number of files to be restored concurrently. The default value is **10**. You can modify it as needed.

For details, see the **restore** section in the US3CLI document.

Step 6 Migrate restored data by referring to [Migrating Data from UCloud US3 to Huawei Cloud OBS](#).

----End

7.6 Migrating Archived Data in Amazon S3

Amazon S3 allows you to restore archived objects using the Amazon S3 console, the Amazon S3 REST APIs, the AWS SDKs, AWS Command Line Interface (AWS CLI), or S3 Batch Operations.

The following describes how to restore archived objects using the Amazon S3 console. For more operations, see [Restoring an Archived Object](#).

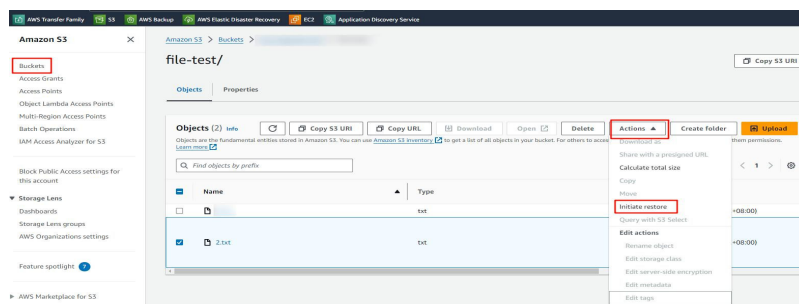
Using the Amazon S3 Console

Step 1 Log in to the AWS console.

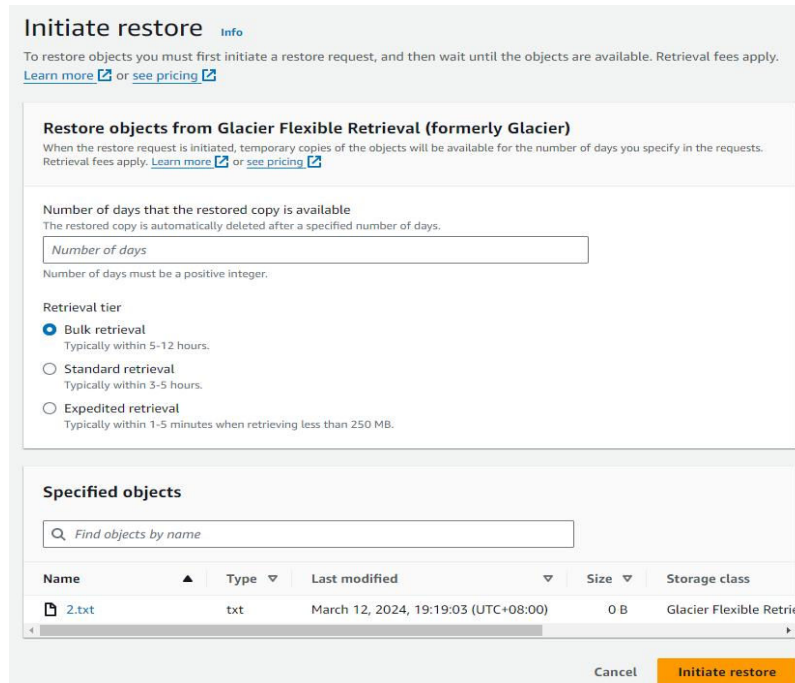
Step 2 In the navigation pane, choose **Buckets**.

Step 3 In the **Buckets** list, choose the name of the bucket that contains the objects that you want to restore.

Step 4 In the **Objects** list, select the object or objects that you want to restore, choose **Actions > Initiate restore**.



Step 5 If you are restoring from S3 Glacier Flexible Retrieval or S3 Glacier Deep Archive, enter the number of days that you want your archived data to be accessible in the **Number of days that the restored copy is available** box.



Step 6 Click **Initiate restore**. Migrate restored data by referring to [Migrating Data from Amazon S3 to Huawei Cloud OBS](#).

----End

7.7 Migrating Archived Data in Azure Blob Storage

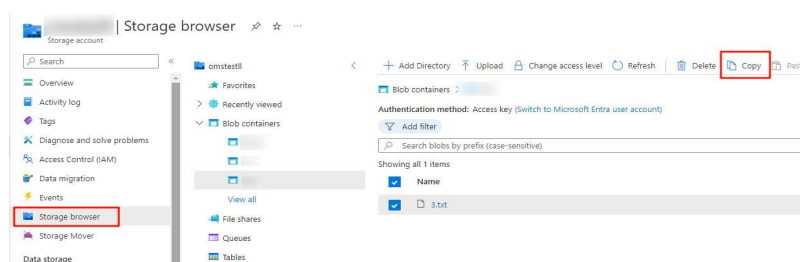
There are two options for restoring a blob that is stored in the archive tier: [copying an archived blob to an online tier](#) or [changing a blob's access tier to an online tier](#).

Copying an Archived Blob to an Online Tier

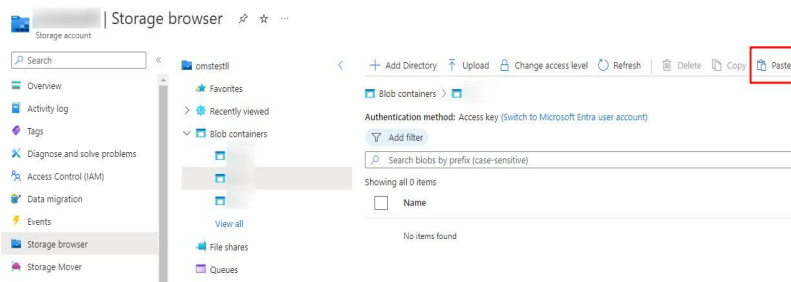
Step 1 In the Azure portal, go to your storage account.

Step 2 In the navigation pane, choose **Storage browser**.

Step 3 In the storage browser, select your blob container, select the blob to be replicated, and choose **Copy**.



Step 4 Go to the destination blob and choose **Paste**.



Step 5 Migrate restored data by referring to [Migrating Data from Azure Blob Storage to Huawei Cloud OBS](#).

----End

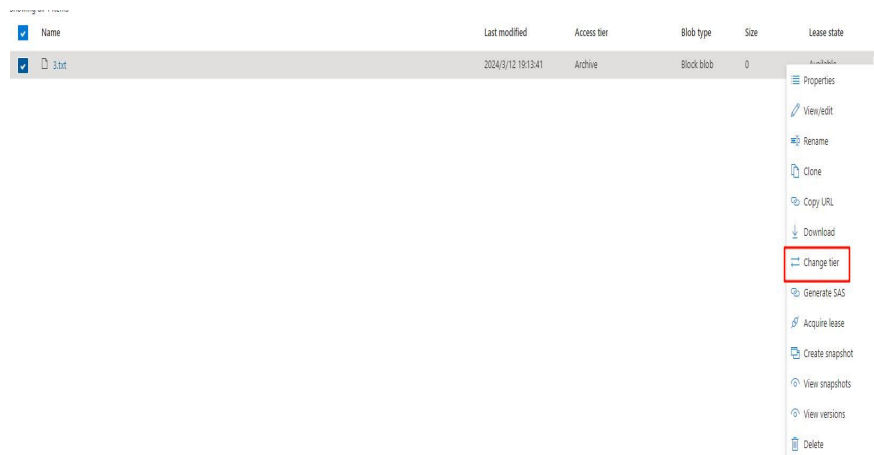
Changing a Blob's Access Tier to an Online Tier

Step 1 In the Azure portal, go to your storage account.

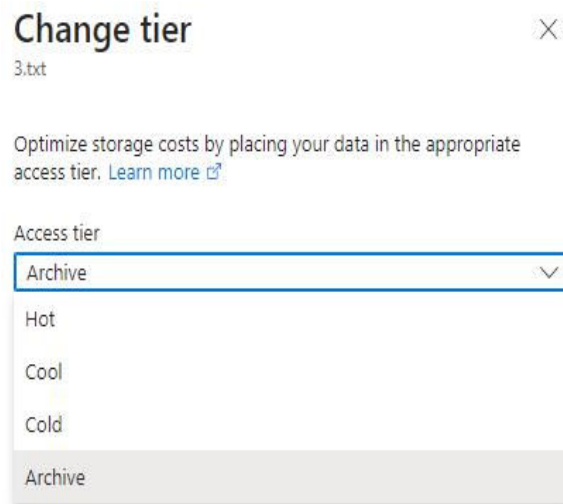
Step 2 In the navigation pane, choose **Storage browser**.

Step 3 In the storage browser, select your blob container and find the blob to be restored.

Step 4 Click ... on the right of the page and choose **Change tier**.



Step 5 Select an access tier from the drop-down list and click **Save**.



Step 6 Migrate restored data by referring to [Migrating Data from Azure Blob Storage to Huawei Cloud OBS](#).

----End

8 Other Migration Scenarios

8.1 Overview

For **migration scenarios** that are not supported by OMS, Huawei Cloud provides **Migration Center (MgC)** and **Resource Discovery and Assessment (RDA)** to help you.

Table 8-1 Storage migration tools

Migration Tool	Migration Network	Supported Sources	Features
MgC	Public network/ Private line	<ul style="list-style-type: none"> • Huawei Cloud OBS • Alibaba Cloud OSS • Baidu Cloud BOS • Tencent Cloud COS • Kingsoft Cloud KS3 • Qiniu Cloud KODO • UCloud US3 • Amazon S3 • Azure Blob Storage • NAS_SMB • NAS_NFS_V3_MOUNT • NAS_NFS_V3_PROTOCOL • HTTP/HTTPS data sources 	<ul style="list-style-type: none"> • Migration over private lines • Scalable migration clusters • Pre-migration evaluation • Batch migration

Migration Tool	Migration Network	Supported Sources	Features
RDA	Public network/ Private line	<ul style="list-style-type: none"> • Huawei Cloud OBS • Alibaba Cloud OSS • Baidu Cloud BOS • Tencent Cloud COS • Kingsoft Cloud KS3 • Qiniu Cloud KODO • Google Cloud Storage • UCloud US3 • Amazon S3 • Azure Blob Storage • China Mobile Cloud EOS • NAS • HTTP/HTTPS data sources 	<ul style="list-style-type: none"> • Migration over private lines • Scalable migration clusters

8.2 MgC

MgC provides a single place for you to easily migrate, modernize, and optimize your applications using tools built based on Huawei Cloud migration methodologies and best practices.

Features

- Migration over private lines
- Scalable migration clusters
- Pre-migration evaluation
- Batch migration
- Various supported sources: Huawei Cloud OBS, Alibaba Cloud OSS, Baidu Cloud BOS, Tencent Cloud COS, Kingsoft Cloud KS3, Qiniu Cloud KODO, UCloud US3, Amazon S3, Azure Blob Storage, NAS_SMB, NAS_NFS_V3_MOUNT, NAS_NFS_V3_PROTOCOL, and HTTP/HTTPS data sources

Architecture

Figure 8-1 Logical architecture of storage migration



Migration Process

1. Make preparations.
Create an OBS bucket or SFS file system on Huawei Cloud.
2. Assess a migration cluster.
Determine the size and specifications of the migration cluster based on the number of files you want to migrate.
3. Create a workflow.
Create a workflow from the storage migration template to complete the migration.
4. Run the workflow.
On the migration workflow details page, view the workflow settings and the migration progress.

For details, see [Creating a Storage Migration Workflow](#).

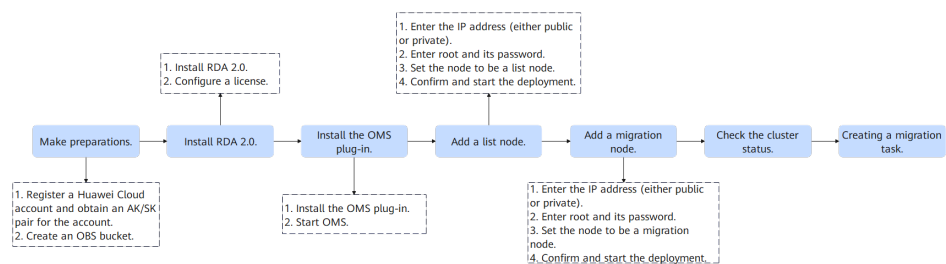
8.3 RDA

RDA is a tool that helps you easily discover cloud platform, server, database, container, and middleware resources, assess your motivations and readiness for cloud migration, and migrate your applications and data from servers, cloud storage, and NAS to the cloud.

Features

- Migration over private lines
- Scalable migration clusters
- Various supported sources: NAS, Huawei Cloud OBS, Alibaba Cloud OSS, Baidu Cloud BOS, Tencent Cloud COS, Kingsoft Cloud KS3, Qiniu Cloud KODO, Google Cloud Storage, UCloud US3, Amazon S3, Azure Blob Storage, China Mobile Cloud EOS, and HTTP/HTTPS data sources

Migration Process



For details about how to download and use RDA, see [Resource Discovery and Assessment \(RDA\)](#).

For details about how to use RDA to migrate storage data, visit [Resource Discovery and Assessment RDA](#) and choose **User Guide > Resource Discovery and Assessment User Guide > Migrators - OMS for Storage Migration**.

9 Change History

Released On	Description
2022-03-22	This issue is the fourteenth official release. <ul style="list-style-type: none">• Added Automatically Checking for and Retrying Failed Migration Tasks .• Added Migrating Data from QingCloud QingStor to Huawei Cloud OBS.• Added Migrating Data from Google Cloud Storage to Huawei Cloud OBS.• Added Migrating Data from Amazon S3 to Huawei Cloud OBS.• Added Migrating Data from Azure Blob Storage to Huawei Cloud OBS.• Added Other Migration Scenarios.
2022-11-10	This issue is the thirteenth official release. Updated Migration from Other Clouds to Huawei Cloud
2022-06-01	This issue is the twelfth official release. Added Archive Data Migration .
2021-11-16	This issue is the eleventh official release. Added Migrating Data from HTTP/HTTPS Sources to Huawei Cloud OBS .
2021-10-27	This issue is the tenth official release. Added Migrating Data from Kingsoft Cloud KS3 to Huawei Cloud OBS .
2021-10-25	This issue is the ninth official release. Added Migrating Data from UCloud US3 to Huawei Cloud OBS .

Released On	Description
2021-06-26	This issue is the sixth official release. Added Migrating Data from Tencent Cloud COS to Huawei Cloud OBS .
2021-06-15	This issue is the fifth official release. Added Migrating Data from Alibaba Cloud OSS to Huawei Cloud OBS .
2021-05-21	This issue is the fourth official release. Added Migrating Data Between Huawei Cloud OBS Buckets .
2021-03-16	This issue is the third official release. <ul style="list-style-type: none"> • Updated Migration with Dual-Write. • Updated Multiple Incremental Migrations. • Updated Migrating Archive Data.
2020-12-08	This issue is the second official release. <ul style="list-style-type: none"> • Added Migration with Dual-Write. • Added Multiple Incremental Migrations. • Added Migrating Archive Data.
2019-08-31	This issue is the first official release.