Object Storage Migration Service

Best Practices

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Contents

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: • 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
Multiple Incremental Migrations	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: ● 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.	● Rapid migration ● Short service interruption ● Ease of use You can use the following rule to estimate how much time will be needed for an incremental migration: 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
Migrating Archive Data	This practice is suitable to migration of archive data.	Rapid migration enabled by restoration in advance

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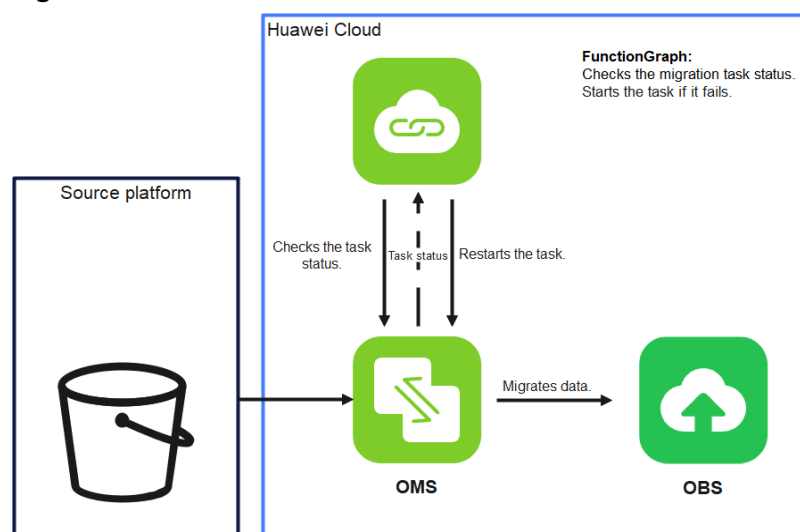
After an OMS migration task is started, FunctionGraph is triggered to periodically check the migration task status.

- 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 for 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.

- 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
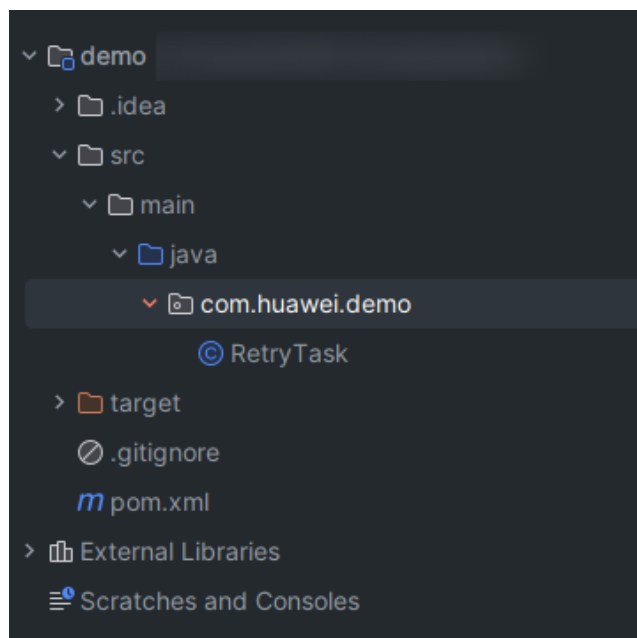
Dependencies of the **pom.xml** file:
```
<dependency>
  <groupId>Runtime</groupId>
  <artifactId>Runtime</artifactId>
  <version>2.0.5</version>
</dependency>
<dependency>
```

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

Sample code:

```java
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 Sign 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	Timer ⌄

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

＊Timer Name	Timer-f2a6

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

＊Rule	◉ Fixed rate ○ Cron expression

	1	Hours ⌄

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

＊Enable Trigger	🔵

Additional Information ⑦	
	0/2,048

Step 4 Click **OK**.

----End

3 Cutover Migration

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
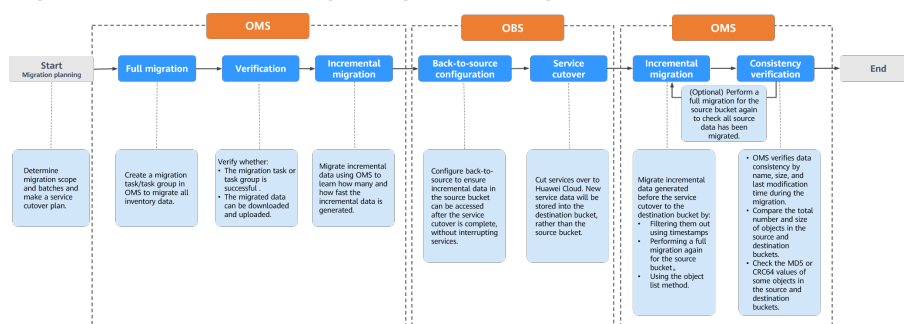
The following figure shows the migration procedure.

Figure 3-2 Migration diagram
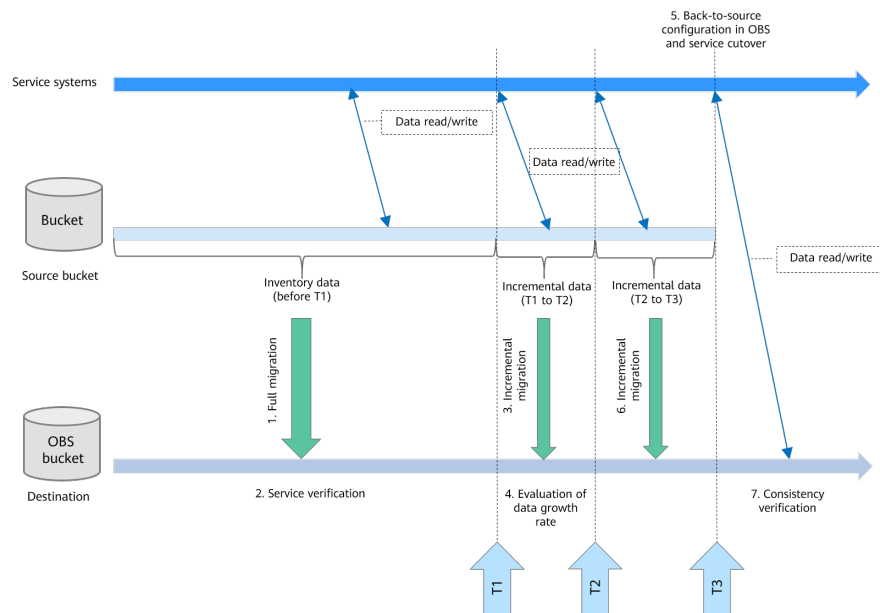
The procedure is as follows:

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 **signed up for 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 verification is complete, go to OBS console, create back-to-source rules for the destination OBS bucket, and switch services to Huawei Cloud.

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 the 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 the 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 **signed up for 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 **signed up for 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 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 archived objects in advance, and if you rely entirely on the automatic restoration function of OMS, it takes 1 to 5 minutes to restore an archived object, depending on the source object storage services. This can significantly slow down the migration.
> - For OBS buckets with the **direct reading** function enabled, even though the archived data in these OBS buckets can be directly downloaded without being restored in advance, OMS cannot migrate such data because its storage class is not changed.
> - You will be billed for enabling direct reading for your source bucket and enabling OMS to automatically restore archived data in the source bucket. To learn about OBS billing details, see **Pricing Details**.
> - Before you migrate archived 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 **signed up for 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 the Archive Storage**.

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 archived data restoration function of OMS. OMS will automatically restore and migrate the archived 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

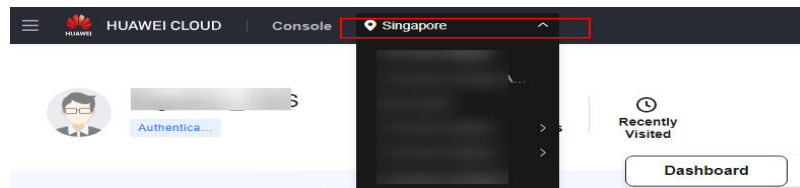**Step 1** Log in to the Huawei Cloud **console**.

Step 2 Click 📍 in the upper left corner and select the region where the destination bucket is located from the drop-down list.
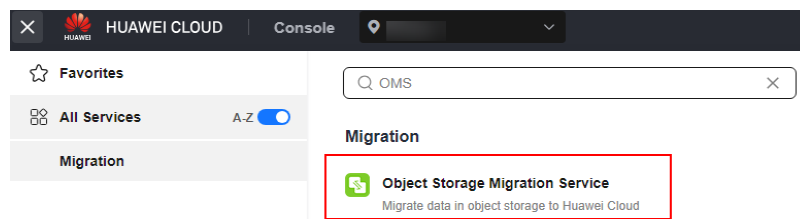
Figure 4-1 Selecting the region where the destination bucket is located

Step 3 Click **Service List** in the upper left corner, and choose **Migration > Object Storage Migration Service**.
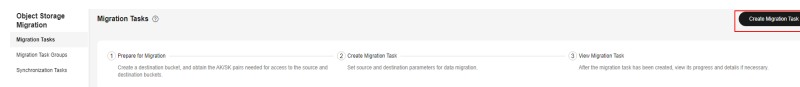
You can also enter **OMS** in the search box to quickly find OMS.
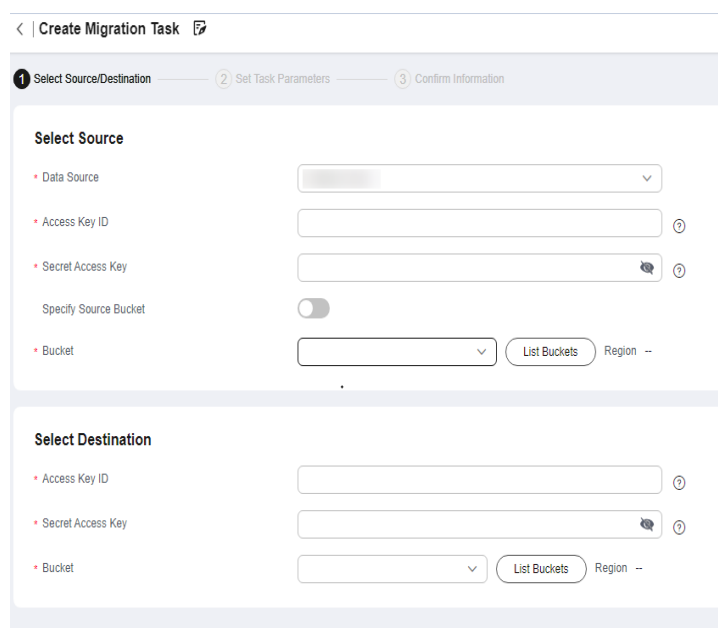
Figure 4-2 Choosing OMS

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	Disable **Specify Source Bucket**. (This feature is disabled by default.) 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, enable **Specify Source Bucket**.
	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 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

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

Figure 4-6 Selecting a migration method

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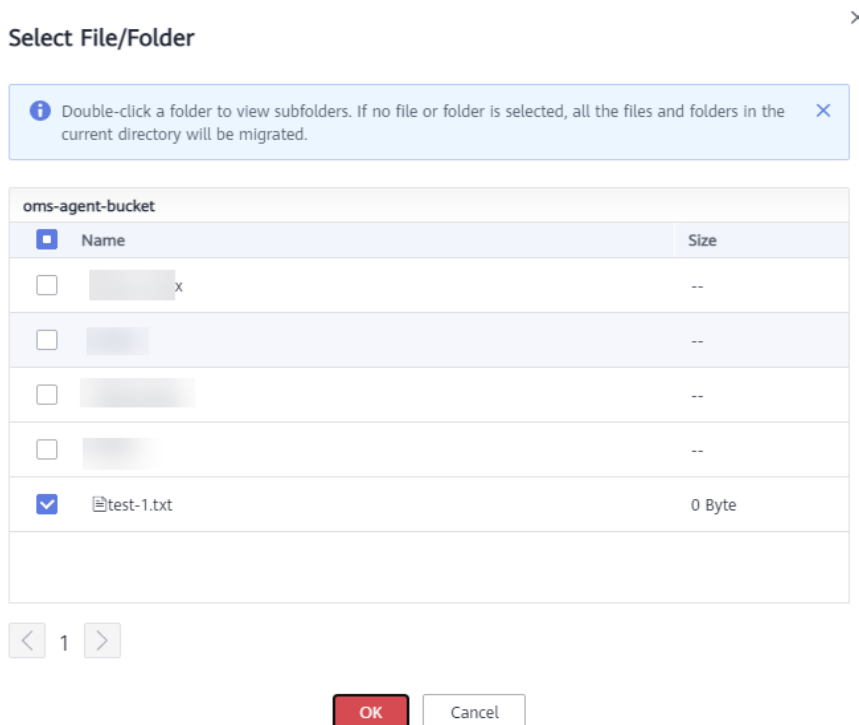
Step 11 In the **Destination Configuration** area, select **Yes** for **Specify Prefix** and enter a prefix, for example, **Test-Prefix**.

Figure 4-8 Specifying a prefix

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

Figure 4-9 Confirmation

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

----End

Add a Path Prefix to Migrated Files

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

Figure 4-11 Selecting a migration method

Step 2 Click **Select**. 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

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

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

Figure 4-14 Confirmation

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

----End

Add a Name Prefix to Migrated Folders

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

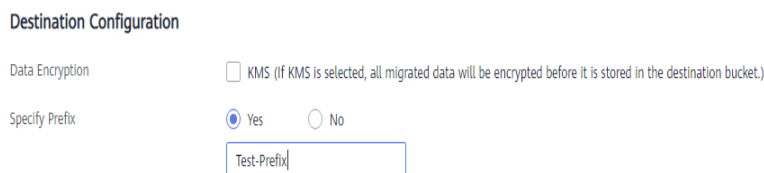**Figure 4-16** Selecting a migration method

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

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

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

Figure 4-19 Confirmation

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

----**End**

Add a Path Prefix to Migrated Folders

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

Figure 4-21 Selecting a migration method

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

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

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

Figure 4-24 Confirmation
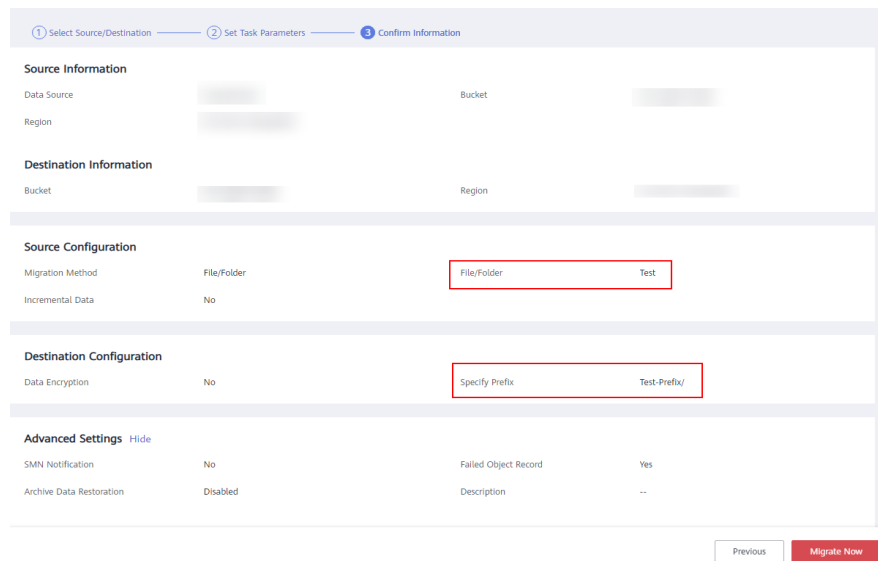
Step 5 Confirm the configuration and click **Migrate Now**.

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

----End
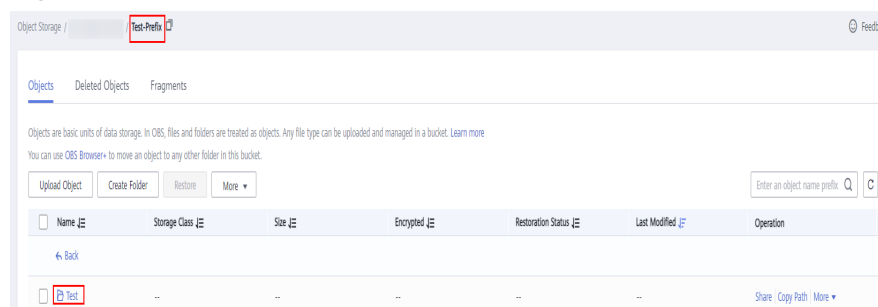
Add a Path Prefix to the Whole Bucket

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

Figure 4-26 Selecting a migration method
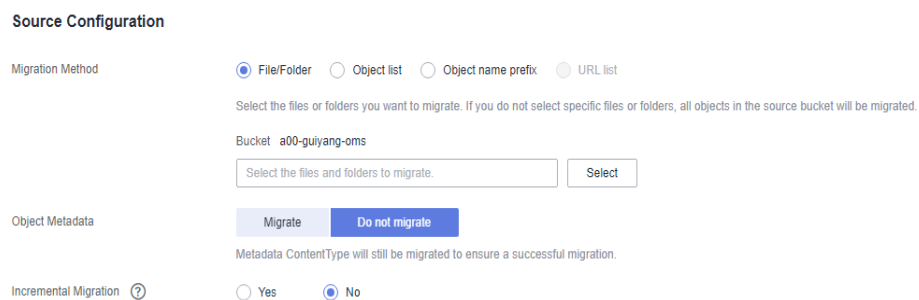
Step 2 In the **Destination Configuration** area, select **Yes** for **Specify Prefix** and enter a path prefix, for example, **Test-Prefix/**.

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 ——— ❸ Confirm Information

Source Information

Data Source   Bucket

Region

Destination Information

Bucket   Region

Source Configuration

Migration Method   File/Folder   File/Folder   Entire Bucket (   )
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
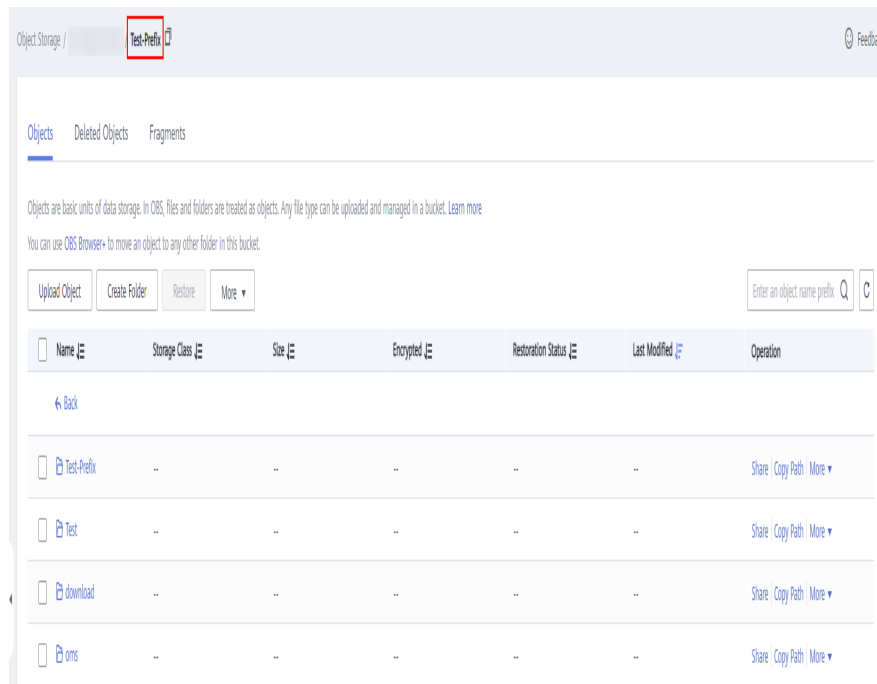
----End

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. T

Item	Constraint
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: ● 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	A maximum of five concurrent migration tasks are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.
	A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.
Migration task groups	A maximum of five concurrent migration task groups are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.
Synchronization tasks	Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority. A maximum of five concurrent synchronization tasks are allowed for your account per region.
Object list files	● 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	- 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 [*URL*][*Tab character*][*Destination object name*]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: 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 **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.** 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. In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named **doc/thefile2.txt**, **the file.txt**, **the file2.txt**, and **doc/thefile.txt**. - URLs in the list file can be accessed using HEAD and GET requests.
Failed object list files	A maximum of 100,000 failed objects can be recorded in a failed object list file. **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.

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.

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 by referring to **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.

- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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 following permissions:
    - Listing buckets
    - Obtaining bucket locations
    - Listing objects
    - Obtaining object metadata
    - Obtaining object content
    - Listing uploaded parts
    - Restoring archived 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
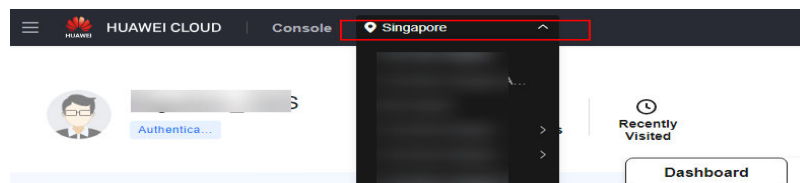
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-2 Choosing OMS
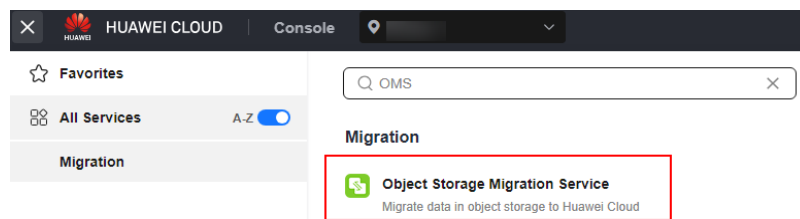
Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

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

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	If you disable **Specify Source Bucket** (which is disabled by default), you need to: 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: 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

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.	- If you select folders, all files in the selected folders will be migrated. - If you select files, all selected files will 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.

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.	**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
		NOTE
		- 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**

  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 5-6 Selected files and folders
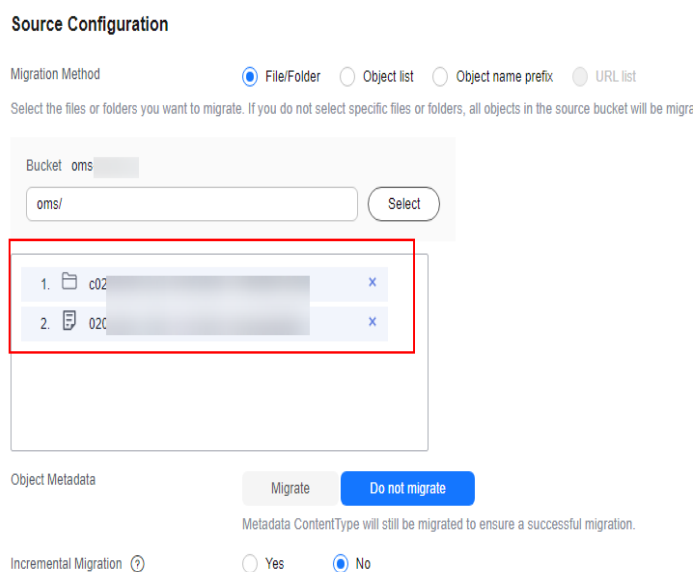
- **Object list**

  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 5-7 Selecting an object list file
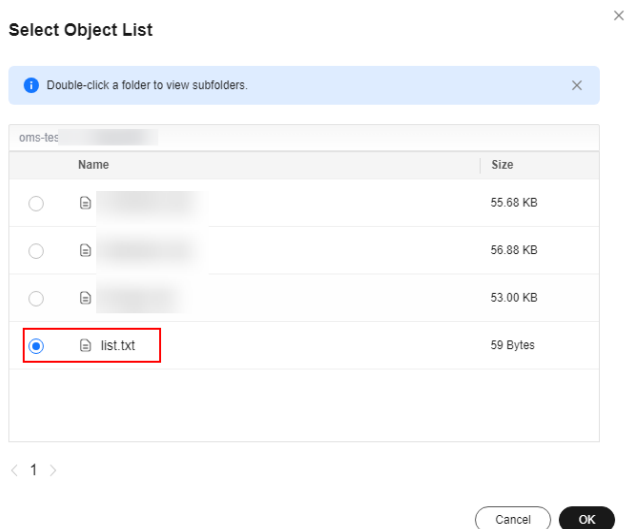
- **Object name prefix**

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 ✕ 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 **Selective 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 to rename or redefine the paths of objects migrated to the destination bucket.

     Figure 5-9 Specifying a prefix
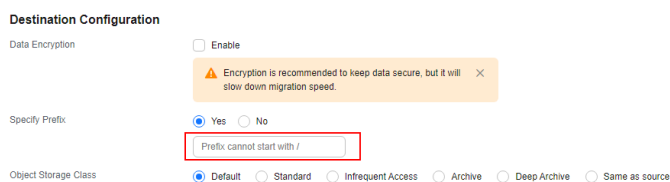
     > **NOTE**
     >
     > To learn how to use **Specify Prefix**, see **Adding a Name Prefix or Path Prefix to Migrated Objects**.

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
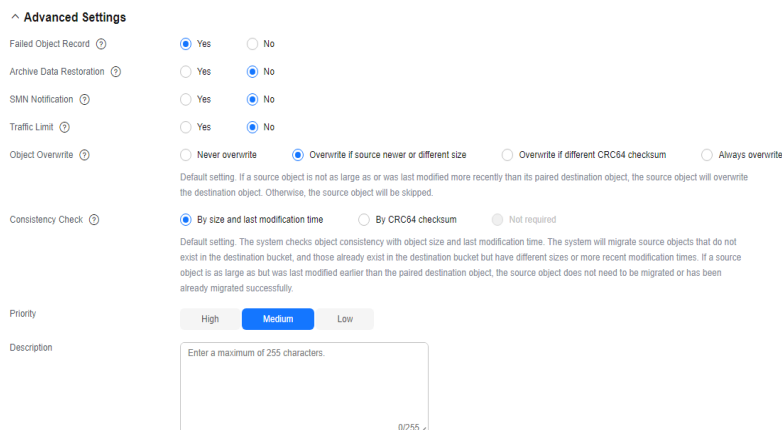
Table 5-4 Advanced settings

Parameter	Description
Failed Object Record	The default value is **Yes**. ● 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. **NOTE** – 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	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**. ● 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	Determine whether to use SMN to notify you of migration results. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Description

Object Overwrite	● **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
	    – 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	● **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.
- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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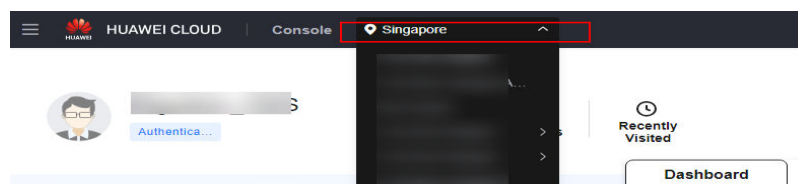
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-12 Choosing OMS
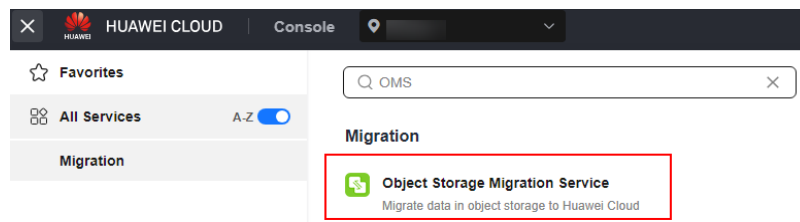
Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

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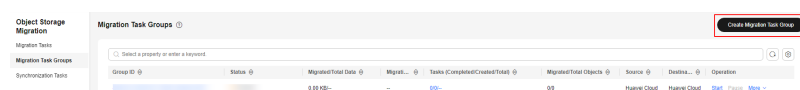
Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-14 Select Source/Destination
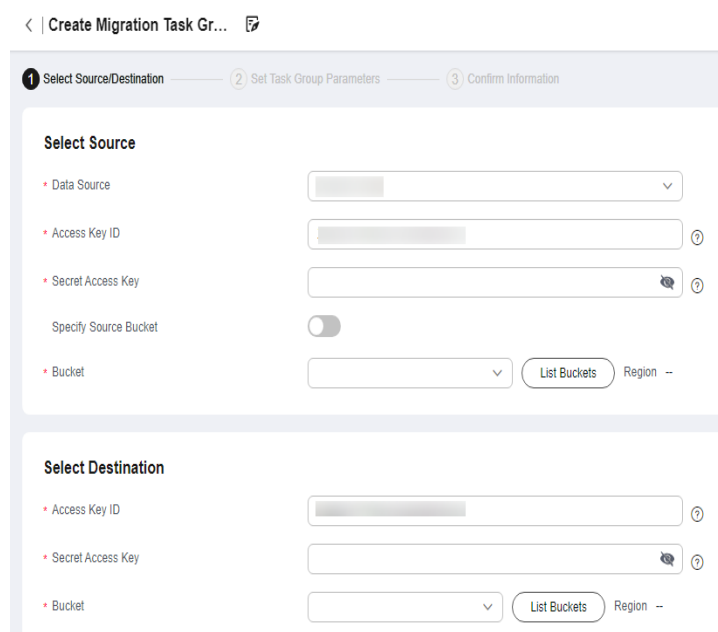
Step 7 Set parameters in the **Select Source** area. For details, see **Table 5-5**.

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	If you disable **Specify Source Bucket** (which is disabled by default), you need to:
	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:
	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

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

📖 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 none-root directories, add their directories and prefixes in the format of *Bucket name/Folder name/Prefix*.

- If no object names or prefixes are specified, 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.

- A maximum of 2,000 object list files can be stored in the object list folder.

- An object list file must be a .txt file, and the **ContentType** metadata of the file 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 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.

- Each line in an object list file cannot be longer than 65,535 characters, or the migration will fail.

- The **ContentEncoding** metadata of each object list file must be left empty, or the migration will fail.

- Archived data can only be accessed and obtained by OMS after it is restored. If the object list files are archived, 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 **Selective 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 to rename or redefine the paths of objects migrated to the destination bucket.

Figure 5-18 Specifying a prefix
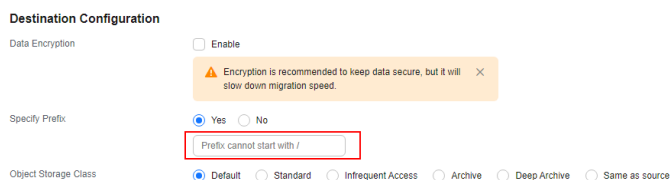
NOTE

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	The default value is **Yes**.
	
	● 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.
	
	NOTE
	
	  – 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	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**. ● 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	Determine whether to use SMN to notify you of migration results. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Object Overwrite	● **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
	  – 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	● **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**.

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

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. T
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: ● 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	A maximum of five concurrent migration tasks are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently. A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.

Item	Constraint
Migration task groups	A maximum of five concurrent migration task groups are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.
Synchronization tasks	Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority. A maximum of five concurrent synchronization tasks are allowed for your account per region.
Object list files	• 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	- 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 [*URL*][*Tab character*][*Destination object name*]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: 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 **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.** 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. In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named **doc/thefile2.txt**, **the file.txt**, **the file2.txt**, and **doc/thefile.txt**. - URLs in the list file can be accessed using HEAD and GET requests.
Failed object list files	A maximum of 100,000 failed objects can be recorded in a failed object list file. **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.

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.

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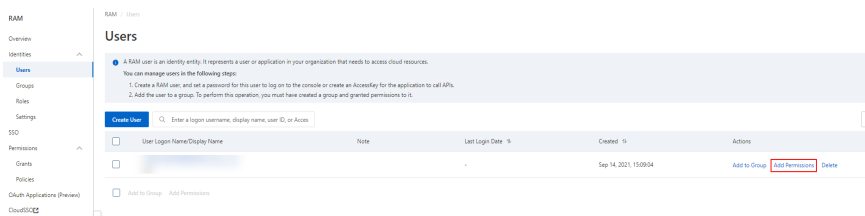
- Destination (Huawei Cloud): Create an AK/SK pair for the destination account and obtain the required permissions. For more information, see **Creating an Access Key (AK/SK)** and **Destination Permissions**.

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.
- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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.) 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 platform account does not have the permissions required to list buckets, you need to enable **Specify Source Bucket**.
	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 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.	• If you select folders, all files in the selected folders will be migrated. • If you select files, all selected files will 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.

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.	**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
		NOTE ● 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**

   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 5-25 Selected files and folders
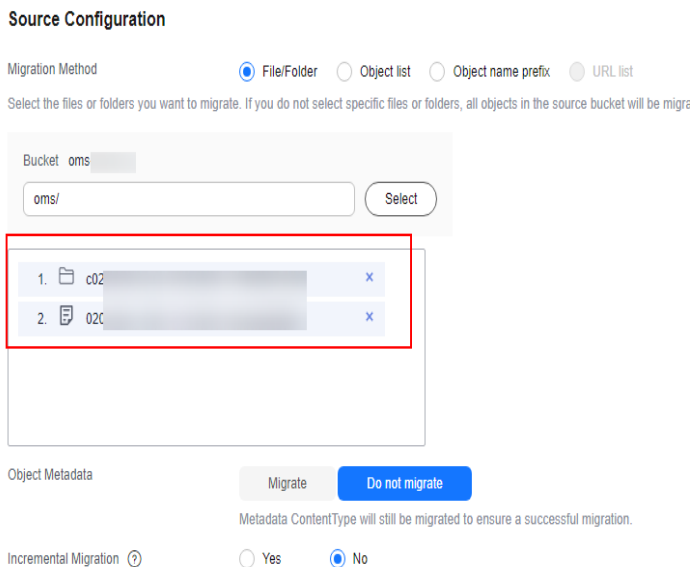
- **Object list**

   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 5-26 Selecting an object list file
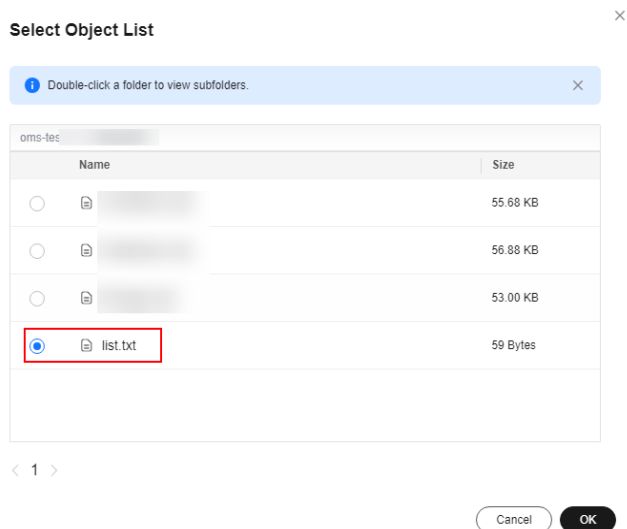
- **Object name prefix**

  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 ✕ 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 **Selective 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**.

Table 5-11 Parameters

Parameter	Configuration
Use Source Custom Domain Name	This option is deselected by default.
	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.
	NOTE If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.

	1. Select a transmission protocol for **Transfer Protocol**.
	   NOTE
	   HTTPS is more secure than HTTP and is recommended.

	2. Enter a custom domain name of the bucket in the **Custom Bucket Domain Name** box.

Parameter	Configuration

Enable CDN Authentication	This option is deselected by default.
	
	If you use the CDN authentication provided by Alibaba Cloud, select this option and perform the following settings:
	
	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.
	   NOTE
	   – 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	Click **Check** to check whether the configuration is correct. ● 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 to rename or redefine the paths of objects migrated to the destination bucket.

Figure 5-28 Specifying a prefix
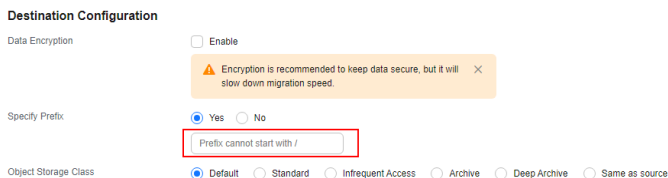
NOTE

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	The default value is **Yes**. ● 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. **NOTE** – 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	The default value is **No**.
	● 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**.
	● 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	Set the maximum bandwidth for the migration task during a specified period of time.
	● If you do not need to limit migration traffic, select **No**.
	● If you need to limit migration traffic, select **Yes**.

Parameter	Description

Object Overwrite	• **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
	  – 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	• **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.
- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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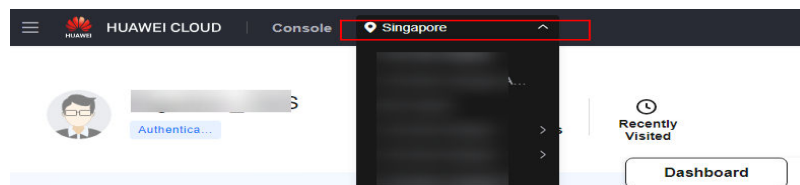
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-30 Choosing OMS
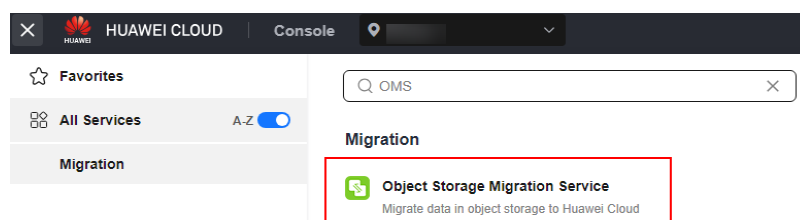
Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

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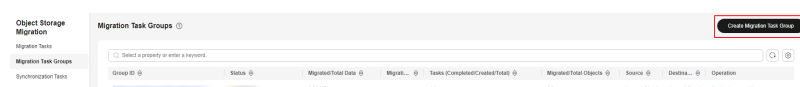
Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-32 Select Source/Destination

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	Disable **Specify Source Bucket** (This feature is disabled by default.) 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 platform account does not have the permissions required to list buckets, you need to enable **Specify Source Bucket**.
	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 5-14**.

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
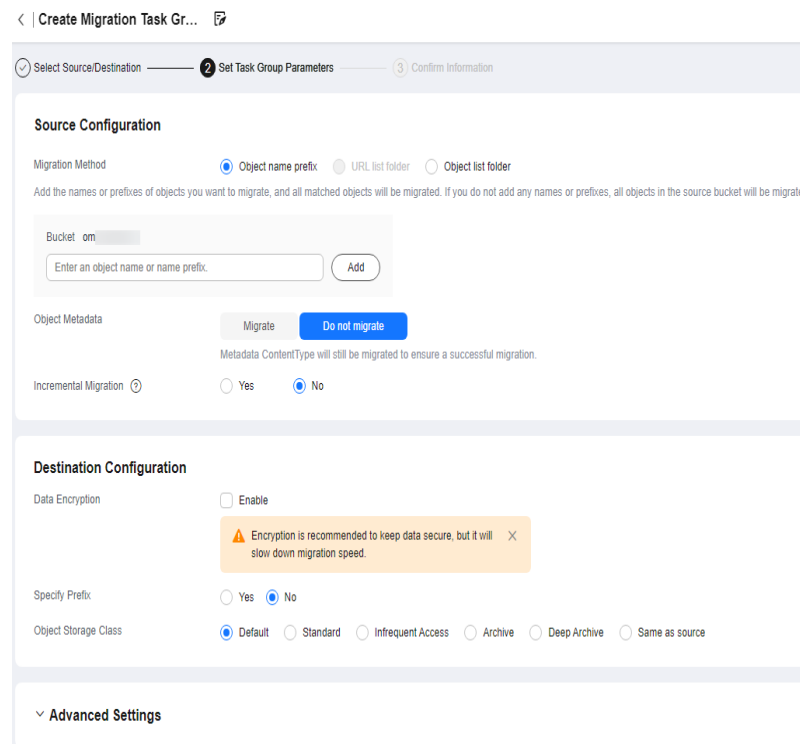
Step 10 Select a migration method.

- **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 o

Bucket   oms-

[00000]   (Add)

Object Metadata   (Migrate) **Do not migrate**

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

Incremental Migration ⑦   ○ 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 none-root directories, add their directories and prefixes in the format of *Bucket name/Folder name/Prefix*.

- If no object names or prefixes are specified, 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.

- A maximum of 2,000 object list files can be stored in the object list folder.

- An object list file must be a .txt file, and the **ContentType** metadata of the file 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 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.

- Each line in an object list file cannot be longer than 65,535 characters, or the migration will fail.

- The **ContentEncoding** metadata of each object list file must be left empty, or the migration will fail.

- Archived data can only be accessed and obtained by OMS after it is restored. If the object list files are archived, 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 **Selective 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**.

Table 5-15 Parameters

Parameter	Configuration

Use Source Custom Domain Name	This option is deselected by default.
	
	 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.
	
	 NOTE
	 If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.
	
	 1. Select a transmission protocol for **Transfer Protocol**.
	    NOTE
	    HTTPS is more secure than HTTP and is recommended.
	
	 2. Enter a custom domain name of the bucket in the **Custom Bucket Domain Name** box.

Parameter	Configuration

Enable CDN Authentication	This option is deselected by default.
	
	If you use the CDN authentication provided by Alibaba Cloud, select this option and perform the following settings:
	
	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.
	
	    NOTE
	
	    – 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	Click **Check** to check whether the configuration is correct. ● 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 to rename or redefine the paths of objects migrated to the destination bucket.

Figure 5-36 Specifying a prefix
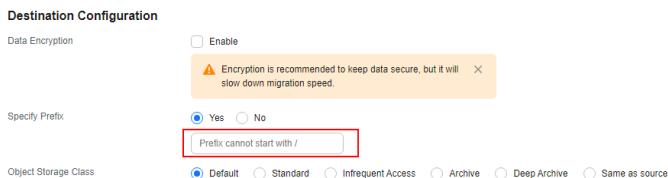
☐ **NOTE**

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	The default value is **Yes**. ● 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. **NOTE** – 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	The default value is **No**. ● 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Description

Object Overwrite	● **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
	    – 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	● **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. T
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: ● 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	A maximum of five concurrent migration tasks are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.
	A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.

Item	Constraint
Migration task groups	A maximum of five concurrent migration task groups are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.
Synchronization tasks	Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority. A maximum of five concurrent synchronization tasks are allowed for your account per region.
Object list files	• 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	- 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 [*URL*][*Tab character*][*Destination object name*]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: 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 **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.** 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. In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named **doc/thefile2.txt**, **the file.txt**, **the file2.txt**, and **doc/thefile.txt**. - URLs in the list file can be accessed using HEAD and GET requests.
Failed object list files	A maximum of 100,000 failed objects can be recorded in a failed object list file. **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.

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.

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.

- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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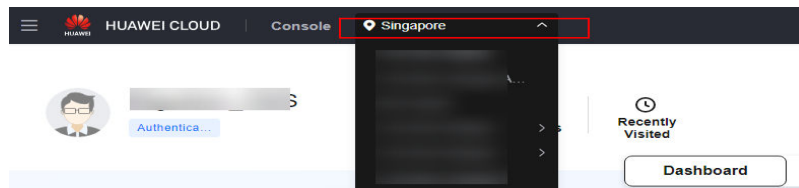
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-38 Choosing OMS
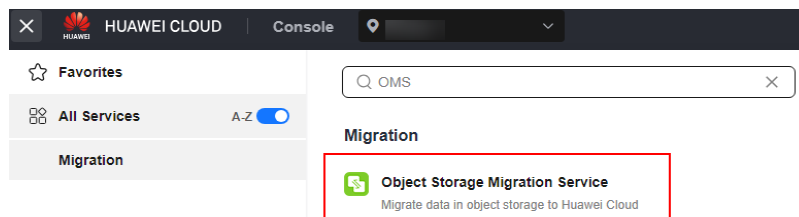
Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 5-39 Creating a migration task
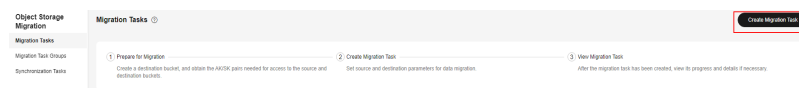
Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

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.) 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**.

Parameter	Configuration
	If you enable **Specify Source Bucket**, you need to:
	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.
	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**.
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.	• If you select folders, all files in the selected folders will be migrated. • If you select files, all selected files will 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.

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.	• **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
		NOTE ● 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**

  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 5-42 Selected files and folders
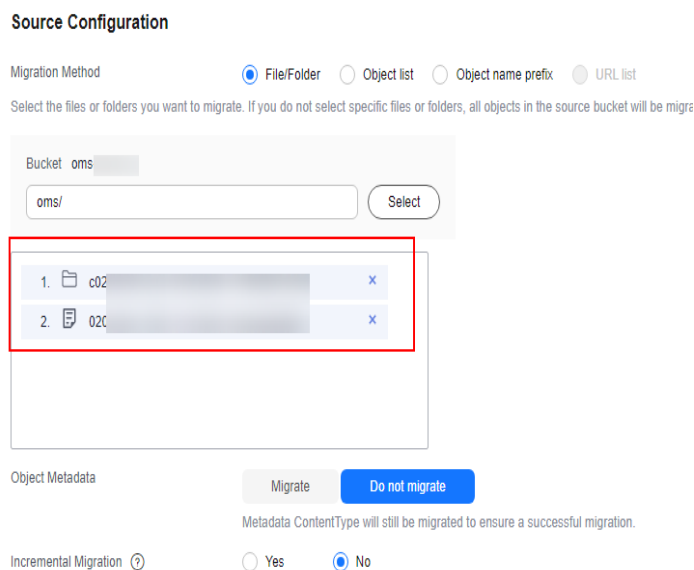
- **Object list**

  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 5-43 Selecting an object list file
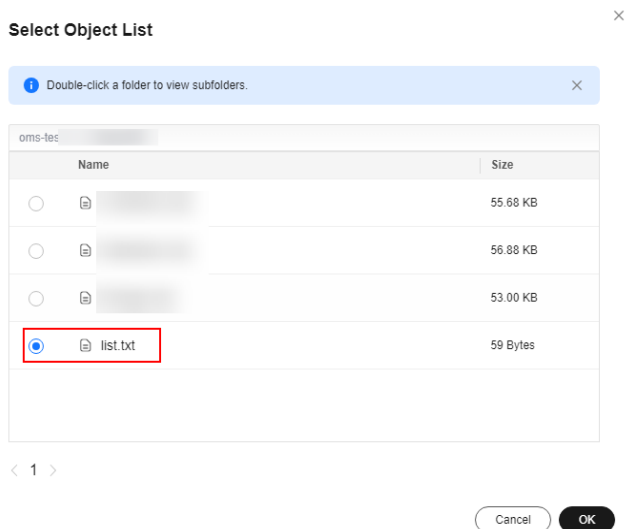
- **Object name prefix**

  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 ✕ 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 **Selective 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 to rename or redefine the paths of objects migrated to the destination bucket.

     Figure 5-45 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 5-20**.

Table 5-20 Advanced settings

Parameter	Description

Failed Object Record	The default value is **Yes**.
	
	● 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.
	
	NOTE
	  – 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	The default value is **No**. ● 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Description
Object Overwrite	● **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** 　– 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	● **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**.

5.4.4 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.
- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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 ![location icon] 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
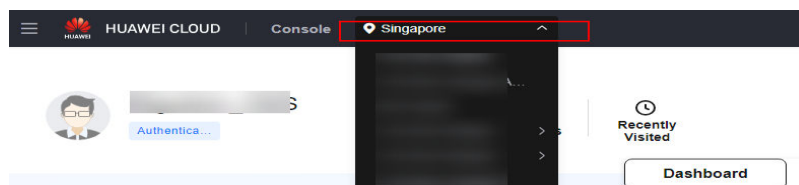
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-47 Choosing OMS
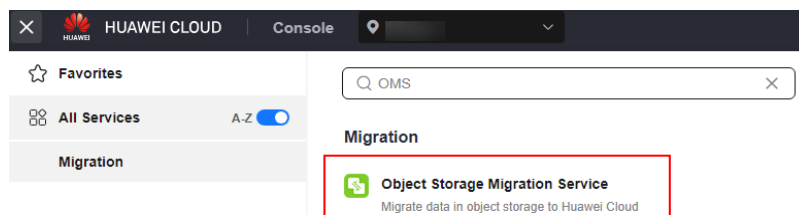
Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

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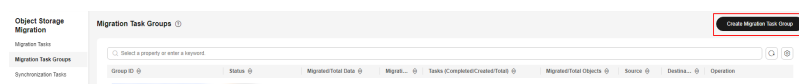
Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-49 Select Source/Destination

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.
Specify Source Bucket	Disable **Specify Source Bucket** (This feature is disabled by default.) 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**.

Parameter	Configuration
	If you enable **Specify Source Bucket**, you need to:
	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.
	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

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

📖 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 none-root directories, add their directories and prefixes in the format of *Bucket name/Folder name/Prefix*.

- If no object names or prefixes are specified, 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.

- A maximum of 2,000 object list files can be stored in the object list folder.

- An object list file must be a .txt file, and the **ContentType** metadata of the file 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 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.

- Each line in an object list file cannot be longer than 65,535 characters, or the migration will fail.

- The **ContentEncoding** metadata of each object list file must be left empty, or the migration will fail.

- Archived data can only be accessed and obtained by OMS after it is restored. If the object list files are archived, 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 **Selective 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 to rename or redefine the paths of objects migrated to the destination bucket.

   Figure 5-53 Specifying a prefix

   Destination Configuration

Data Encryption	☐ Enable
	⚠ Encryption is recommended to keep data secure, but it will ✕ slow down migration speed.
Specify Prefix	⦿ Yes ○ No
	Prefix cannot start with /
Object Storage Class	⦿ Default ○ Standard ○ Infrequent Access ○ Archive ○ Deep Archive ○ 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 5-23**.

Table 5-23 Advanced settings

Parameter	Description

Failed Object Record	The default value is **Yes**.
	
	● 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.
	
	NOTE
	  – 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	The default value is **No**. ● 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Description

Object Overwrite	**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
	  – 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	**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. T
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: ● 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	A maximum of five concurrent migration tasks are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.
	A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.

Item	Constraint
Migration task groups	A maximum of five concurrent migration task groups are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.
Synchronization tasks	Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority. A maximum of five concurrent synchronization tasks are allowed for your account per region.
Object list files	● 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	• 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 [*URL*][*Tab character*][*Destination object name*]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: `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` **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.** 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. In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named **doc/thefile2.txt**, **the file.txt**, **the file2.txt**, and **doc/thefile.txt**. • URLs in the list file can be accessed using HEAD and GET requests.
Failed object list files	A maximum of 100,000 failed objects can be recorded in a failed object list file. **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.

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.

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 sun-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.

- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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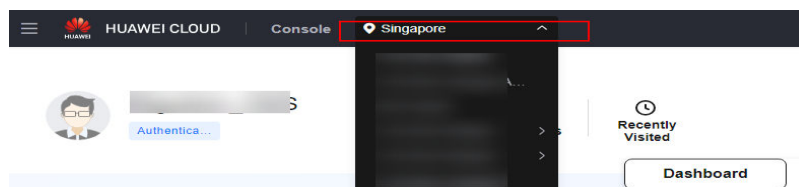
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-55 Choosing OMS
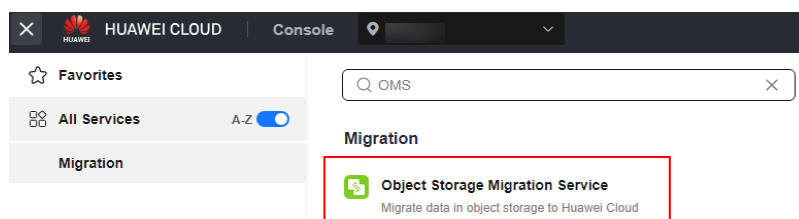
Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

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

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	Disable **Specify Source Bucket** (This feature is disabled by default.) 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 platform account does not have the permissions required to list buckets, you need to enable **Specify Source Bucket**.
	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 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

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.	- If you select folders, all files in the selected folders will be migrated. - If you select files, all selected files will 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.

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.	**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
		NOTE ● 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**

  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 5-59 Selected files and folders
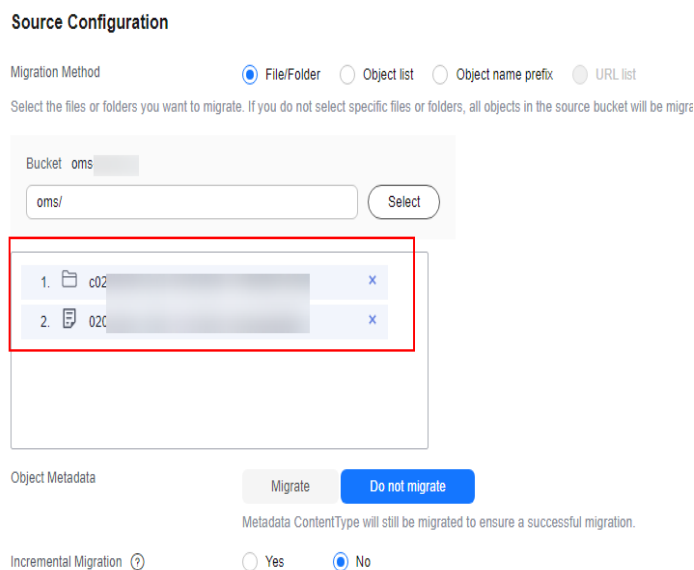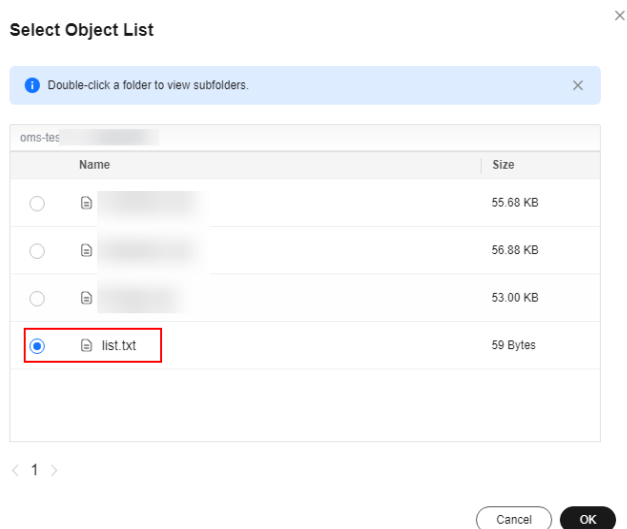
- **Object list**

  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**.
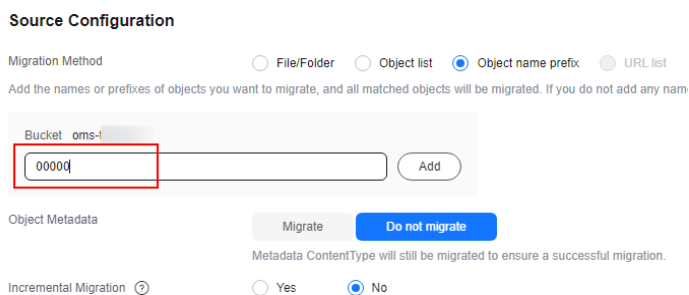
Figure 5-60 Selecting an object list file

- **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 ✕ 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 **Selective 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 ⑦ ⦿ Yes ◯ No

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

Transfer Protocol ◯ HTTP ⦿ HTTPS

Custom Bucket Domain Name ⑦ [Enter a custom domain name of the bucket.]

[Check]

Table 5-27 Parameters

Parameter	Configuration

Use Source Custom Domain Name	This option is deselected by default.
	
	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.
	
	NOTE
	If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.
	
	1. Select a transmission protocol for **Transfer Protocol**.
	   NOTE
	   HTTPS is more secure than HTTP and is recommended.
	
	2. Enter a custom domain name of the bucket in the **Custom Bucket Domain Name** box.

Check	Click **Check** to check whether the configuration is correct. - 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 to rename or redefine the paths of objects migrated to the destination bucket.

    Figure 5-62 Specifying a prefix
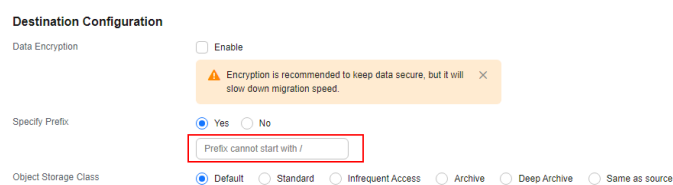
    📖 NOTE

    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 5-28**.

Table 5-28 Advanced settings

Parameter	Description

Failed Object Record	The default value is **Yes**.
	● 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.
	NOTE
	  – 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	The default value is **No**. ● 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Description

Object Overwrite	● **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
	  – 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	● **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.
- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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 ![location icon] 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
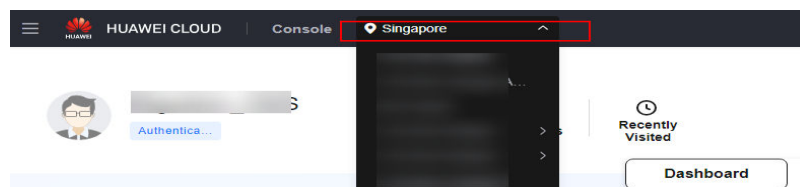
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-64 Choosing OMS
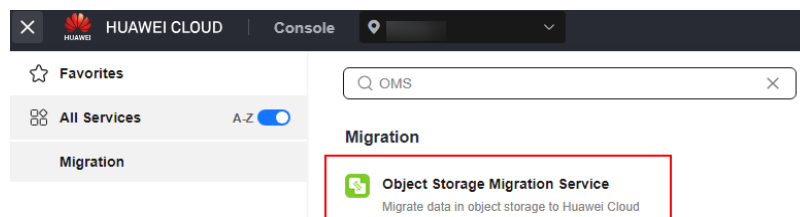
Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

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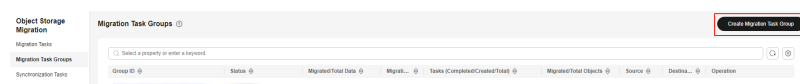
Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-66 Select Source/Destination

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	Disable **Specify Source Bucket** (This feature is disabled by default.) 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 platform account does not have the permissions required to list buckets, you need to enable **Specify Source Bucket**.
	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 5-30**.

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

> **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 none-root directories, add their directories and prefixes in the format of *Bucket name/Folder name/Prefix*.
>
> - If no object names or prefixes are specified, 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.

- A maximum of 2,000 object list files can be stored in the object list folder.

- An object list file must be a .txt file, and the **ContentType** metadata of the file 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 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.

- Each line in an object list file cannot be longer than 65,535 characters, or the migration will fail.

- The **ContentEncoding** metadata of each object list file must be left empty, or the migration will fail.

- Archived data can only be accessed and obtained by OMS after it is restored. If the object list files are archived, 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 **Selective 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 fai

Transfer Protocol ○ HTTP   ⊙ HTTPS

Custom Bucket Domain Name [Enter a custom domain name of the bucket.]

[Check]

Table 5-31 Parameters

Parameter	Configuration
Use Source Custom Domain Name	This option is deselected by default.
	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.
	NOTE If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.

	1. Select a transmission protocol for **Transfer Protocol**.
	  NOTE
	    HTTPS is more secure than HTTP and is recommended.

	2. Enter a custom domain name of the bucket in the **Custom Bucket Domain Name** box.
Check	Click **Check** to check whether the configuration is correct.
	- 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 to rename or redefine the paths of objects migrated to the destination bucket.

   Figure 5-70 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 5-32**.

Table 5-32 Advanced settings

Parameter	Description
Failed Object Record	The default value is **Yes**. ● 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. **NOTE** 　– 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	The default value is **No**. ● 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Description

Object Overwrite	• **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
	  – 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	• **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. T
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: ● 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	A maximum of five concurrent migration tasks are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.
	A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.

Item	Constraint
Migration task groups	A maximum of five concurrent migration task groups are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.
Synchronization tasks	Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority. A maximum of five concurrent synchronization tasks are allowed for your account per region.
Object list files	• 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	• 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 [*URL*][*Tab character*][*Destination object name*]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: 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 **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.** 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. In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named **doc/thefile2.txt**, **the file.txt**, **the file2.txt**, and **doc/thefile.txt**. • URLs in the list file can be accessed using HEAD and GET requests.
Failed object list files	A maximum of 100,000 failed objects can be recorded in a failed object list file. **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.

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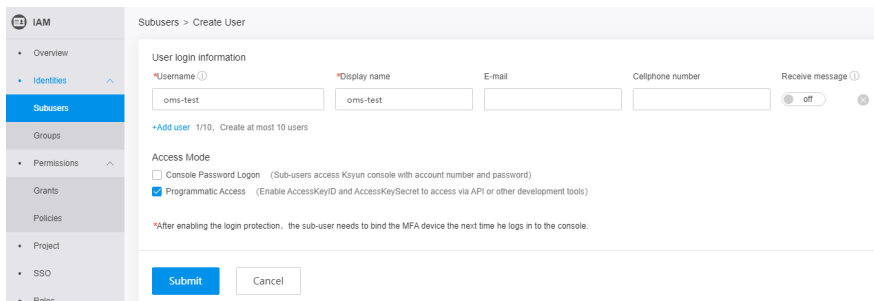
Before using OMS to migrate data between OBS buckets, make preparations by referring to this section.

Registering a HUAWEI ID

Register a HUAWEI ID and enable Huawei Cloud services.

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.

    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**.

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.

- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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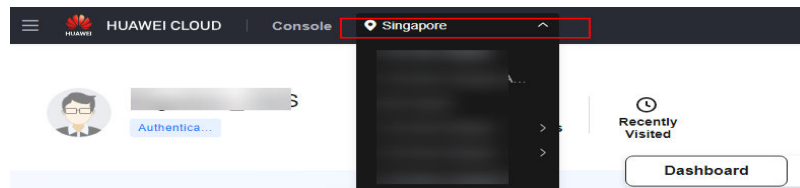
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-72 Choosing OMS
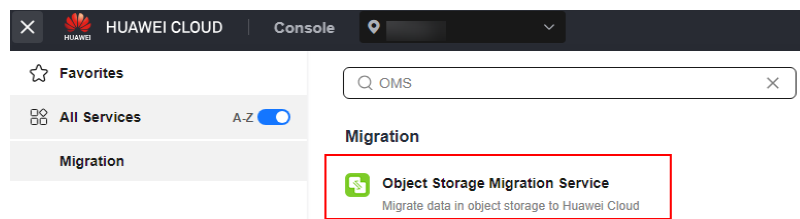
Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 5-73 Creating a migration task
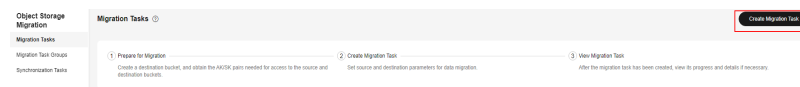
Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

Figure 5-74 Select Source/Destination
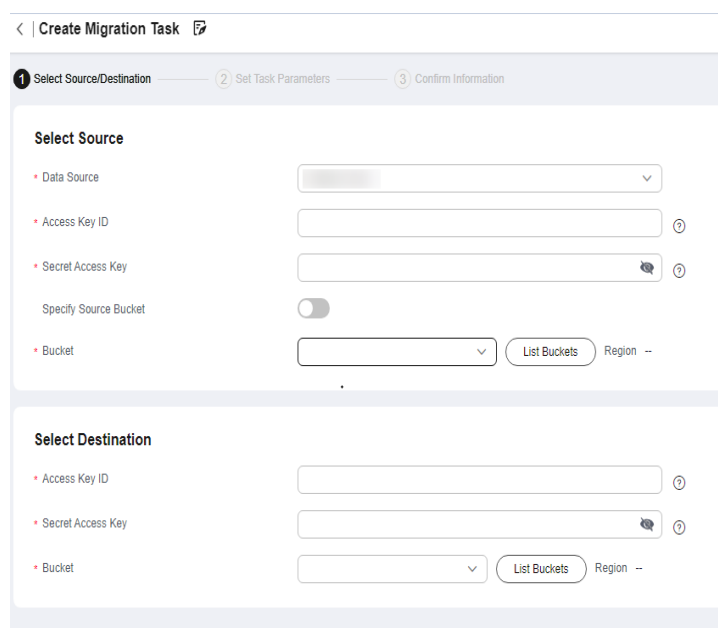
Step 6 Set parameters in the **Select Source** area. For details, see **Table 5-34**.

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.) 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 platform account does not have the permissions required to list buckets, you need to enable **Specify Source Bucket**.
	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 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.	- If you select folders, all files in the selected folders will be migrated. - If you select files, all selected files will 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.

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.	• **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
		NOTE ● 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**

  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 5-76 Selected files and folders
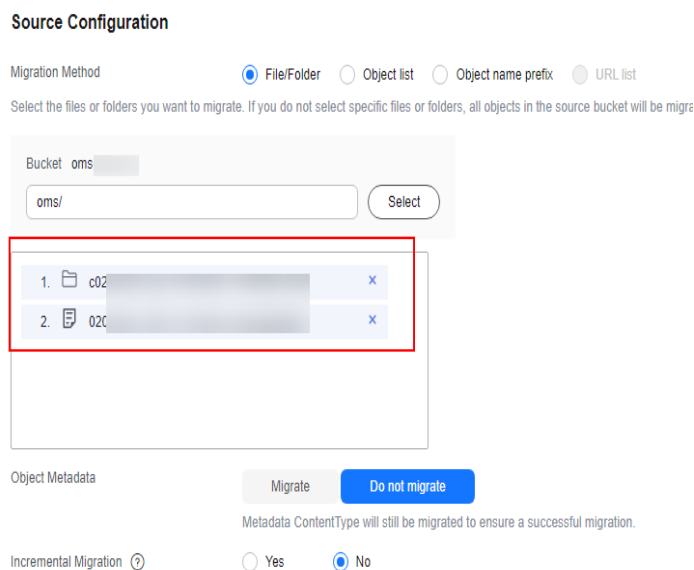
- **Object list**

  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 5-77 Selecting an object list file
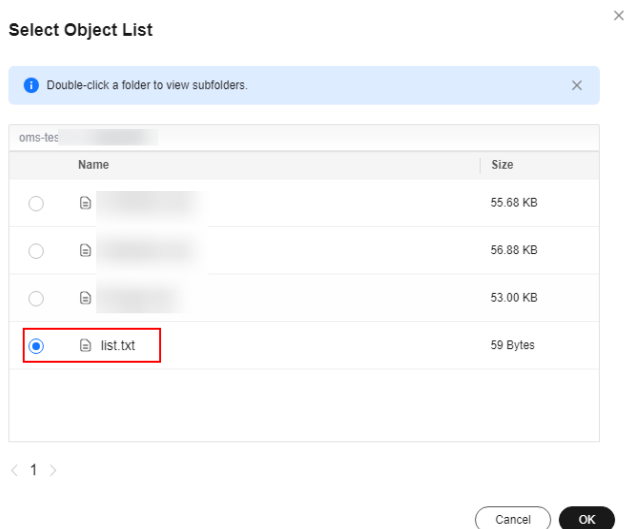
- **Object name prefix**

    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 ✕ 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 **Selective 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 ⑦ ● Yes ○ No

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

Transfer Protocol ○ HTTP ● HTTPS

Custom Bucket Domain Name ⑦ [Enter a custom domain name of the bucket.]

(Check)

Table 5-36 Parameters

Parameter	Configuration

Use Source Custom Domain Name	This option is deselected by default.
	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.
	NOTE
	If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.
	1. Select a transmission protocol for **Transfer Protocol**.
	   NOTE
	   HTTPS is more secure than HTTP and is recommended.
	2. Enter a custom domain name of the bucket in the **Custom Bucket Domain Name** box.

Check	Click **Check** to check whether the configuration is correct. - 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.

   $\boxed{\square}$ 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 to rename or redefine the paths of objects migrated to the destination bucket.

   Figure 5-79 Specifying a prefix

   $\boxed{\square}$ 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	The default value is **Yes**. ● 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. **NOTE** – 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	The default value is **No**. ● 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Description

Object Overwrite	● **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
	    – 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	● **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.
- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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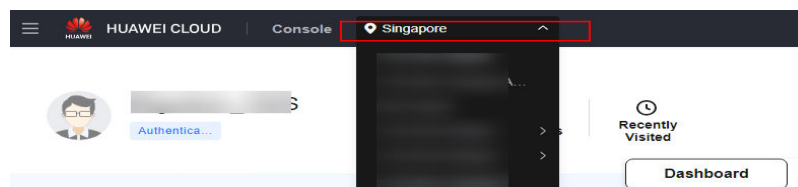
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-81 Choosing OMS
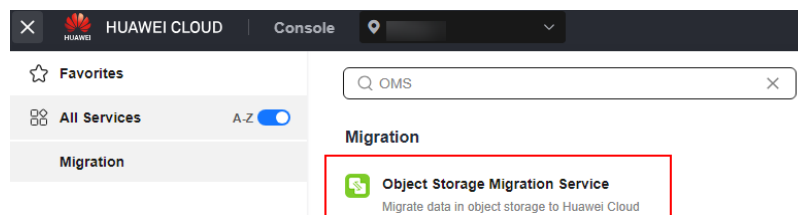
Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

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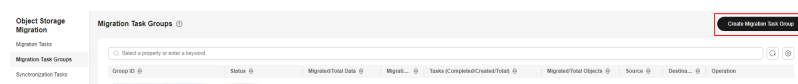
Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-83 Select Source/Destination

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	Disable **Specify Source Bucket** (This feature is disabled by default.) 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 platform account does not have the permissions required to list buckets, you need to enable **Specify Source Bucket**.
	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 5-39**.

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
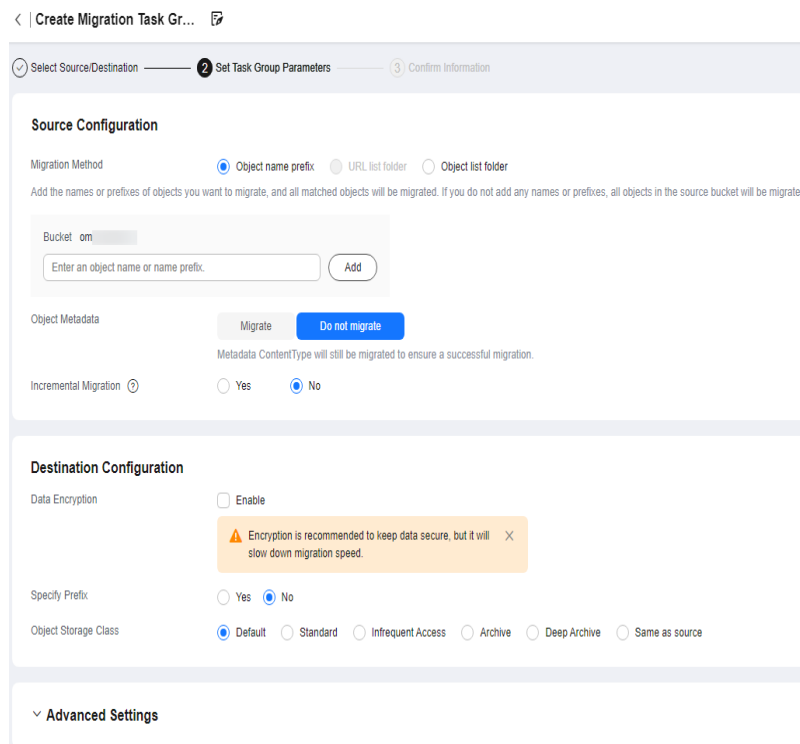
Step 10 Select a migration method.

- **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 none-root directories, add their directories and prefixes in the format of *Bucket name/Folder name/Prefix*.

- If no object names or prefixes are specified, 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.

- A maximum of 2,000 object list files can be stored in the object list folder.

- An object list file must be a .txt file, and the **ContentType** metadata of the file 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 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.

- Each line in an object list file cannot be longer than 65,535 characters, or the migration will fail.

- The **ContentEncoding** metadata of each object list file must be left empty, or the migration will fail.

- Archived data can only be accessed and obtained by OMS after it is restored. If the object list files are archived, 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 **Selective 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**.

Table 5-40 Parameters

Parameter	Configuration
Use Source Custom Domain Name	This option is deselected by default. 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. **NOTE** If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support. 1. Select a transmission protocol for **Transfer Protocol**. **NOTE** HTTPS is more secure than HTTP and is recommended. 2. Enter a custom domain name of the bucket in the **Custom Bucket Domain Name** box.
Check	Click **Check** to check whether the configuration is correct. - 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 to rename or redefine the paths of objects migrated to the destination bucket.

   Figure 5-87 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 5-41**.

Table 5-41 Advanced settings

Parameter	Description
Failed Object Record	The default value is **Yes**. ● 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. **NOTE** – 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	The default value is **No**. ● 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Description
Object Overwrite	● **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** – 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	● **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. T
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: ● 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	A maximum of five concurrent migration tasks are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.
	A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.

Item	Constraint
Migration task groups	A maximum of five concurrent migration task groups are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.
Synchronization tasks	Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority. A maximum of five concurrent synchronization tasks are allowed for your account per region.
Object list files	- 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	● 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 [*URL*][*Tab character*][*Destination object name*]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: 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 **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.** 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. In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named **doc/thefile2.txt**, **the file.txt**, **the file2.txt**, and **doc/thefile.txt**. ● URLs in the list file can be accessed using HEAD and GET requests.
Failed object list files	A maximum of 100,000 failed objects can be recorded in a failed object list file. **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.

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.

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.
>
> ● During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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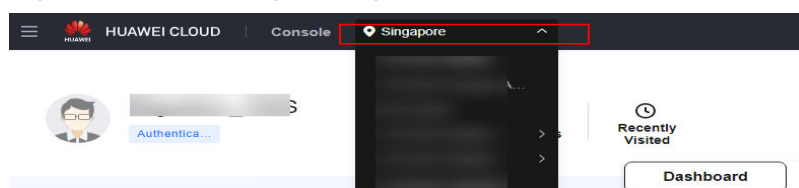
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-89 Choosing OMS
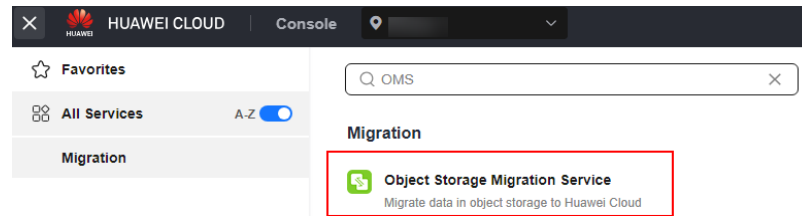
Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 5-90 Creating a migration task
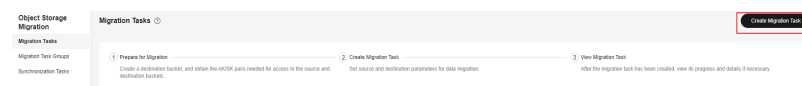
Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

Figure 5-91 Select Source/Destination
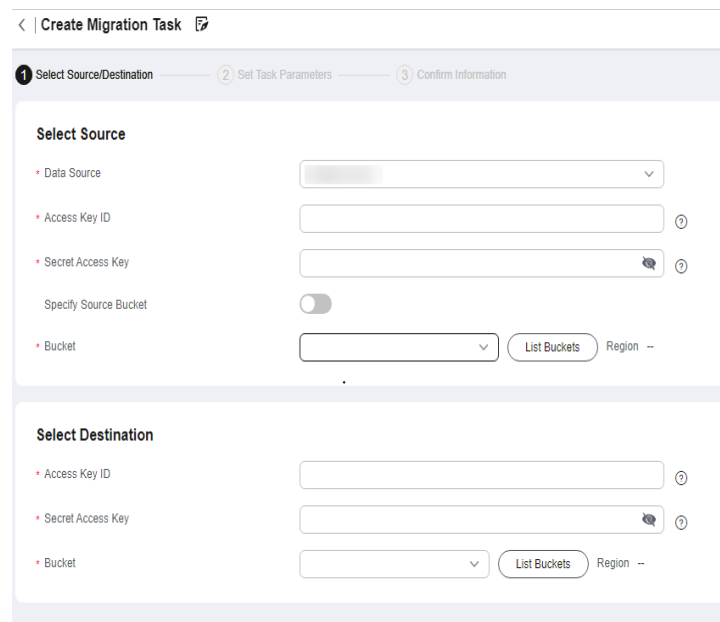
Step 6 Set parameters in the **Select Source** area. For details, see **Table 5-43**.

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	Disable **Specify Source Bucket** (This feature is disabled by default.) 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, enable **Specify Source Bucket**.
	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 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.	• If you select folders, all files in the selected folders will be migrated. • If you select files, all selected files will 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.

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.	• **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
		NOTE ● 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**

    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 5-93 Selected files and folders
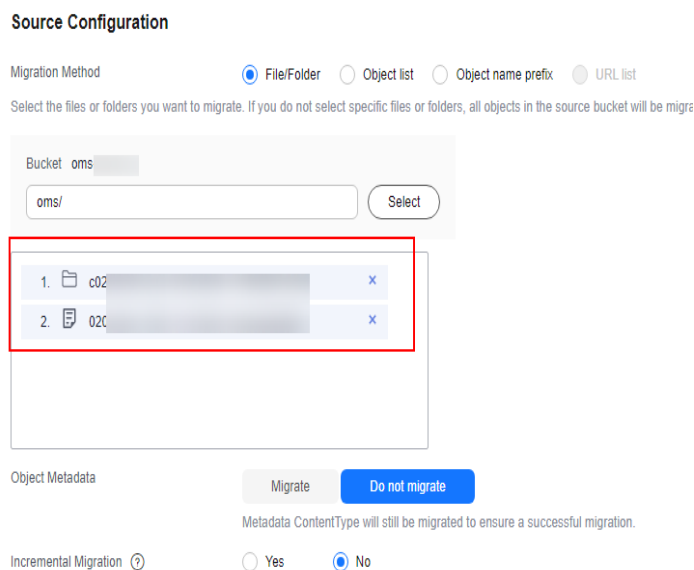
- **Object list**

    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 5-94 Selecting an object list file
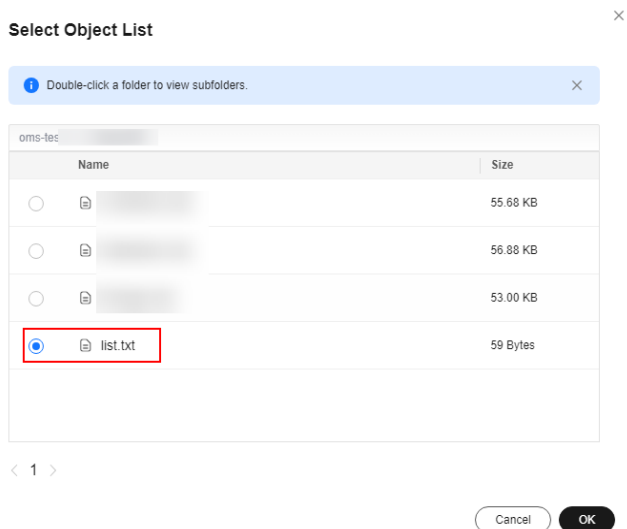
- **Object name prefix**

  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 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 **Selective 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 to rename or redefine the paths 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	The default value is **Yes**. ● 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. **NOTE** – 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	The default value is **No**. ● 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Configuration

Object Overwrite	• **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
	   – 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	• **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**.

5.7.4 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.
- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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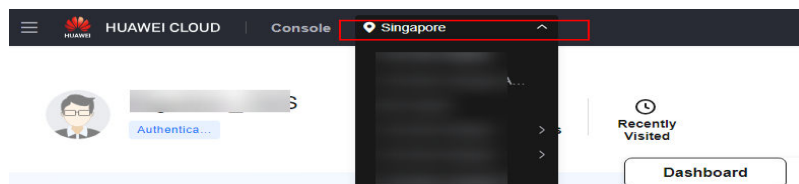
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-98 Choosing OMS
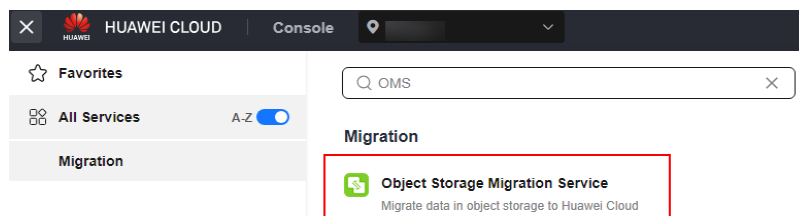
Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

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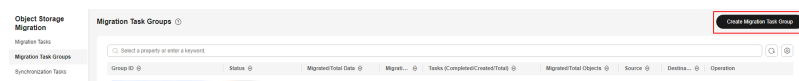
Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

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	Disable **Specify Source Bucket** (This feature is disabled by default.) 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, enable **Specify Source Bucket**.
	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 none-root directories, add their directories and prefixes in the format of *Bucket name*/*Folder name*/*Prefix*.
>
> - If no object names or prefixes are specified, 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.

- A maximum of 2,000 object list files can be stored in the object list folder.

- An object list file must be a .txt file, and the **ContentType** metadata of the file 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 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.

- Each line in an object list file cannot be longer than 65,535 characters, or the migration will fail.

- The **ContentEncoding** metadata of each object list file must be left empty, or the migration will fail.

- Archived data can only be accessed and obtained by OMS after it is restored. If the object list files are archived, 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 **Selective 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 to rename or redefine the paths 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	The default value is **Yes**. ● 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. **NOTE** – 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	The default value is **No**. ● 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Configuration

Object Overwrite	• **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
	  – 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	• **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. T
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: ● 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	A maximum of five concurrent migration tasks are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.
	A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.

Item	Constraint
Migration task groups	A maximum of five concurrent migration task groups are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.
Synchronization tasks	Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority. A maximum of five concurrent synchronization tasks are allowed for your account per region.
Object list files	● 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	● 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 [*URL*][*Tab character*][*Destination object name*]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: `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` **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.** 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. In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named **doc/thefile2.txt**, **the file.txt**, **the file2.txt**, and **doc/thefile.txt**. ● URLs in the list file can be accessed using HEAD and GET requests.
Failed object list files	A maximum of 100,000 failed objects can be recorded in a failed object list file. **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.

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.

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.
> - During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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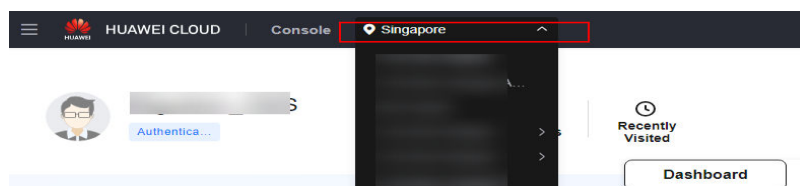
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-106 Choosing OMS
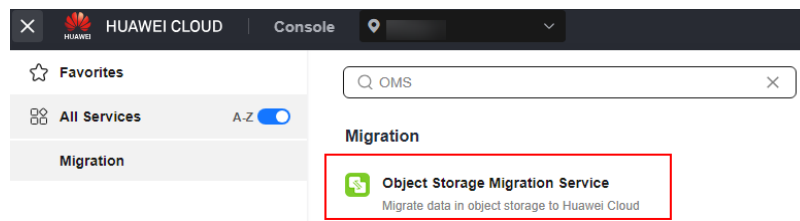
Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 5-107 Creating a migration task
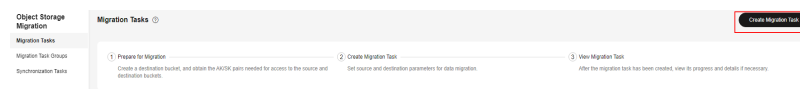
Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

Figure 5-108 Select Source/Destination
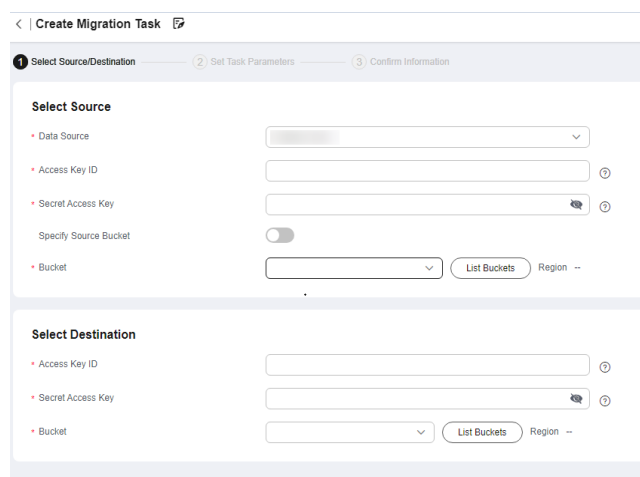
Step 6 Set parameters in the **Select Source** area. For details, see **Table 5-50**.

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	Disable **Specify Source Bucket**. This feature is disabled by default.
	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, enable **Specify Source Bucket**.
	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 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.	• If you select folders, all files in the selected folders will be migrated. • If you select files, all selected files will 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.

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.	**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
		NOTE ● 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**

  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 5-109 Selected files and folders
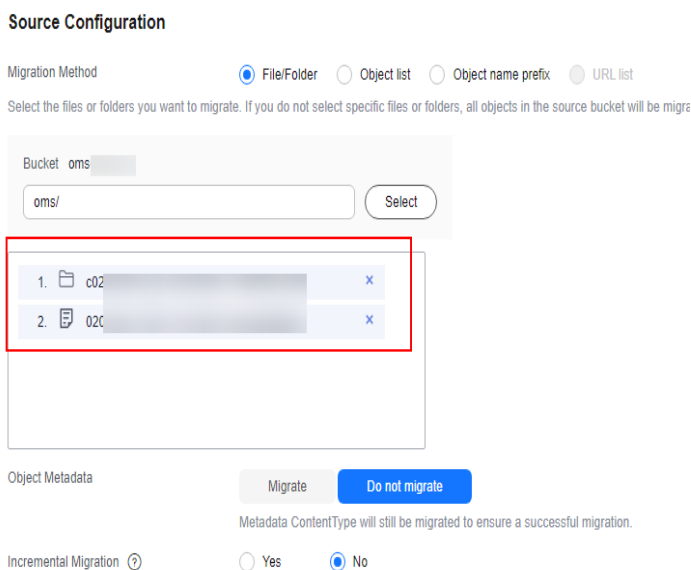
- **Object list**

  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 5-110 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 ✕ 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 **Selective 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**.

Table 5-52 Parameters

Parameter	Configuration
Use Source Custom Domain Name	This option is deselected by default.
	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.
	NOTE If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.

	1. Select a transmission protocol for **Transfer Protocol**.
	
	    NOTE
	    HTTPS is more secure than HTTP and is recommended.

	2. Enter a custom domain name of the bucket in the **Custom Bucket Domain Name** box.
Check	Click **Check** to check whether the configuration is correct.
	• 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 to rename or redefine the paths of objects migrated to the destination bucket.

   Figure 5-112 Specifying a prefix
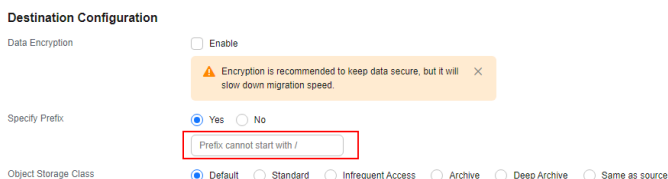
   ☐ NOTE

   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 5-53**.

Table 5-53 Advanced settings

Parameter	Description
Failed Object Record	The default value is **Yes**. ● 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. NOTE – 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	The default value is **No**. ● 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Description

Object Overwrite	• **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
	    – 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	• **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.
- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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 ![location icon] 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
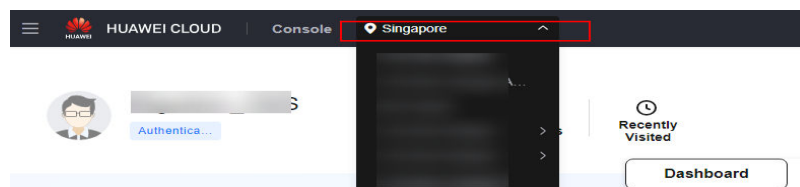
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-114 Choosing OMS
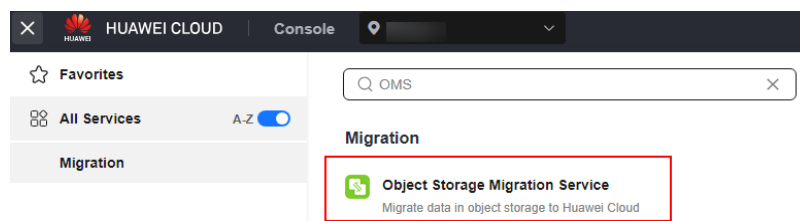
Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

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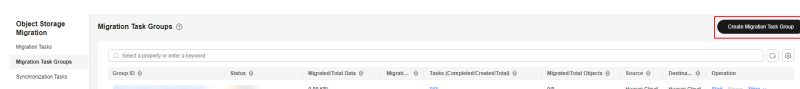
Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-116 Select Source/Destination
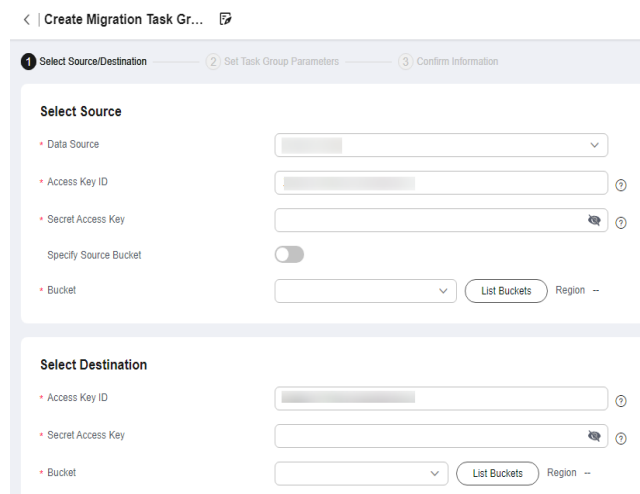
Step 7 Set parameters in the **Select Source** area. For details, see **Table 5-54**.

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	Disable **Specify Source Bucket**. This feature is disabled by default. 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, enable **Specify Source Bucket**.
	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 5-55**.

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
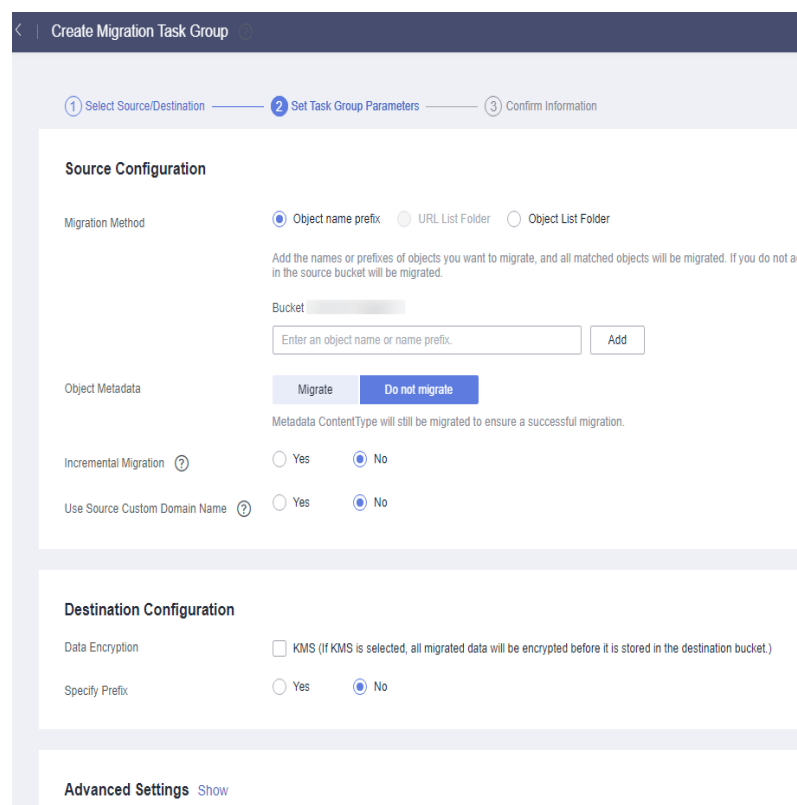
Step 10 Select a migration method.

- **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

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 none-root directories, add their directories and prefixes in the format of *Bucket name*/*Folder name*/*Prefix*.

- If no object names or prefixes are specified, 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.

- A maximum of 2,000 object list files can be stored in the object list folder.

- An object list file must be a .txt file, and the **ContentType** metadata of the file 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 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.

- Each line in an object list file cannot be longer than 65,535 characters, or the migration will fail.

- The **ContentEncoding** metadata of each object list file must be left empty, or the migration will fail.

- Archived data can only be accessed and obtained by OMS after it is restored. If the object list files are archived, 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 **Selective 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 ⑦   ● Yes   ○ No

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

Transfer Protocol   ○ HTTP   ● HTTPS

Custom Bucket Domain Name ⑦ | Enter a custom domain name of the bucket. |

(Check)

Table 5-56 Parameters

Parameter	Configuration

Use Source Custom Domain Name	This option is deselected by default.
	
	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.
	
	NOTE
	If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.
	
	1. Select a transmission protocol for **Transfer Protocol**.
	
	   NOTE
	   HTTPS is more secure than HTTP and is recommended.
	
	2. Enter a custom domain name of the bucket in the **Custom Bucket Domain Name** box.

Check	Click **Check** to check whether the configuration is correct. - 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 to rename or redefine the paths of objects migrated to the destination bucket.

   Figure 5-120 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 5-57**.

Table 5-57 Advanced settings

Parameter	Description

Failed Object Record	The default value is **Yes**.
	
	● 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.
	
	NOTE
	  – 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	The default value is **No**. ● 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Description
Object Overwrite	• **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** – 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	• **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. T
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: ● 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	A maximum of five concurrent migration tasks are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.
	A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.

Item	Constraint
Migration task groups	A maximum of five concurrent migration task groups are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.
Synchronization tasks	Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority. A maximum of five concurrent synchronization tasks are allowed for your account per region.
Object list files	• 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	- 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 [*URL*][*Tab character*][*Destination object name*]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: 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 **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.** 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. In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named **doc/thefile2.txt**, **the file.txt**, **the file2.txt**, and **doc/thefile.txt**. - URLs in the list file can be accessed using HEAD and GET requests.
Failed object list files	A maximum of 100,000 failed objects can be recorded in a failed object list file. **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.

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.

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.
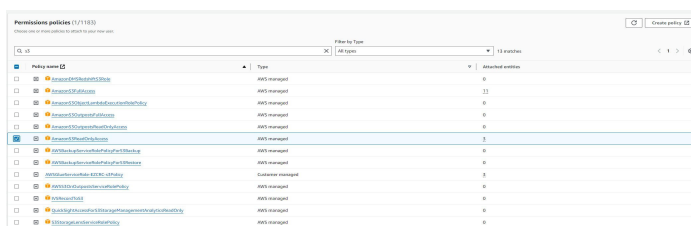
  f. Click **Next**. On the **Review and create** page, confirm the user information.

  g. Click **Create user**. After the creation is complete, click the username of the created user, select **Security credentials**, and click **Create access key**.
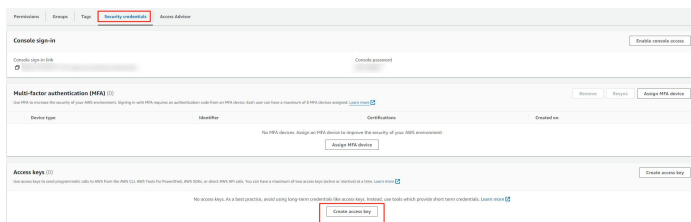
  h. View the AK and SK. You can also download and save the CSV file.

  📖 **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.
- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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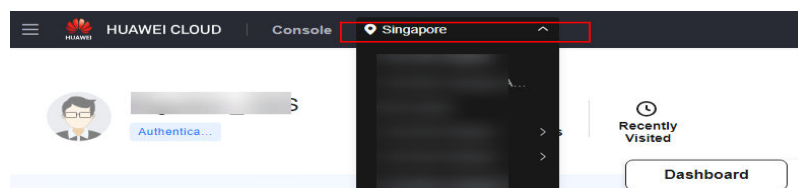
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-122 Choosing OMS
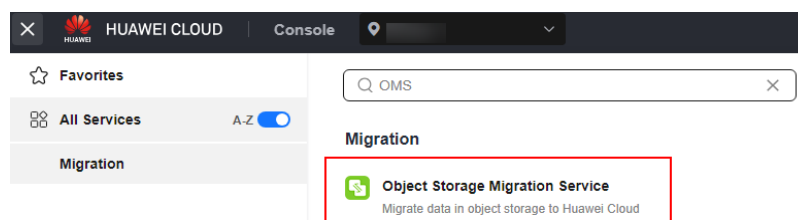
Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

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

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	Disable **Specify Source Bucket** (This feature is disabled by default.) 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, enable **Specify Source Bucket**.
	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 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.	- If you select folders, all files in the selected folders will be migrated. - If you select files, all selected files will 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.

Migration Method	Scenarios	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.	- **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.
		NOTE
		  - 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.

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**

  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
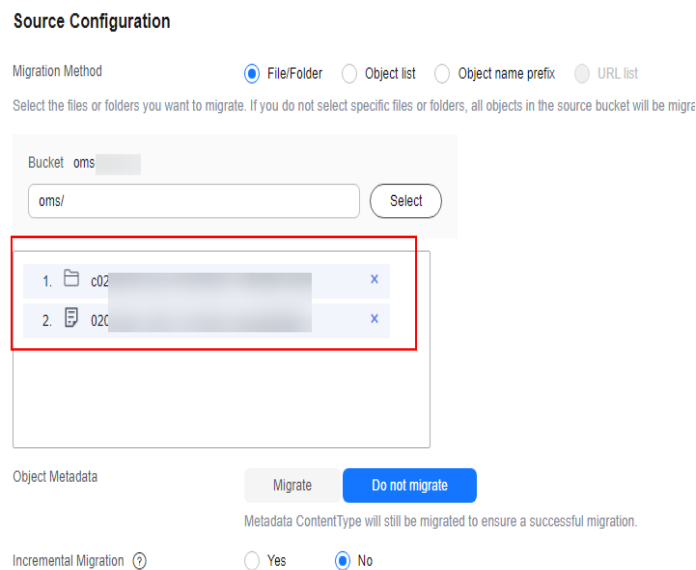
- **Object list**

  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
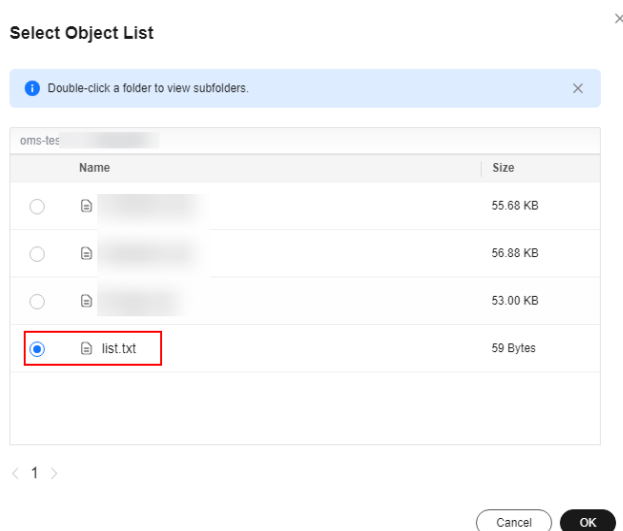
- **Object name prefix**

  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 5-128 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 ✕ 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 **Selective 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**.

Table 5-61 Parameters

Parameter	Configuration
Use Source Custom Domain Name	This option is deselected by default.
	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.
	NOTE If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.

	1. Select a transmission protocol for **Transfer Protocol**.
	    NOTE
	    HTTPS is more secure than HTTP and is recommended.

	2. Enter a custom domain name of the bucket in the **Custom Bucket Domain Name** box.
Check	Click **Check** to check whether the configuration is correct.
	- 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 to rename or redefine the paths of objects migrated to the destination bucket.

     Figure 5-129 Specifying a prefix
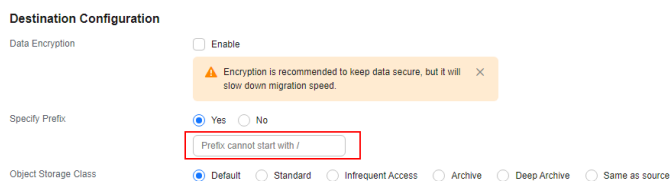
     ☐ NOTE

     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	The default value is **Yes**.
	
	● 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.
	
	NOTE
	
	  – 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	The default value is **No**. ● 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Description

Object Overwrite	• **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
	   – 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	• **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.
- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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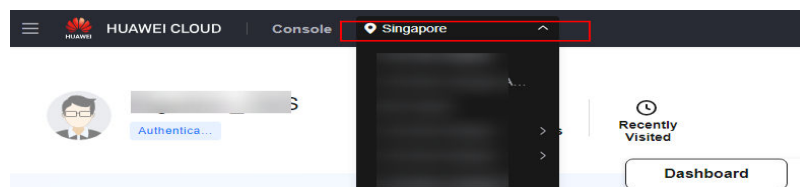
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-131 Choosing OMS
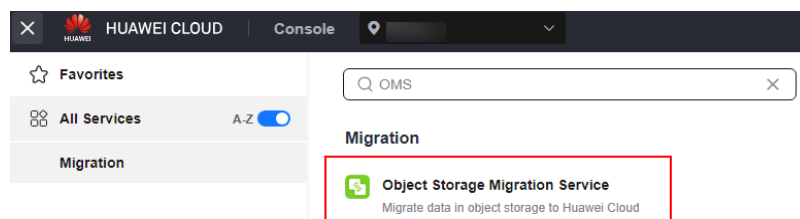
Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

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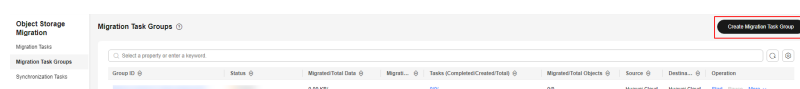
Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

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	Disable **Specify Source Bucket** (This feature is disabled by default.) 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, enable **Specify Source Bucket**.
	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 5-64**.

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
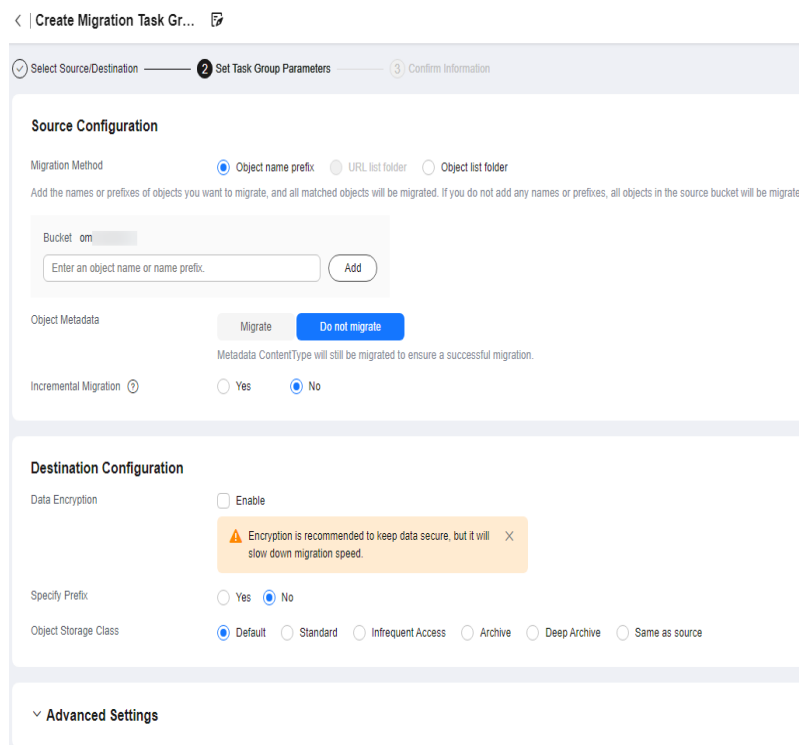
Step 10 Select a migration method.

- **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

> ☐ 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 none-root directories, add their directories and prefixes in the format of *Bucket name/Folder name/Prefix.*
>
> - If no object names or prefixes are specified, 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.

- A maximum of 2,000 object list files can be stored in the object list folder.

- An object list file must be a .txt file, and the **ContentType** metadata of the file 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 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.

- Each line in an object list file cannot be longer than 65,535 characters, or the migration will fail.

- The **ContentEncoding** metadata of each object list file must be left empty, or the migration will fail.

- Archived data can only be accessed and obtained by OMS after it is restored. If the object list files are archived, 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 **Selective 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 ⑦ ● Yes ○ No

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

Transfer Protocol ○ HTTP ● HTTPS

Custom Bucket Domain Name ⑦ [Enter a custom domain name of the bucket.]

(Check)

Table 5-65 Parameters

Parameter	Configuration

Use Source Custom Domain Name	This option is deselected by default.
	
	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.
	NOTE
	If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.
	1. Select a transmission protocol for **Transfer Protocol**.
	  NOTE
	  HTTPS is more secure than HTTP and is recommended.
	2. Enter a custom domain name of the bucket in the **Custom Bucket Domain Name** box.

Check	Click **Check** to check whether the configuration is correct. - 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 to rename or redefine the paths of objects migrated to the destination bucket.

   Figure 5-137 Specifying a prefix
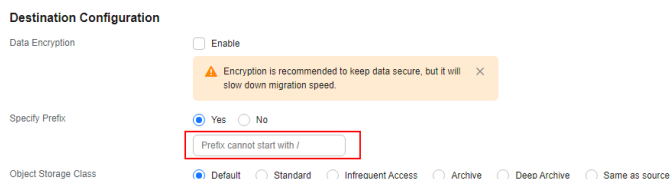
   ### ◻ NOTE

   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 5-66**.

Table 5-66 Advanced settings

Parameter	Description
Failed Object Record	The default value is **Yes**. ● 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. NOTE – 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	The default value is **No**. ● 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Description
Object Overwrite	● **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** – 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	● **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. T
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: ● 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	A maximum of five concurrent migration tasks are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.
	A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.

Item	Constraint
Migration task groups	A maximum of five concurrent migration task groups are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.
Synchronization tasks	Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority. A maximum of five concurrent synchronization tasks are allowed for your account per region.
Object list files	• 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	● 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 [*URL*][*Tab character*][*Destination object name*]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: 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 **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.** 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. In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named **doc/thefile2.txt**, **the file.txt**, **the file2.txt**, and **doc/thefile.txt**. ● URLs in the list file can be accessed using HEAD and GET requests.
Failed object list files	A maximum of 100,000 failed objects can be recorded in a failed object list file. **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.

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.

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.
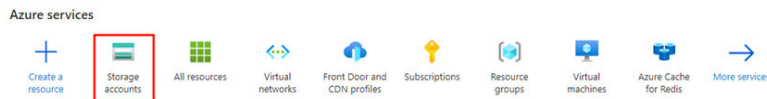
    b. Under **Security+networking**, select **Access keys**. Your account access keys appear, as well as the complete connection string for each key.

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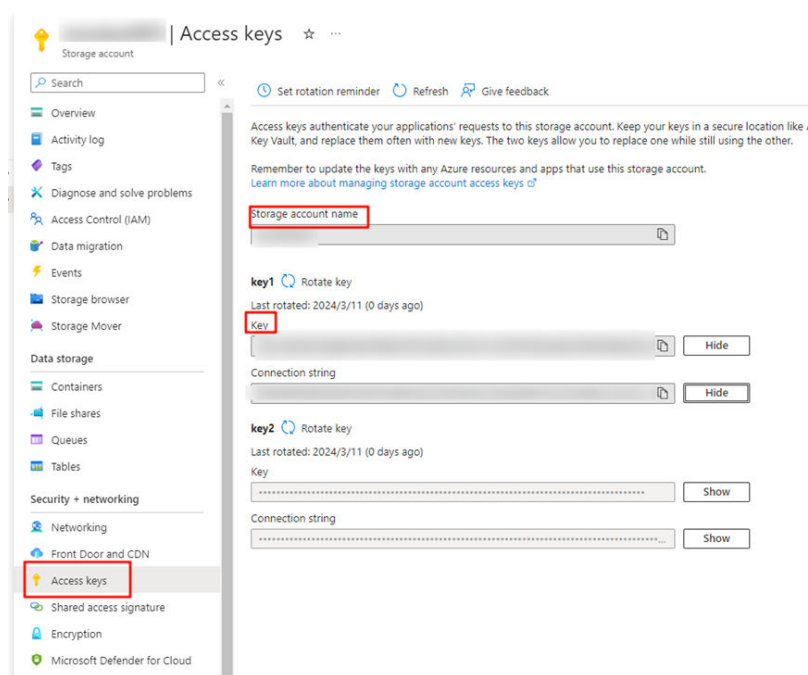
- Destination (Huawei Cloud): Create an AK/SK pair for the destination account and obtain the required permissions. For more information, see **Creating an Access Key (AK/SK)** and **Destination Permissions**.

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.

- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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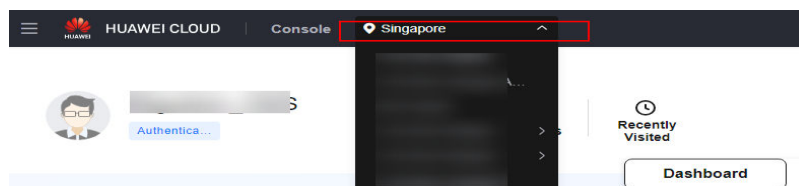
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-139 Choosing OMS
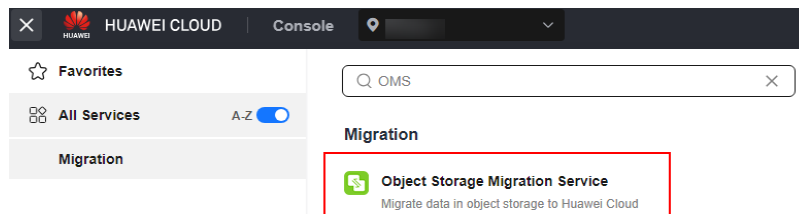
Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 5-140 Creating a migration task
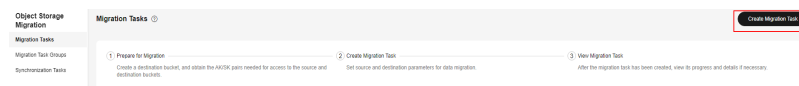
Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

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	Disable **Specify Source Bucket** (This feature is disabled by default.) 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, enable **Specify Source Bucket**.
	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 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.	- If you select folders, all files in the selected folders will be migrated. - If you select files, all selected files will 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.

Migration Method	Scenarios	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.	● **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. **NOTE** ● 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.
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**

  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
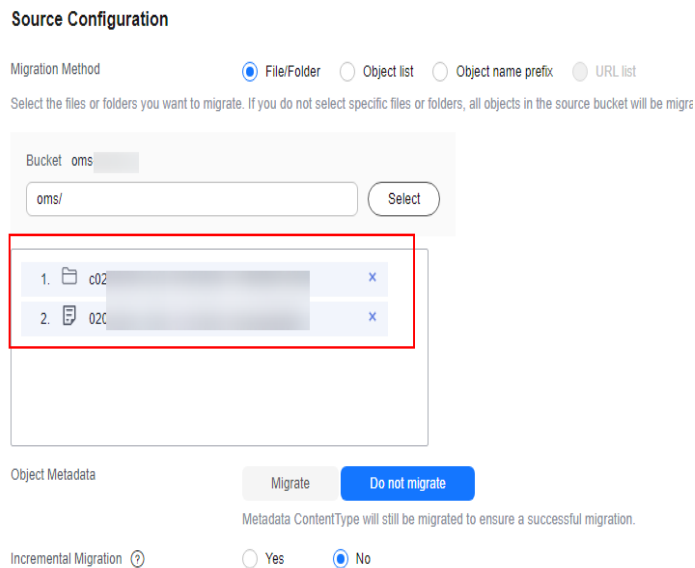
- **Object list**

  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
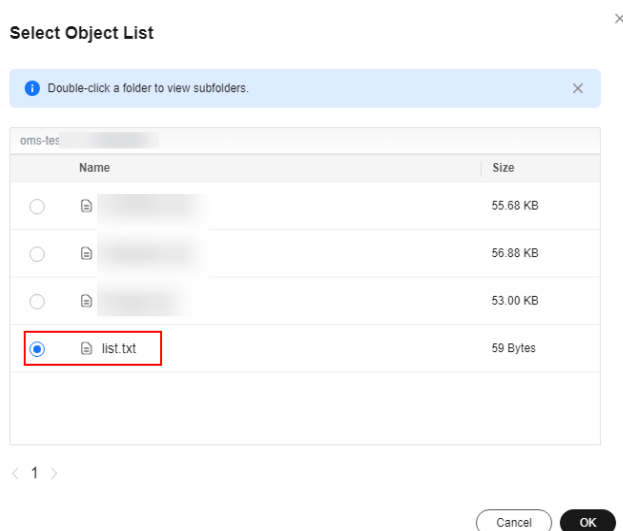
- **Object name prefix**

  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 5-145 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 ✕ 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 **Selective 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 ⑦	● Yes ○ No
Transfer Protocol	○ HTTP ● HTTPS
Custom Bucket Domain Name ⑦	Enter a custom domain name of the bucket.
Enable CDN Authentication ⑦	● Yes ○ No
SAS Token ⑦	Enter an SAS Token

Check

Table 5-70 Parameters

Parameter	Configuration

Use Source Custom Domain Name	This option is deselected by default.
	
	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.
	NOTE
	If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.
	1. Select a transmission protocol for **Transfer Protocol**.
	   NOTE
	    HTTPS is more secure than HTTP and is recommended.
	2. Enter a custom domain name of the bucket in the **Custom Bucket Domain Name** box.

Enable CDN Authentication	This option is deselected by default. If you have enabled CDN authentication on Azure, select this option and enter the SAS token.
Check	Click **Check** to check whether the configuration is correct. • 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 to rename or redefine the paths of objects migrated to the destination bucket.

   Figure 5-146 Specifying a prefix

   Destination Configuration

Data Encryption	☐ Enable
	⚠ Encryption is recommended to keep data secure, but it will slow down migration speed. ✕
Specify Prefix	◉ Yes ◯ No
	Prefix cannot start with /
Object Storage Class	◉ Default ◯ Standard ◯ Infrequent Access ◯ Archive ◯ Deep Archive ◯ 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 5-71**.

Table 5-71 Parameters

Parameter	Configuration
Failed Object Record	The default value is **Yes**. ● 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. **NOTE** – 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	The default value is **No**. ● 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Configuration

Object Overwrite	• **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
	  – 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	• **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.
- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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 ![location icon] 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
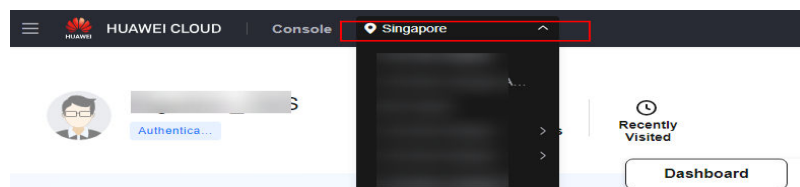
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-148 Choosing OMS
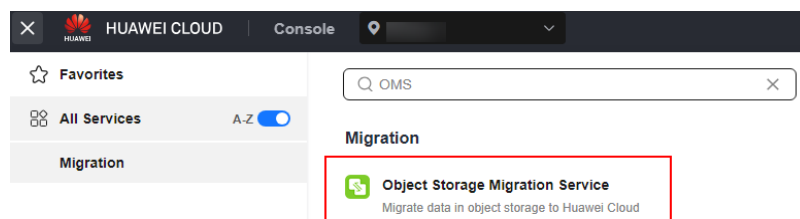
Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

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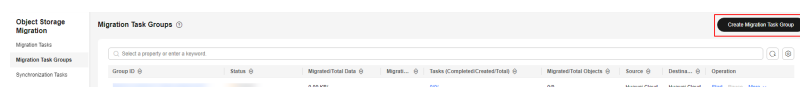
Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-150 Select Source/Destination
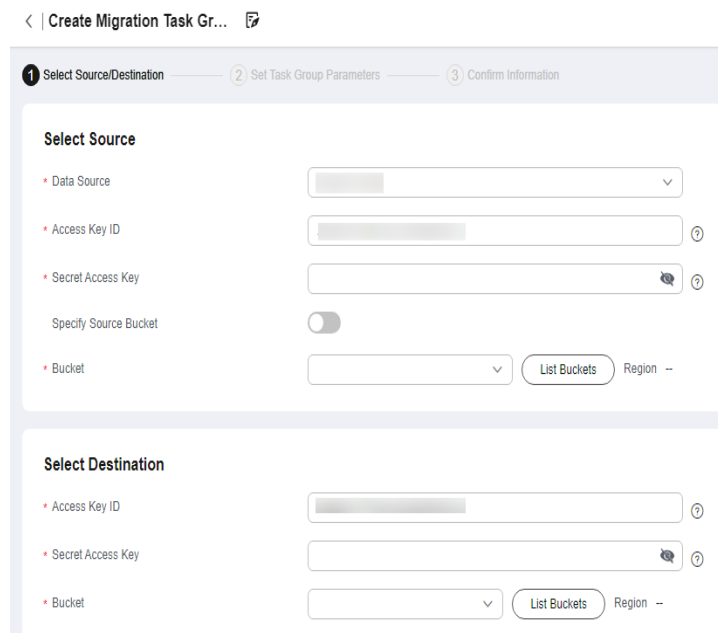
Step 7 Set parameters in the **Select Source** area. For details, see **Table 5-72**.

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	Disable **Specify Source Bucket** (This feature is disabled by default.) 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, enable **Specify Source Bucket**.
	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 5-73**.

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 o

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 none-root directories, add their directories and prefixes in the format of *Bucket name/Folder name/Prefix*.
>
> - If no object names or prefixes are specified, 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.

- A maximum of 2,000 object list files can be stored in the object list folder.

- An object list file must be a .txt file, and the **ContentType** metadata of the file 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 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.

- Each line in an object list file cannot be longer than 65,535 characters, or the migration will fail.

- The **ContentEncoding** metadata of each object list file must be left empty, or the migration will fail.

- Archived data can only be accessed and obtained by OMS after it is restored. If the object list files are archived, 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 **Selective 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.

Table 5-74 Parameters

Parameter	Configuration

Use Source Custom Domain Name	This option is deselected by default.
	
	 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.
	
	 NOTE
	 If anti-leeching is used, you are advised to disable it or contact Huawei Cloud technical support.
	
	 1. Select a transmission protocol for **Transfer Protocol**.
	      NOTE
	      HTTPS is more secure than HTTP and is recommended.
	
	 2. Enter a custom domain name of the bucket in the **Custom Bucket Domain Name** box.

Enable CDN Authentication	This option is deselected by default. If you have enabled CDN authentication on Azure, select this option and enter the SAS token.

Parameter	Configuration
Check	Click **Check** to check whether the configuration is correct. ● 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 to rename or redefine the paths of objects migrated to the destination bucket.

   Figure 5-154 Specifying a prefix
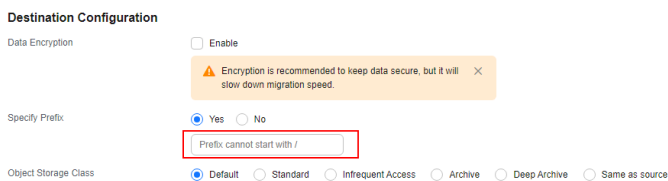
   ☐ NOTE

   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	The default value is **Yes**. ● 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. **NOTE** – 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	The default value is **No**. ● 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Description

Object Overwrite	● **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
	  – 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	● **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. T
Archived data	You need to restore archived data before the migration. Note that when there is archived data to be migrated, you need to: ● 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	A maximum of five concurrent migration tasks are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration tasks concurrently.
	A maximum of 5,000 migration tasks are allowed for your account per region within a 24-hour period.

Item	Constraint
Migration task groups	A maximum of five concurrent migration task groups are allowed for your account per region. **NOTE** If your destination regions are CN North-Beijing1 and CN South-Guangzhou, you can run up to 10 migration task groups concurrently.
Synchronization tasks	Synchronization tasks share quotas with migration tasks and migration task groups, but enjoy a higher priority. A maximum of five concurrent synchronization tasks are allowed for your account per region.
Object list files	● 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	• 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 [*URL*][*Tab character*][*Destination object name*]. Only the Chinese and special characters in the source and destination object names must be URL encoded. For example: 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 **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.** 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. In the preceding examples, after the files represented by the URLs are copied to the destination bucket, the objects are named **doc/thefile2.txt**, **the file.txt**, **the file2.txt**, and **doc/thefile.txt**. • URLs in the list file can be accessed using HEAD and GET requests.
Failed object list files	A maximum of 100,000 failed objects can be recorded in a failed object list file. **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.

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.

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 lists must be in the same region as the destination bucket, or you cannot select these lists.
> - Ensure that the URLs in the lists can be accessed using HEAD and GET requests.

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.
- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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 prepared a URL list and uploaded it to OBS. The URLs in the list can be accessed using HEAD and GET requests.

  📖 **NOTE**

  If the URLs cannot be accessed using HEAD and GET requests, they cannot be migrated by OMS over HTTP or HTTPS. If you still want to use OMS, you are advised to migrate the data from the bucket. Alternatively, contact OBS support.

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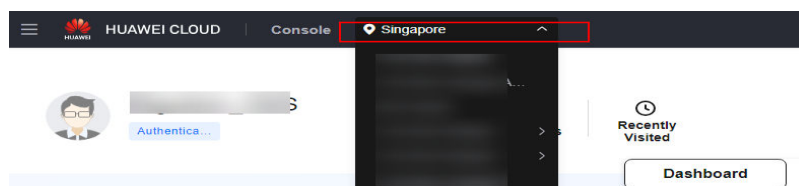
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-156 Choosing OMS
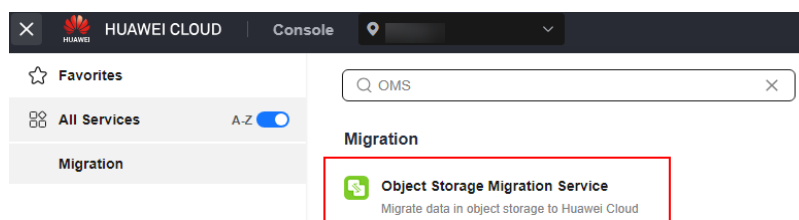
Step 4 On the **Migration Tasks** page, click **Create Migration Task** in the upper right corner.

Figure 5-157 Creating a migration task
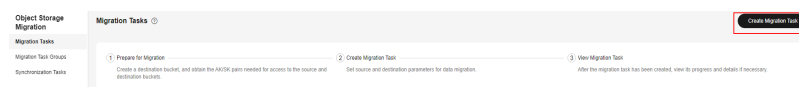
Step 5 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task** page is displayed.

Figure 5-158 Select Source/Destination
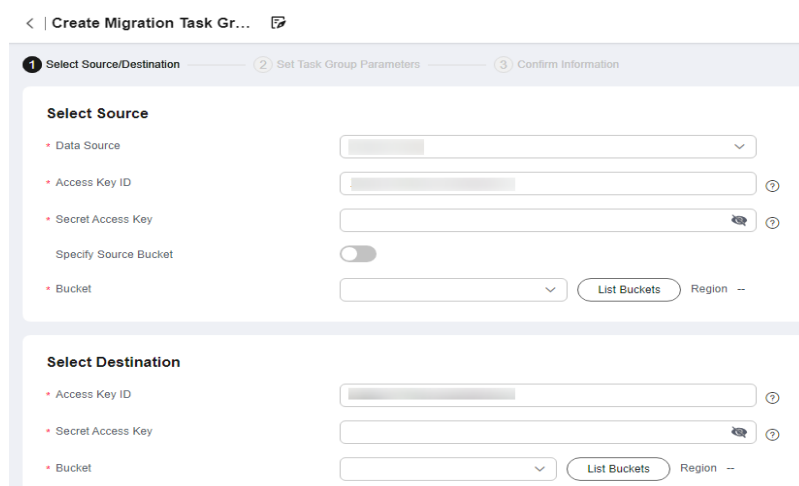
Step 6 In the **Select Source** area, select **HTTP/HTTPS data sources** for **Data Source**.

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
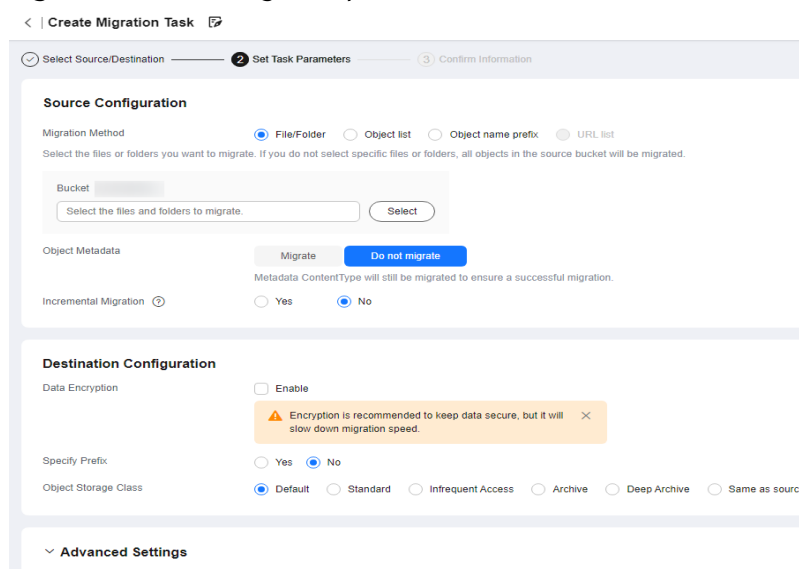
Step 9 Select **URL List**.

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**.

> ⚠ **CAUTION**
>
> Ensure that the URLs in the lists can be accessed using HEAD and GET requests.

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 **Selective 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 to rename or redefine the paths of objects migrated to the destination bucket.

   Figure 5-160 Specifying a prefix
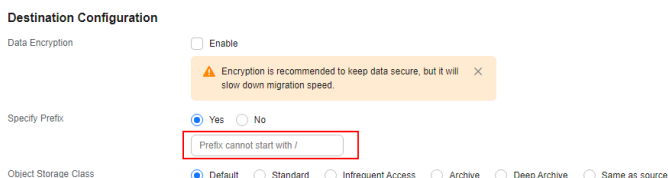
   NOTE

   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 **Advanced Settings** based on **Table 5-78**.

Table 5-78 Parameters

Parameter	Description
Failed Object Record	The default value is **Yes**. ● 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. **NOTE** – 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Description
Object Overwrite	• **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	• **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**: – 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.
- During the migration, the system automatically creates a temporary folder named **OMS** in the target bucket. Do not perform any operations on this folder, including but not limited to modifying, deleting, or adding data in the folder. Otherwise, the migration will be interrupted or fail.

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 prepared a URL list and uploaded it to OBS. The URLs in the list can be accessed using HEAD and GET requests.

  📖 **NOTE**

  If the URLs cannot be accessed using HEAD and GET requests, they cannot be migrated by OMS over HTTP or HTTPS. If you still want to use OMS, you are advised to migrate the data from the bucket. Alternatively, contact OBS support.

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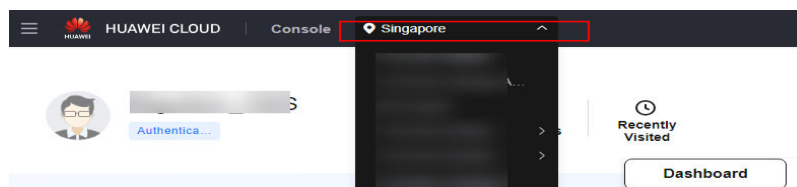
Step 3 Click **Service List** in the upper left corner, and choose **Migration** > **Object Storage Migration Service**.

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

Figure 5-162 Choosing OMS
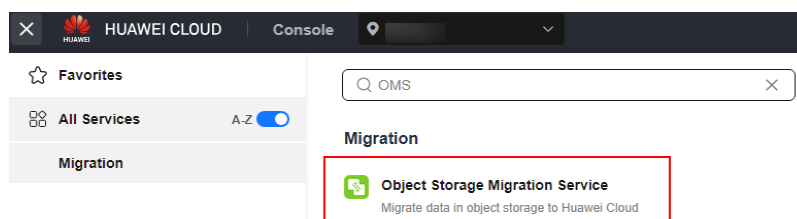
Step 4 In the navigation pane on the left, choose **Migration Task Groups**.

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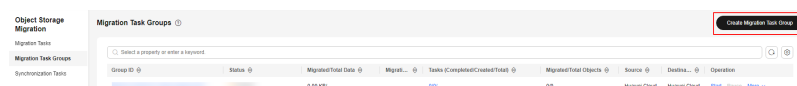
Step 6 Read the service disclaimer, select **I have read and agree to the service disclaimer**, and click **OK**. The **Create Migration Task Group** page is displayed.

Figure 5-164 Select Source/Destination
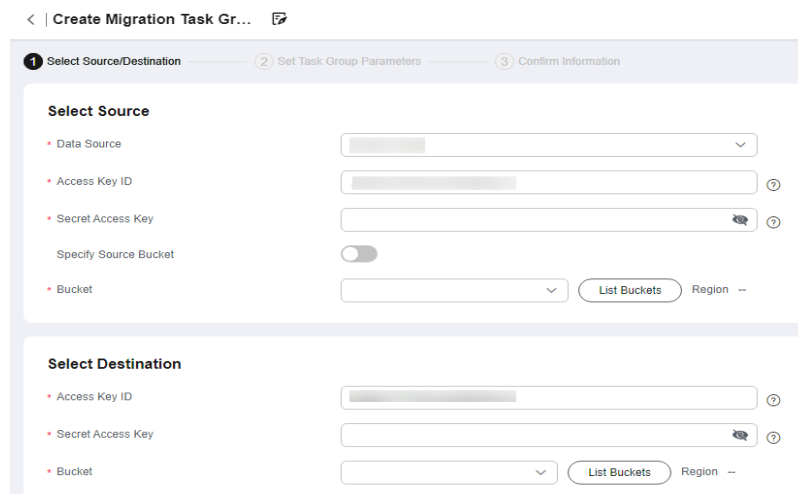
Step 7 In the **Select Source** area, select **HTTP/HTTPS data sources** for **Data Source**.

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**.

⚠️ **CAUTION**

Ensure that the URLs in the lists can be accessed using HEAD and GET requests.

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 **Selective 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 to rename or redefine the paths 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	The default value is **Yes**.
	
	● 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.
	
	NOTE
	  – 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	Determine whether to use SMN to get notifications about migration results. The default value is **No**. ● 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	Set the maximum bandwidth for the migration task during a specified period of time. ● If you do not need to limit migration traffic, select **No**. ● If you need to limit migration traffic, select **Yes**.

Parameter	Description
Object Overwrite	● **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	● **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**: – 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 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**.

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

6 Archive Data Migration

This tutorial describes how to restore archive data on other clouds and migrate it to Huawei Cloud OBS.

6.1 Migrating Archived Data in Huawei Cloud OBS

Huawei Cloud OBS provides the obsutil tool to restore archived data.

📖 **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 archived data**.

Step 3 Migrate restored data by referring to **Migrating Data Between Huawei Cloud OBS Buckets**.

----End

6.2 Migrating Archived Data in Alibaba Cloud OSS

Alibaba Cloud OSS provides the ossutil tool that allows you to specify a prefix to restore the objects whose names start with the prefix.

📖 **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://<bucket-name>[/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 url. 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, ossutil restores all objects whose names contain the specified prefix in the bucket. If you do not specify this parameter, ossutil 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

6.3 Migrating Archived Data in Tencent Cloud COS

You can use the Tencent Cloud console or the coscmd tool to restore archived data.

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 archived 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 restoration mode and the validity period (in days) of the copy.

📖 NOTE

- **Expedited**: This is the fastest mode. Archived 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 archived files in the specified bucket.

- Command for restoring an archived 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

- Command for batch restoring archived 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 restoration mode. The value can be **Expedited** (fast restoration), Standard (standard restore), or Bulk (batch restoration). 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

6.4 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

6.5 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**.
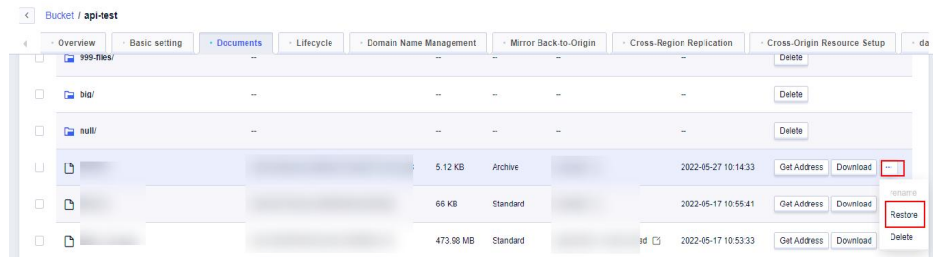
Step 4 Click **OK**. The file enters the restoration process. After its storage class changes to **Standard**, the file is restored.

> **⚠ 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:]: xxxxxxxxxxxxxxxxxx
Enter the API/Token private key [Current:]: xxxxxxxxxxxxxxxxxx
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: xxxxxxxxxxxxxxxxxxxx
SecretKey: xxxxxxxxxxxxxxxxxxxx
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

6.6 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**.
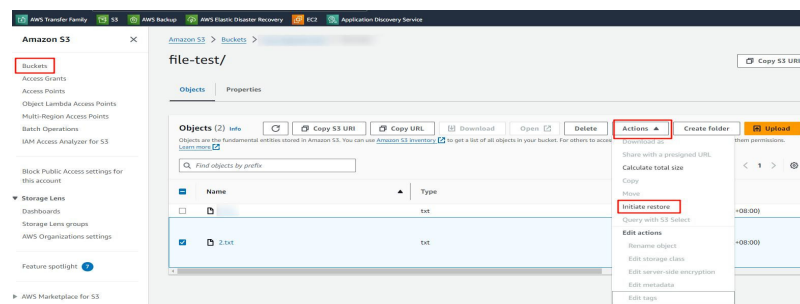
Step 5 If you are restoring from S3 Glacier Flexible Retrieval or S3 Glacier Deep Archive, enter the number of days that you want your archived data to be accessible in the **Number of days that the restored copy is available** box.
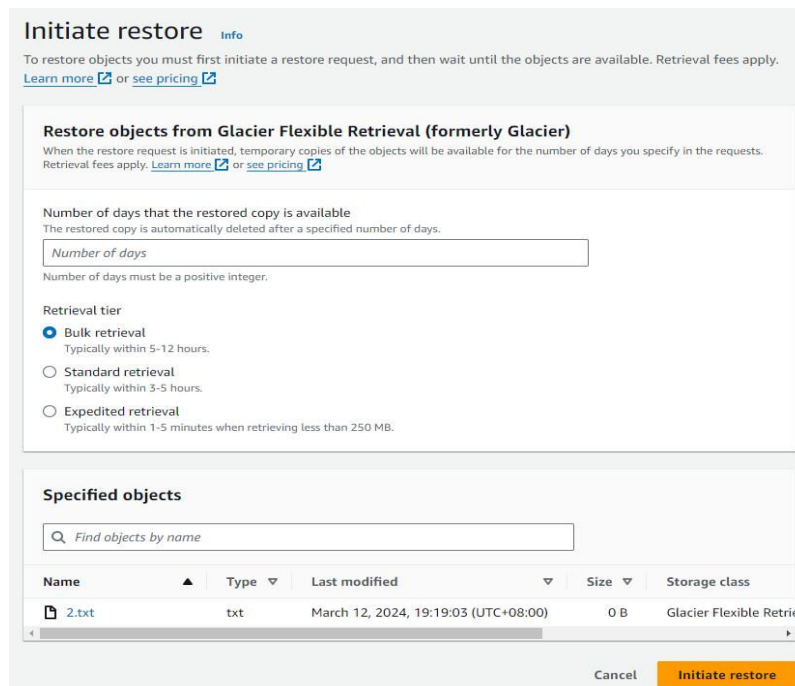
Step 6 Click **Initiate restore**. Migrate restored data by referring to **Migrating Data from Amazon S3 to Huawei Cloud OBS**.

----End

# 6.7 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
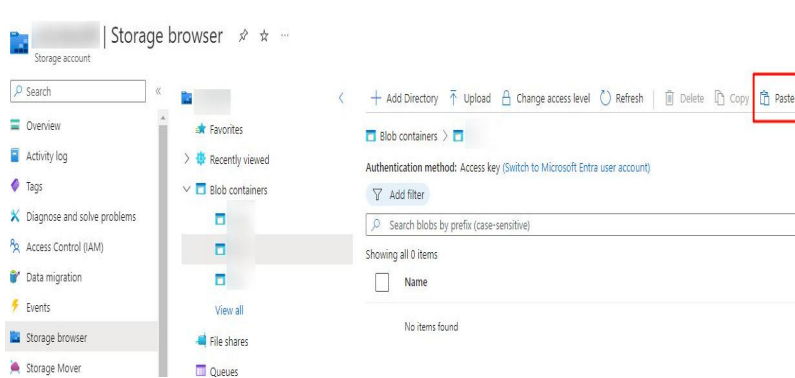
Step 1 In the Azure portal, go to your storage account.

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**.
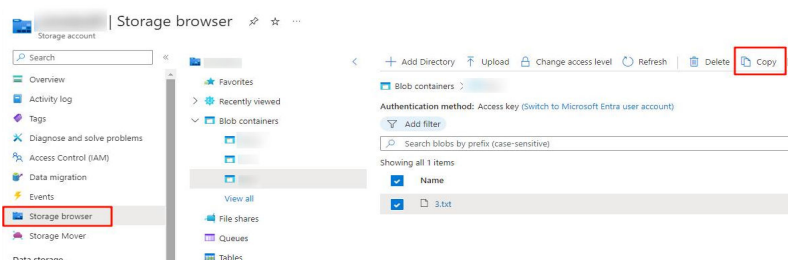
Step 4 Go to the destination blob and choose **Paste**.

Step 5 Migrate restored data by referring to **Migrating Data from Azure Blob Storage to Huawei Cloud OBS**.
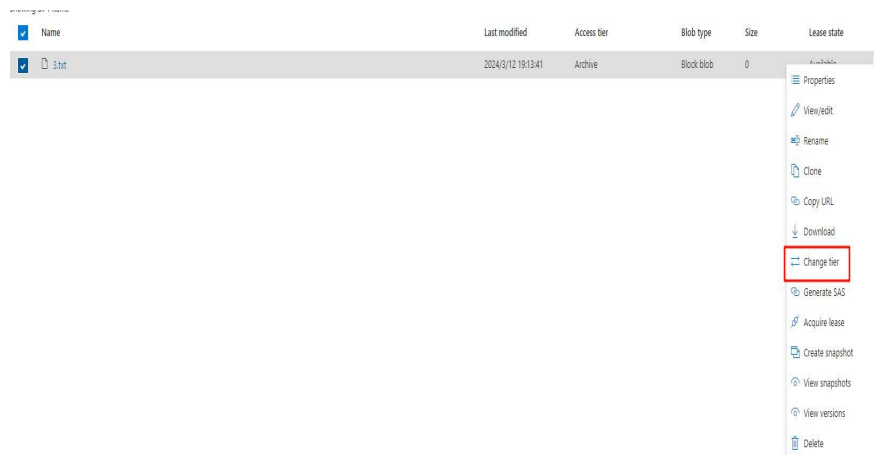
----End

Changing a Blob's Access Tier to an Online Tier

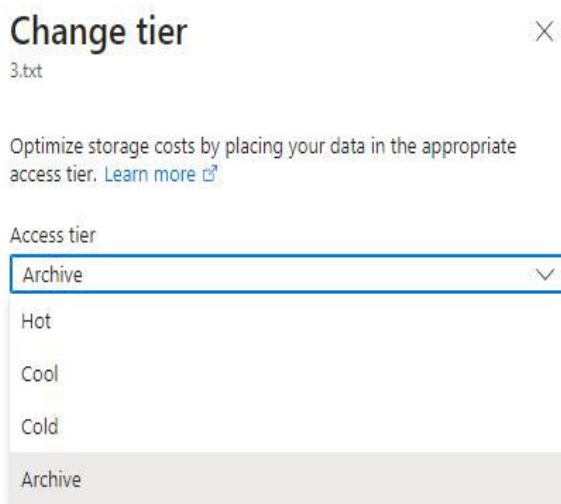**Step 1** In the Azure portal, go to your storage account.

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