Object Storage Migration Service

User Guide

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HUAWEI

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Contents

1 Permissions Management 1
1.1 Creating a User and Assigning OMS Permissions 1
2 Migration Tasks 3
2.1 Creating a Migration Task 3
2.2 Viewing a Migration Task 17
2.3 Managing a Migration Task 18
3 Migration Task Groups 20
3.1 Creating a Migration Task Group 20
3.2 Viewing a Migration Task Group 31
3.3 Managing a Migration Task Group 32
4 Pre-migration Evaluation 35
4.1 Evaluating Data in a Bucket 35
4.2 Creating Migration Tasks Based on Evaluation 37
5 Synchronization Tasks 40
5.1 Creating a Synchronization Task 40
5.2 Configuring a Synchronization Request on the Source Platform 46
5.3 Monitoring a Synchronization Task 53
6 Viewing CTS Traces 57
7 Change History 58

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1 Permissions Management

1.1 Creating a User and Assigning OMS Permissions

This chapter describes how to use **IAM** for fine-grained permissions control for your OMS resources. With IAM, you can:

- Create IAM users for employees based on your enterprise's organizational structure. Each IAM user will have their own security credentials for accessing OMS resources.
- Grant only the permissions required for users to perform a specific task.
- Entrust a HUAWEI CLOUD account or cloud service to perform professional and efficient O&M on OMS.

If your HUAWEI CLOUD account does not need individual IAM users, then you may skip over this chapter.

This section describes the procedure for granting permissions (see **Figure 1-1**).

Prerequisites

Learn about the permissions (see **Permission Management**) supported by OMS and choose policies or roles according to your requirements. For the system policies of other services, see **System Permissions**.

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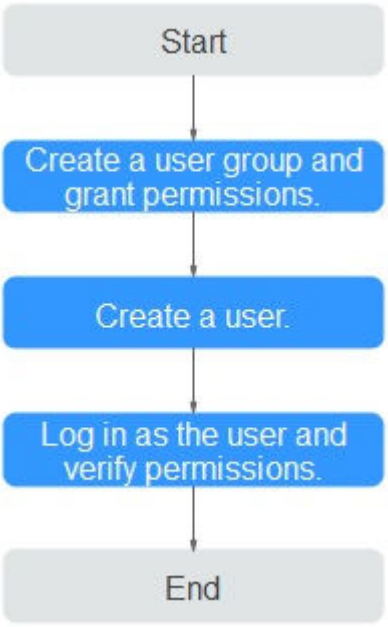
Process Flow

Figure 1-1 Process for granting OMS permissions



1. **Create a user group and assign permissions** to it.

   Create a user group on the IAM console, and assign the **OMS Administrator** and **OBS OperateAccess** permissions to the group.

2. **Create an IAM user**.

   Create a user on the IAM console and add the user to the group created in **1**.

3. **Log in** and verify permissions.

   Log in to the OMS console as the created user, and verify the user's permissions.

   - Choose **Service List** > **Object Storage Migration Service**. On the OMS console, click **Create Migration Task** in the upper right corner. If a migration task can be created, the **OMS Administrator** permission has already taken effect.
   - Choose any other service in **Service List**. If a message appears indicating insufficient permissions to access the service, the **OMS Administrator** permission has already taken effect.

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2 Migration Tasks

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.

SMS provides APIs for you to manage migration tasks. You can also customize APIs for performing desired operations, for example, creating synchronization tasks periodically.

2.1 Creating a Migration Task

Scenarios

This section describes how to create a task to migrate your source objects.

Background

OMS supports the following migration sources:

- HUAWEI CLOUD
- AWS China
- Alibaba Cloud
- Microsoft Azure
- Tencent Cloud
- Qiniu Cloud
- QingCloud
- Baidu Cloud
- Kingsoft Cloud
- UCloud
- HTTP/HTTPS data source

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

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Prerequisites

- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
  - The source platform account needs the following permissions:
    - Listing all buckets
    - Obtaining bucket location
    - 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 all buckets
    - Obtaining bucket location
    - Listing objects
    - Obtaining object metadata
    - Obtaining object content
    - Listing uploaded parts
    - Restoring archive objects

    For details about how to obtain these permissions, see **Destination Permissions**.
- You have created at least one bucket on OBS.
- You have created less than 5,000 migration tasks during the past 24 hours.
- You have less than 5,000 migration tasks in the **Waiting to migrate** state.
- You have registered an account with HUAWEI CLOUD and completed real-name authentication.

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 In the upper right corner, click **Create Migration Task**.

Read the privacy statement, select **Agree to the above privacy agreements**, and click **OK**.

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Step 5 For step **Select Source/Destination**, you need to:

1. Select the source platform. For details about the parameters, see **Table 2-1**.

Table 2-1 Source platform parameters

Parameter	Description
Data Source	Specifies the source cloud service provider.
(Optional) appID	Specifies the identifier of the account for logging in to the Tencent Cloud console. If the selected cloud service provider is **Tencent Cloud**, **appID** must be specified.
Access Key	Specifies the AK of the source platform account. Enter a maximum of 100 characters.
Secret Access Key	Specifies the SK of the source platform account. The SK matches with the AK. Enter a maximum of 100 characters.
Specify Bucket Name	If you do not have the permissions required to list buckets but have the permissions to list objects in buckets, obtain object metadata, and obtain objects, enable this parameter to specify the path of the source bucket for the migration. For details, see **Table 2-2**.

Table 2-2 Description of **Specify Bucket Name**

If You...	Then...
Enable **Specify Bucket Name**	1. Select the region where the source bucket resides from the **Select Region** drop-down list. 2. In the **Bucket Name or Path** text box, enter the source bucket name or the source bucket path with the bucket name. 3. Click **Connect to Source Bucket**. **NOTE** OMS will check whether the source platform information is correct. If the entered information is correct, a message is displayed indicating that the source bucket is connected.

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If You...	Then...
Disable **Specify Bucket Name** (This feature is disabled by default.)	1. Click **Connect to Source Bucket**. OMS will check whether the source platform information is correct. If the entered information is correct and your account has the permissions needed to list buckets, all buckets are listed in the **Bucket** drop-down list. 2. In the **Bucket** drop-down list, select the bucket where the objects to be migrated reside. **NOTE** If the source account does not have the permissions required to list buckets, you need to enable **Specify Bucket Name**.

2. Select the destination platform. For details about the parameters, see **Table 2-3**.

Table 2-3 Destination platform parameters

Parameter	Description
Access Key	Specifies the AK for accessing HUAWEI CLOUD. Enter a maximum of 100 characters.
Secret Access Key	Specifies the SK for accessing HUAWEI CLOUD. The SK matches with the AK. Enter a maximum of 100 characters. After entering the AK and SK, click **Connect to Destination Bucket**.
Bucket	Specifies the destination OBS bucket for storing the migrated data.

Step 6 Click **Next** to set task parameters.

Step 7 Select a migration method in the **Select Migration Method** area.

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Migration Method	Description
File/Folder	Click **Select**, and in the displayed dialog box, select the files or folders to be migrated, and click **OK**. You can click  to delete a selected file or folder from the list. **NOTE** • If you select **Qiniu Cloud** for **Data Source**, you cannot select files or folders. • If you do not select specific files or folders, all objects in the source bucket will be migrated. • For each migration task, you can select up to 500 files and folders in a given directory. • The name of any individual object on OBS cannot exceed 1,024 characters. If the name of a migrated object on OBS exceeds this limit, the migration task will fail.

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Migration Method	Description
Object List	Generally, this parameter is used to migrate incremental objects. You need to write the names of source objects to be migrated into an object list file and store the file in an OBS bucket on HUAWEI CLOUD. OMS migrates all objects specified in the object list file. 1. Select **List File Bucket (HUAWEI CLOUD)**. **NOTE** The buckets listed are the buckets obtained by entering the destination AK and SK in **Step 5.2**. If the bucket used for storing object list files is not located in the same region as the destination bucket, you cannot select the object list files. 2. Click **Select** next to **Select Object List File**, select the target object list files, and click **OK**. **NOTE** • Each object list file cannot exceed 100 MB. • The object list file must be a .txt file, and **ContentType** in the 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.

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Migration Method	Description
Object Name Prefix	Enter the names or prefixes of objects to be migrated and 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. **NOTE** If no object names or name prefixes are specified, all objects in the source bucket will be migrated.

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Migration Method	Description
URL List	Generally, this setting is used to migrate HTTP/HTTPS source data. You need to write the URLs of the files to be migrated and their destination object names into a URL list file and store the file in an OBS bucket on HUAWEI CLOUD. OMS migrates all files specified in the URL list file. 1. Select **List File Bucket (HUAWEI CLOUD)**. **NOTE** – The buckets listed are the buckets obtained by entering the destination AK and SK in **Step 5.2**. – If the bucket used for storing object list files is not located in the same region as the destination bucket, you cannot select the object list files. – For security purposes, if the migration source supports both HTTP and HTTPS, you are advised to use HTTPS during the migration. If HTTP is used, data may be eavesdropped on, tampered with, or vulnerable to man-in-the-middle or replay attacks. – If the data to be migrated is non-public and you do not want to make the data public, you are advised to use other migration methods. – URL redirection is not supported. 2. Click **Select** next to the **Specified URL File** area, select the target URL list files, and click **OK**.

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Migration Method	Description
	NOTE – Each URL list file cannot exceed 100 MB. – The URL list file must be a .txt file, and **ContentType** in the metadata of the file must be **text/plain**. – The URL list file must be in UTF-8 without BOM. – Each line in the URL list file can contain only one URL and one destination object. – The length of each line in the URL list file cannot exceed 65,535 characters, or the migration will fail. – **ContentEncoding** cannot be set in the metadata of the URL list file, or the migration will fail. – In the URL list file, each line uses a tab character (\t) to separate the URL from the destination object name. The format is [*URL*][*Tab character*][*Destination object name*]. The destination object name is encoded using URL Encode. For example: http://xxx.obs.myhuaweicloud.com/doc/file1.txt doc%2f%e6%96%87%e4%bb%b61.txt http://xxx.obs.myhuaweicloud.com/doc/thefile2.txt doc%2fthefile2.txt http://xxx.obs.myhuaweicloud.com/the%20file.txt the%20file.txt http://xxx.obs.myhuaweicloud.com/the%20file2.txt the+file2.txt http://xxx.obs.myhuaweicloud.com/doc/thefile.txt doc/thefile.txt Use a tab character (Tab key on the keyboard) to separate the URL from 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/doc/thefile2.txt**, **the file.txt**, **the file2.txt**, and **doc/thefile.txt**. – Spaces are not allowed in each line in the URL list file. Spaces may cause migration failures because they may be mistakenly identified as object names.

Step 8 (Optional) Set **Source Parameters**.

Parameters described in **Table 2-4** are only available if the source cloud service provider offers the related functions.

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Table 2-4 Source parameters

Parameter	Description
Use Source Custom Domain Name	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. • If the source cloud service provider is Qiniu Cloud, this option is selected by default to ensure a smooth migration because Qiniu Cloud has restrictions on default domain names. If you select this option, you must: 1. Select a transmission protocol for **Transfer Protocol**. **NOTE** HTTPS is more secure than HTTP and is recommended. If the data to be migrated is non-public and you do not want to make the data public, you are advised to use other migration methods. 2. Enter a custom domain name of the bucket for **Custom Bucket Domain Name**. 3. If you use the CDN authentication provided by the source cloud service provider, select **Enable CDN Authentication** and configure the authentication type and keys. **NOTE** – You can use CDN authentication only after configuring CDN by referring to documents of the source cloud service provider. – The fees generated by using CDN on the source platform are billed by the source cloud service provider. – URI redirection is not supported. 4. 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.

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Parameter	Description
Archive Data Restoration	Only restored archive data can be migrated. You can select this option if your source cloud service provider supports automatic restoration of archive data. • If you select this option, the system automatically restores and migrates archive objects in the migration task. If an archive object fails to be restored, the system records it in the list of objects that failed to be migrated and continues to migrate other objects in the migration task. • If you do not select this option, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects in the migration task. **NOTE** • Currently, the following cloud service providers can automatically restore archive objects: HUAWEI CLOUD, Alibaba Cloud, Kingsoft Cloud, and Tencent Cloud. • It takes at least a minute to restore an archive object. The larger the archive object is, the longer it takes to restore it, but if an archive object cannot be restored within three minutes, the restoration fails. The time needed depends on the cloud service provider. For details, see related documents of the specific cloud service provider. • Two types of fees are generated during archive data restoration: fees for API calls and fees for archive object restoration. These fees are billed by the source cloud service provider. • After restoration, archive objects will be in restored state for a certain period of time. During this period, objects can be downloaded or read. After this period expires, archive objects need to be restored again for migration. For details about how long they stay in the restored state, see related documents from the cloud service provider. • After objects are migrated from the source platform to HUAWEI CLOUD, the storage class of the migrated objects is the same as that of the destination bucket.

Step 9 Click **Show** next to **Advanced Settings** to expand the advanced parameters.

Step 10 (Optional) Set **Advanced Settings** parameters.

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Table 2-5 Advanced Settings parameters

Parameter	Description
Data Encryption	If you select **KMS**, migrated data is encrypted before being transferred to the destination OBS buckets. **NOTE** Using KMS to encrypt migrated data may decrease the migration speed by about 10%. This option is only available if KMS encryption is supported in the current region.
Failed Object Record	Specifies whether to record the objects that fail to be migrated. ● If this parameter is set to **No**, the system will not record the objects that fail to be migrated. If the migration fails, all objects in the source bucket need to be transmitted again. ● If this parameter 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 the failed objects need to be migrated again. **NOTE** The objects that fail to be migrated are recorded in an object list file named by the task name and uploaded to the **oms/failed_object_lists** directory of the destination bucket. This file contains information about the failed migration tasks, including the failure causes, occurrence time (local UTC), URL-encoded names of failed objects, non-URL-encoded names of failed objects, and error codes returned by source SDKs. This file is stored in the destination bucket after the objects in the file are successfully retransmitted. If you do not need the file, delete it manually.
Incremental Data	Specifies whether to filter source objects to be migrated by time. ● If this option is set to **No**, source objects are not filtered by time. ● If this option is set to **Yes**, only the source objects that are modified or added after the specified time are migrated. You need to click  to specify the time.

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Parameter	Description
SMN Notification	Specifies whether to use SMN to notify you of migration results. • If this parameter is set to **No**, no SMN message is sent after the migration. • If this parameter is set to **Yes**, you will receive an SMN message informing you of the migration results. Perform the following steps to set SMN parameters: 1. Click **Add** next to the **Select SMN Topic** area. The **Select SMN Topic** dialog box is displayed. 2. Select a topic for receiving SMN messages and click **OK**. If OMS is not authorized to publish messages to the selected SMN topic, a **Warning** dialog box will display after you click **OK**. If you need the authorization, click **OK** to authorize OMS. Otherwise, click **Cancel** to return to the **Select SMN Topic** page and select another SMN topic. 3. Configure **Trigger Condition**. You can select one of the following options or both: – **Migration succeeded**: An SMN message will be sent after the migration task succeeds. – **Migration failed**: An SMN message will be sent after the migration task fails. **NOTE** If you experience trouble in using SMN, see **What Can I Do If the SMN Function Works Improperly?**

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Parameter	Description
Traffic Limit	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**. Perform the following steps to set traffic limits: 1. Click **Add Rule**. A traffic limiting rule is displayed. 2. Specify **Start Time**, **End Time**, and **Maximum Bandwidth**. The value range of the maximum bandwidth is 1 MB/s to 200 MB/s. 3. Repeat **Step 10.a** and **Step 10.b** to add another traffic limiting rule. You can click  in the **Operation** column to delete a rule. **NOTE** You can create a maximum of five rules. You can set traffic limiting rules in the task details even after the task is created.
Description	In the **Description** area, enter a maximum of 255 characters to briefly describe the migration task.

Step 11 Click **Next** to enter the confirmation page.

Step 12 Confirm the settings of the migration task and start the migration.

1. Check whether the settings of migration parameters are correct.

   If the settings are incorrect, click **Previous** to return to the previous page for modification.

2. 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.

   For details about migration task statuses, see **Viewing a Migration Task**.

   NOTE

   After the task is created, a task ID is generated for you 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

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2.2 Viewing a Migration Task

Scenarios

After creating a migration task, you can view the migration progress and details at any time.

Procedure

Step 1 Log in to the management console and enter the **Object Storage Migration Service** page.

Step 2 In the upper right corner of the migration task list, set filter criteria to search for migration tasks.

- Task group ID box: If a migration task is issued by creating a migration task group, you can enter the task group ID to filter all the migration tasks in that task group.

  Obtain the task group ID from the **Migration Task Group** page.
- All statuses box: See **Table 2-6** to learn more about the statuses.

Table 2-6 Migration task statuses

Status	Description
Waiting to migrate	A migration task has been created, and background initialization is ongoing or other migration tasks are ongoing, preventing this task from starting.
Migrating	The migration task is ongoing and objects are being migrated from the source platform to HUAWEI CLOUD.
Migration paused	The migration task is paused. You can resume a paused task.
Migration succeeded	The source objects in the migration task have been successfully migrated.
Migration failed	The migration task fails, and the migration is not complete. You can restart the task group to retry the migration.

Step 3 Click **View Details** in the lower right corner of a task to view the task details.

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NOTE

The migration task details include the number of migrated objects and parameters you have configured when creating the task.

You can click the name of the destination OBS bucket to view the objects that have been migrated to HUAWEI CLOUD.

If traffic limit is enabled for a task in the **Migrating** status, you can click next to **Traffic Limit** to modify the traffic limiting rules for the task.

----End

2.3 Managing a Migration Task

Scenarios

After creating a migration task, you can pause, resume, restart, or delete the task.

Procedure

Step 1 Log in to the management console and enter the **Object Storage Migration Service** page.

Step 2 Manage the target migration task.

Table 2-7 Managing migration tasks

Item	Scenario	Operations
Pausing a migration task	You can pause a migration task if: • The number of concurrent migration tasks exceeds what is supported. You can pause migration tasks less important to you so that the important migration tasks can be executed preferentially. • You need to add new objects to be migrated. You can pause the ongoing migration task, and resume the task after these objects are added to the migration task.	1. Click . 2. Read the content in the dialog box and click **OK**. The task status changes to **Migration paused**.

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Item	Scenario	Operations
Resuming a migration task	You can resume a paused migration task.	1. Click . 2. In the displayed **Resume Task** dialog box, enter the source and destination AKs and SKs and click **OK**. **NOTE** If CDN authentication is enabled, you need to enter the verification key. The task status changes to **Migrating**.
Restarting a migration task	If a migration task fails, you can restart the task to perform the migration again.	1. Click . 2. In the displayed **Resume Task** dialog box, enter the source and destination AKs and SKs and click **OK**. **NOTE** – If **Failed Object Record** is enabled, you need to set **Migration Range**. You can select **All** to migrate all the objects in the failed migration task or select **Objects failed to be migrated** to migrate only the failed objects. – If CDN authentication is enabled, you need to enter the verification key. The task status changes to **Migrating**.
Deleting a migration task	If you do not need to continue the migration or clear historical migration tasks, you can delete the tasks that are not in the **Migrating** status. **NOTE** If the task you want to delete is in the **Migrating** state, pause and delete it.	1. Click . The deleted migration tasks will not be displayed in the task list.

----End

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3 Migration Task Groups

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 intelligently group the source objects into multiple sub-tasks for concurrent migration. These sub-tasks are managed in groups, including progress query, resumption, and restart.

NOTE

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

3.1 Creating a Migration Task Group

Scenarios

A migration task group manages multiple sub-tasks that are automatically split from a large migration task.

Prerequisites

- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
  - The source platform account needs the following permissions:
    - Listing all buckets
    - Obtaining bucket location
    - 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:

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

  For details about how to obtain these permissions, see **Destination Permissions**.
- You have created at least one bucket on OBS.
- You have created less than 100 migration task groups during the past 24 hours.
- You have created less than 5,000 migration tasks during the past 24 hours.
- You have less than 5,000 migration tasks in the **Waiting to migrate** state.
- You have registered an account with HUAWEI CLOUD and completed real-name authentication.

Procedure

Step 1 Log in to the management console and enter the **Object Storage Migration Service** page.

Step 2 In the navigation pane on the left, choose **Migration Task Group**.

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

Step 3 In the upper right corner, click **Create Migration Task Group**.

Read the privacy statement, select **Agree to the above privacy agreements**, and click **OK**.

The page for creating a migration task group is displayed.

Step 4 For step **Select Source/Destination**, you need to:

1. Select the source platform. For details about the parameters, see **Table 3-1**.

Table 3-1 Source platform parameters

Parameter	Description
Data Source	Specifies the source cloud service provider.
(Optional) appID	Specifies the identifier of the account for logging in to the Tencent Cloud console. If the selected cloud service provider is **Tencent Cloud**, **appID** must be specified.

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Parameter	Description
Access Key	Specifies the AK of the source platform account. Enter a maximum of 100 characters.
Secret Access Key	Specifies the SK of the source platform account. The SK matches with the AK. Enter a maximum of 100 characters.
Specify Bucket Name	If you do not have the permissions required to list buckets but have the permissions to list objects in buckets, obtain object metadata, and obtain objects, enable this parameter to specify the path of the source bucket for the migration. For details, see **Table 3-2**.

Table 3-2 Description of **Specify Bucket Name**

If You Need to...	Then...
Enable **Specify Bucket Name**	1. Select the region where the source bucket resides from the **Select Region** drop-down list. 2. In the **Bucket Name or Path** text box, enter the source bucket name or the source bucket path with the bucket name. 3. Click **Connect to Source Bucket**. **NOTE** OMS will check whether the source platform information is correct. If the entered information is correct, a message is displayed indicating that the source bucket is connected.
Disable **Specify Bucket Name** (This feature is disabled by default.)	1. Click **Connect to Source Bucket**. OMS will check whether the source platform information is correct. If the entered information is correct and your account has the permissions needed to list buckets, all buckets are listed in the **Bucket** drop-down list. 2. In the **Bucket** drop-down list, select the bucket where the objects to be migrated reside.

2. Select the destination platform. For details about the parameters, see **Table 3-3**.

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Table 3-3 Destination platform parameters

Parameter	Description
Access Key	Specifies the AK for accessing HUAWEI CLOUD. Enter a maximum of 100 characters.
Secret Access Key	Specifies the SK for accessing HUAWEI CLOUD. The SK matches with the AK. Enter a maximum of 100 characters. After entering the AK and SK, click **Connect to Destination Bucket**.
Bucket	Specifies the destination OBS bucket for storing the migrated data.

Step 5 Click **Next** to set task parameters.

Step 6 Select a migration method in the **Select Migration Method** area.

Migration Method	Description
Object Name Prefix	Enter the names or prefixes of objects to be migrated and 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. **NOTE** If no object names or name prefixes are specified, all objects in the source bucket will be migrated. The objects to be migrated are recorded in a .txt file, 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.

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Migration Method	Description
Object List Folder	Generally, this parameter is used to migrate incremental objects. You need to write the names of source objects to be migrated into an object list file and store the file in an OBS bucket on HUAWEI CLOUD. OMS migrates all objects specified in the object list file. 1. Select **List File Bucket (HUAWEI CLOUD)**. **NOTE** The buckets listed are the buckets obtained by entering the destination AK and SK in **Step 4.2**. If the bucket used for storing object list files is not located in the same region as the destination bucket, you cannot select the object list files. 2. Click **Select** next to **Select Object List Folder**, select the target object list files, and click **OK**. **NOTE** • Each object list file cannot exceed 1,024 MB. • The object list file must be a .txt file, and **ContentType** in the 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.

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Migration Method	Description
Object List Folder	Generally, this setting is used to migrate HTTP/HTTPS source data. You need to write the URLs of the files to be migrated and their destination objects names into one or more .txt URL list files and store the files in an OBS bucket on HUAWEI CLOUD. You can store up to 2,000 list files in a fixed folder in the OBS bucket. Each list file cannot exceed 1 GB. OMS migrates all objects specified in the URL list files. 1. Select **List File Bucket (HUAWEI CLOUD)**. **NOTE** – The buckets listed are the buckets obtained by entering the destination AK and SK in **Step 4.2**. – If the bucket used for storing object list files is not located in the same region as the destination bucket, you cannot select the object list files. – For security purposes, if the migration source supports both HTTP and HTTPS, you are advised to use HTTPS during the migration. If HTTP is used, data may be eavesdropped on, tampered with, or vulnerable to man-in-the-middle or replay attacks. – If the data to be migrated is non-public and you do not want to make the data public, you are advised to use other migration methods. – URL redirection is not supported. 2. Click **Select** next to the **Select URL File Folder** area, select the the folder where the URL list files are stored, and click **OK**.

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Migration Method	Description
	NOTE – Each URL list file cannot exceed 1,024 MB. – The total number of files in the URL list folder cannot exceed 2,000. – The URL list file must be a .txt file, and **ContentType** in the metadata of the file must be **text/plain**. – The URL list file must be in UTF-8 without BOM. – Each line in the URL list file can contain only one URL and one destination object. – The length of each line in the URL list file cannot exceed 65,535 characters, or the migration will fail. – **ContentEncoding** cannot be set in the metadata of the URL list file, or the migration will fail. – In the URL list file, each line uses a tab character (\t) to separate the URL from the destination object name. The format is [*URL*][*Tab character*][*Destination object name*]. The destination object name is encoded using URL Encode. For example: http://xxx.obs.myhuaweicloud.com/doc/file1.txt doc%2f%e6%96%87%e4%bb%b61.txt http://xxx.obs.myhuaweicloud.com/doc/thefile2.txt doc%2fthefile2.txt http://xxx.obs.myhuaweicloud.com/the%20file.txt the%20file.txt http://xxx.obs.myhuaweicloud.com/the%20file2.txt the+file2.txt http://xxx.obs.myhuaweicloud.com/doc/thefile.txt doc/thefile.txt Use a tab character (Tab key on the keyboard) to separate the URL from 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/doc/thefile2.txt**, **the file.txt**, **the file2.txt**, and **doc/thefile.txt**. – Spaces are not allowed in each line in the URL list file. Spaces may cause migration failures because they may be mistakenly identified as object names.

Step 7 (Optional) Set **Source Parameters**.

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Parameters described in **Table 3-4** are only available if the source cloud service provider offers the related functions.

Table 3-4 Source parameters

Parameter	Description
Use Source Custom Domain Name	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. • If the source cloud service provider is Qiniu Cloud, this option is selected by default to ensure a smooth migration because Qiniu Cloud has restrictions on default domain names. If you select this option, you must: 1. Select a transmission protocol for **Transfer Protocol**. **NOTE** HTTPS is more secure than HTTP and is recommended. If the data to be migrated is non-public and you do not want to make the data public, you are advised to use other migration methods. 2. Enter a custom domain name of the bucket for **Custom Bucket Domain Name**. 3. If you use the CDN authentication provided by the source cloud service provider, select **Enable CDN Authentication** and configure the authentication type and keys. **NOTE** – You can use CDN authentication only after configuring CDN by referring to documents of the source cloud service provider. – The fees generated by using CDN on the source platform are billed by the source cloud service provider. – URI redirection is not supported. 4. 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.

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Parameter	Description
Archive Data Restoration	Only restored archive data can be migrated. You can select this option if your source cloud service provider supports automatic restoration of archive data. • If you select this option, the system automatically restores and migrates archive objects in the migration task. If an archive object fails to be restored, the system records it in the list of objects that failed to be migrated and continues to migrate other objects in the migration task. • If you do not select this option, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects in the migration task. **NOTE** • Currently, the following cloud service providers can automatically restore archive objects: HUAWEI CLOUD, Alibaba Cloud, Kingsoft Cloud, and Tencent Cloud. • It takes at least a minute to restore an archive object. The larger the archive object is, the longer it takes to restore it, but if an archive object cannot be restored within three minutes, the restoration fails. The time needed depends on the cloud service provider. For details, see related documents of the specific cloud service provider. • Two types of fees are generated during archive data restoration: fees for API calls and fees for archive object restoration. These fees are billed by the source cloud service provider. • After restoration, archive objects will be in restored state for a certain period of time. During this period, objects can be downloaded or read. After this period expires, archive objects need to be restored again for migration. For details about how long they stay in the restored state, see related documents from the cloud service provider. • After objects are migrated from the source platform to HUAWEI CLOUD, the storage class of the migrated objects is the same as that of the destination bucket.

Step 8 Click **Show** next to **Advanced Settings** to expand the advanced parameters.

Step 9 (Optional) Set **Advanced Settings** parameters.

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Table 3-5 Advanced Settings parameters

Parameter	Description
Data Encryption	If you select **KMS**, migrated data is encrypted before being transferred to the destination OBS buckets. **NOTE** Using KMS to encrypt migrated data may decrease the migration speed by about 10%. This option is only available if KMS encryption is supported in the current region.
Failed Object Record	Specifies whether to record the objects that fail to be migrated. ● If this parameter 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 transmitted again. ● If this parameter 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 the failed objects need to be migrated again. **NOTE** The objects that fail to be migrated are recorded in an object list file named by the task name and uploaded to the **oms/failed_object_lists** directory of the destination bucket. This file contains information about the failed migration tasks, including the failure causes, occurrence time (local UTC), URL-encoded names of failed objects, non-URL-encoded names of failed objects, and error codes returned by source SDKs. This file is stored in the destination bucket after the objects in the file are successfully retransmitted. If you do not need the file, delete it manually.
Incremental Data	Specifies whether to filter source objects to be migrated by time. ● If this option is set to **No**, source objects are not filtered by time. ● If this option is set to **Yes**, only the source objects that are modified or added after the specified time are migrated. You need to click  to specify the time.

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Parameter	Description
SMN Notification	Specifies whether to use SMN to notify you of migration results. • If this parameter is set to **No**, no SMN message is sent after the migration. • If this parameter is set to **Yes**, you will receive an SMN message informing you of the migration results. Perform the following steps to set traffic limits: 1. Click **Add** next to the **Select SMN Topic** area. The **Select SMN Topic** dialog box is displayed. 2. Select a topic for receiving SMN messages and click **OK**. If OMS is not authorized to publish messages to the selected SMN topic, a **Warning** dialog box will display after you click **OK**. If you need the authorization, click **OK** to authorize OMS. Otherwise, click **Cancel** to return to the **Select SMN Topic** page and select another SMN topic. 3. Configure **Trigger Condition**. You can select one of the following options or both: – **Migration succeeded**: An SMN message will be sent after the migration task succeeds. – **Migration failed**: An SMN message will be sent after the migration task fails. **NOTE** If you experience trouble in using SMN, see **What Can I Do If the SMN Function Works Improperly?**

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Parameter	Description
Traffic Limit	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**. Perform the following steps to set traffic limits: 1. Click **Add Rule**. A traffic limiting rule is displayed. 2. Specify **Start Time**, **End Time**, and **Maximum Bandwidth**. The value range of the maximum bandwidth is 1 MB/s to 200 MB/s. 3. Repeat **Step 9.a** and **Step 9.b** to add another traffic limiting rule. You can click  in the **Operation** column to delete a rule. **NOTE** You can create a maximum of five rules. You can set traffic limiting rules in the task details even after the task is created.
Description	In the **Description** area, enter a maximum of 255 characters to briefly describe the migration task.

Step 10 Click **Next** to enter the confirmation page.

Step 11 Confirm the settings of the migration task and start the migration.

1. Check whether the settings of migration parameters are correct.

   If the settings are incorrect, click **Previous** to return to the previous page for modification.

2. Click **Migrate Now**.

   A message is displayed, indicating that the migration task group is successfully created. The task group is displayed in the migration task group list.

----End

3.2 Viewing a Migration Task Group

Scenarios

After creating a migration task group, you can view the migration progress and details at any time.

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Procedure

Step 1 Log in to the management console and enter the **Object Storage Migration Service** page.

Step 2 In the navigation pane on the left, choose **Migration Task Group**.

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

Step 3 In the upper right corner of the migration task group list, choose a status to filter task groups.

Table 3-6 describes the statuses.

Table 3-6 Migration task group statuses

Status	Description
Waiting	The migration task group is being initialized.
Creating	Migration tasks in the task group are being created.
Executing	Migration tasks in the task group are being executed.
Suspending creation	The creation of migration tasks in the task group is being suspended.
Creation suspended	The creation of migration tasks in the task group is suspended and can be resumed.
Creation failed	The migration task creation is failed.
Failed	The migration fails. You can restart the task group to retry the migration.
Succeeded	The migration is complete.

Step 4 Click ⌄ on the left of a group ID to view details about the task group.

NOTE

The group details include the number of migration tasks, number of objects, and parameter information of the migration task.

You can click the name of the destination OBS bucket to view the objects that have been migrated to HUAWEI CLOUD.

----End

3.3 Managing a Migration Task Group

After creating a migration task group, you can pause, resume, or restart the group.

Procedure

Step 1 Log in to the management console and enter the **Object Storage Migration Service** page.

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Step 2 In the navigation pane on the left, choose **Migration Task Group**.

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

Step 3 Manage a target migration task group.

Table 3-7 Managing a migration task group

Item	Scenario	Operations
Pausing a migration task group	A task group in the **Creating** status can be paused.	1. Click **Pause**. 2. Read the content in the dialog box and click **OK**. The task status changes to **Creation suspended**.
Resuming a migration task group	You can resume paused migration tasks in a group.	1. Click **Resume**. 2. In the displayed **Resume Task Group** dialog box, enter the source and destination AKs and SKs and click **OK**. **NOTE** If CDN authentication is enabled, you need to enter the verification key. The task status changes to **Executing**.
Restarting a migration task group	If migration tasks fail, you can restart the tasks to retry the migration.	1. Click **Restart**. 2. In the displayed **Restart Task Group** dialog box, enter the source and destination AKs and SKs and click **OK**. **NOTE** – If **Failed Object Record** is enabled, you need to set **Migration Range**. You can select **All** to migrate all the objects in the failed migration task or select **Objects failed to be migrated** to migrate only the failed objects. – If CDN authentication is enabled, you need to enter the verification key. The task status changes to **Executing**.

----End

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4 Pre-migration Evaluation

A pre-migration evaluation collects statistics on object distribution in source buckets and estimates how much time will be needed for the migration.

4.1 Evaluating Data in a Bucket

Scenarios

If there is more than 3 TB of data or more than 5 million objects in a source bucket, a pre-migration evaluation is recommended. The pre-migration evaluation collects statistics on object distribution in the source bucket and estimates how much time will be needed for the migration, so the system can automatically divide and create migration tasks based on the evaluation. This greatly maximizes the concurrency performance of the service.

NOTE

Currently, the pre-migration evaluation is supported by only the following cloud service providers: HUAWEI CLOUD, Alibaba Cloud, Microsoft Azure, Tencent Cloud, AWS China, Qiniu Cloud, Kingsoft Cloud, UCloud, and Baidu Cloud.

Background

- The basic information about objects in a bucket needs to be fully analyzed during pre-migration evaluation. If there are a large number of objects in the bucket, the evaluation will take a long time. For details, see **Table 4-1**.

Table 4-1 Object storage evaluation speed

Cloud Service Provider	Evaluation Speed
HUAWEI CLOUD	27 million objects per hour
Alibaba Cloud	27 million objects per hour
Tencent Cloud	20 million objects per hour
AWS China	24 million objects per hour

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Cloud Service Provider	Evaluation Speed
Qiniu Cloud	20 million objects per hour
Kingsoft Cloud	20 million objects per hour
UCloud	20 million objects per hour
Baidu Cloud	21 million objects per hour

- Your objects will not be downloaded during evaluation. The evaluation obtains only the information about object attributes.
- The evaluation will bill you only for API calls. You will not be billed for any additional fees.

  For example, 10,000 API invocations cost ¥0.01 CNY, and each API invocation lists 1,000 objects. If you have 100 million objects to be evaluated, you will be billed ¥0.1 CNY.
- A maximum of 500 buckets can be evaluated per day for a given tenant.

Procedure

Step 1 Log in to the management console and enter the **Object Storage Migration Service** page.

Step 2 In the navigation pane on the left, choose **Pre-Migration Evaluation**.

The **Pre-Migration Evaluation** page is displayed.

Step 3 Click **Create Evaluation**.

Read the privacy statement, select **Agree to the above privacy agreements**, and click **OK**. The page for creating an evaluation task is displayed.

Step 4 Select source parameters based on **Table 4-2** and click **List Bucket**.

All the buckets on the source platform are displayed.

Table 4-2 Source parameter configuration

Parameter	Description
Data Source	Specifies the cloud service provider on whose platform the objects to be evaluated are located.
Access Key	Specifies the access key ID of the source platform account. Enter a maximum of 100 characters.
Secret Access Key	Specifies the secret access key of the source platform account. The SK matches the AK. Enter a maximum of 100 characters.

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Parameter	Description
appID	Specifies the identifier of the account for logging in to the Tencent Cloud console. If the selected cloud service provider is **Tencent Cloud**, **appID** must be specified.

Step 5 Select the bucket you want to perform the evaluation for and click **Start Evaluation**.

If you want to stop the evaluation, click **Terminate** in the **Operation** column.

If the evaluation succeeds, click **View Details** in the **Evaluation Report** column to learn evaluation details.

NOTE

The evaluation details include the object size distribution, object prefix distribution, and object distribution statistics over time.

For details about the evaluation status, see **Table 4-3**.

Table 4-3 Evaluation status description

Status	Description
Waiting to evaluate	The evaluation task is being initialized on the background after being created.
Evaluating	The system is evaluating the specified bucket.
Evaluation succeeded	The evaluation is complete. You can create a migration task based on this evaluation.
Evaluation failed	The evaluation failed. You need to view the possible causes.
Evaluation Terminating	The system is terminating the evaluation.
Evaluation Terminated	The evaluation is terminated. If you need to evaluate the bucket again, create another task.

----End

4.2 Creating Migration Tasks Based on Evaluation

Scenarios

OMS automatically divides source objects into groups and allows you to create a migration task for each group based on evaluation results.

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Background

For details about parameter description, see **Creating a Migration Task**.

Prerequisites

The source bucket to be migrated has been evaluated successfully.

Procedure

Step 1 Log in to the management console and enter the Object Storage Migration Service page.

Step 2 On the **Pre-Migration Evaluation** page, select the bucket that has been successfully evaluated and click **Create Migration Task**.

Read the privacy statement, select **Agree to the above privacy agreements**, and click **OK**. The page for creating a migration task is displayed.

NOTE

You can select multiple buckets under the same cloud service provider.

Step 3 Complete the authentication configuration. For details, see **Table 4-4**.

Table 4-4 Authentication configuration

Type	Parameter	Description
Source Authentication	Access Key	Specifies the AK of the source cloud platform account. Enter a maximum of 100 characters.
	Secret Access Key	Specifies the SK of the source cloud platform account. The SK matches the AK. Enter a maximum of 100 characters.
Destination Authentication	Access Key	Specifies the AK for accessing HUAWEI CLOUD. Enter a maximum of 100 characters.
	Secret Access Key	Specifies the SK for accessing HUAWEI CLOUD. The SK matches the AK. Enter a maximum of 100 characters.

Step 4 Configure basic parameters for each migration task. For details, see **Table 4-5**.

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Table 4-5 Migration task configuration

Parameter	Description
Destination Bucket	Specifies the HUAWEI CLOUD bucket to which objects are migrated.
KMS Encryption	If you enable **KMS Encryption**, migrated data is encrypted before being stored to the destination OBS bucket.
Archive Data Restoration	You can select this option if your source cloud service provider supports automatic restoration of archive data.
Traffic Limit	Set the maximum bandwidth for the migration task during a specified period of time. Click to modify the traffic limit rule.
Source Custom Domain Name	If the default domain name cannot meet your migration requirements, you can enable this function and click to complete configuration.

Step 5 Configure advanced settings. For details, see **Table 4-6**.

Table 4-6 Advanced settings

Parameter	Description
Failed Object Record	Specifies whether to record the objects that fail to be migrated.
Incremental Data	Specifies whether to filter source objects to be migrated by time.
Send Notification	Specifies whether to use SMN to notify you of migration results.

Step 6 Click **Create Task** to submit the migration task.

The **Request submitted successfully** window pops up, indicating that the task has been submitted. Back to the migration task list, view the task creation progress in the upper left corner of the task list.

----End

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5 Synchronization Tasks

If there are newly added or modified objects in a source bucket, you can create a synchronization task to proactively synchronize these objects. You need to configure an event trigger for the object storage service. When a source object is added or modified, the source object storage service calls the synchronization API of OMS through a function workflow, and the synchronization API of OMS will synchronize the object to the destination OBS bucket on HUAWEI CLOUD.

5.1 Creating a Synchronization Task

Scenarios

Enter the AKs and SKs for accessing the source and destination buckets, and configure the synchronization task parameters for migrating source objects contained in the synchronization request and viewing the task details.

NOTE

The synchronization task feature is available only in CN North-Beijing4 and CN East-Shanghai1.

Prerequisites

- You have obtained the AK/SK pairs and required permissions for the source and destination platform accounts.
  - The source platform account needs the following permissions:
    - Listing all buckets
    - Obtaining bucket location
    - Listing objects
    - Obtaining object metadata
    - Obtaining object content

    For details about how to obtain these permissions, see **Source Permissions**.

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  - The destination platform account needs the following permissions:
    - Listing all buckets
    - Obtaining bucket location
    - Listing objects
    - Obtaining object metadata
    - Obtaining object content
    - Listing uploaded parts
    - Restoring archive objects

    For details about how to obtain these permissions, see **Destination Permissions**.
- You have created at least one bucket on OBS.
- You have created less than 5,000 migration tasks during the past 24 hours.
- You have less than 5,000 migration tasks in the **Waiting to migrate** state.
- You have less than 5 synchronization tasks in the **Synchronizing** state.
- You have registered an account with HUAWEI CLOUD and completed real-name authentication.

Procedure

Step 1 Log in to the management console and enter the **Object Storage Migration Service** page.

Step 2 In the navigation pane on the left, choose **Synchronization Task**.

Step 3 In the upper right corner, click **Create Synchronization Task**.

Step 4 Read the privacy statement, select **Agree to the above privacy agreements**, and click **OK**.

Step 5 For step **Select Source/Destination**, you need to:

1. Select the source platform. For details about the parameters, see **Table 5-1**.

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Table 5-1 Source platform parameters

Parameter	Description
Data Source	Specifies the source cloud service provider. The following options are available: • HUAWEI CLOUD • AWS China • Alibaba Cloud • Microsoft Azure • Tencent Cloud • Qiniu Cloud • QingCloud • Baidu Cloud • Kingsoft Cloud • UCloud
appID	Specifies the identifier of the account for logging in to the Tencent Cloud console. If the selected cloud service provider is **Tencent Cloud**, **appID** must be specified.
Access Key	Specifies the AK of the source platform account. Enter a maximum of 100 characters.
Secret Access Key	Specifies the SK of the source platform account. The SK matches with the AK. Enter a maximum of 100 characters.
Specify Bucket Name	If you do not have the permissions required to list buckets but have the permissions to list objects in buckets, obtain object metadata, and obtain objects, enable this parameter to specify the path of the source bucket for the migration. For details, see **Table 5-2**.

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Table 5-2 Description of **Specify Bucket Name**

If You Need to...	Then...
Enable **Specify Bucket Name**.	1. Select the region where the source bucket resides from the **Select Region** drop-down list. 2. In the **Bucket Name or Path** text box, enter the source bucket name or the source bucket path with the bucket name. 3. Click **Connect to Source Bucket**. OMS will check whether the source platform information is correct. If the entered information is correct, a message is displayed indicating that the source bucket is connected.
Disable **Specify Bucket Name** (This feature is disabled by default.)	1. Click **Connect to Source Bucket**. OMS will check whether the source platform information is correct. If the entered information is correct and your account has the permissions needed to list buckets, all buckets are listed in the **Bucket** drop-down list. 2. In the **Bucket** drop-down list, select the bucket where the objects to be migrated reside.

2. Select the destination platform. For details about the parameters, see **Table 5-3**.

Table 5-3 Destination platform parameters

Parameter	Description
Access Key	Specifies the AK for accessing HUAWEI CLOUD. Enter a maximum of 100 characters.
Secret Access Key	Specifies the SK for accessing HUAWEI CLOUD. The SK matches with the AK. Enter a maximum of 100 characters. After entering the AK and SK, click **Connect to Destination Bucket**.
Bucket	Specifies the destination OBS bucket for storing the migrated data.

Step 6 Click **Next** to set task parameters. For details about the parameters, see **Table 5-4**.

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Table 5-4 Task parameters

Parameter	Description
Data Encryption	If you select **KMS**, migrated data is encrypted before being transferred to the destination OBS buckets. **NOTE** Using KMS to encrypt migrated data may decrease the migration speed by about 10%. This option is only available if KMS encryption is supported in the current region.
Archive Data Restoration	Only restored archive data can be migrated. You can select this option if your source cloud service provider supports automatic restoration of archive data. • If you select this option, the system automatically restores and migrates archive objects in the migration task. If an archive object fails to be restored, the system records it in the list of objects that failed to be migrated and continues to migrate other objects in the migration task. If you do not select this option, the system directly records archive objects in the list of objects that failed to be migrated and continues to migrate other objects in the migration task. **NOTE** – Currently, the following cloud service providers can automatically restore archive objects: HUAWEI CLOUD, Alibaba Cloud, Kingsoft Cloud, and Tencent Cloud. – It takes at least a minute to restore an archive object. The larger the archive object is, the longer it takes to restore it, but if an archive object cannot be restored within three minutes, the restoration fails. The time needed depends on the cloud service provider. For details, see related documents of the specific cloud service provider. – Two types of fees are generated during archive data restoration: fees for API calls and fees for archive object restoration. These fees are billed by the source cloud service provider. – After restoration, archive objects will be in restored state for a certain period of time. During this period, objects can be downloaded or read. After this period expires, archive objects need to be restored again for migration. For details about how long they stay in the restored state, see related documents from the cloud service provider. – After objects are migrated from the source platform to HUAWEI CLOUD, the storage class of the migrated objects is the same as that of the destination bucket.

Step 7 Click **Next** to enter the confirmation page.

Confirm the settings of the synchronization task and start the synchronization.

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1. Check whether the settings of synchronization parameters are correct.

If the settings are incorrect, click **Previous** to return to the previous page for modification.

2. Click **Synchronize Now**.

A message is displayed indicating that the task has been submitted. Switch back to the synchronization task list to view the task.

For details about task statuses, see **Table 5-5**.

Table 5-5 Synchronization task statuses

Status	Description
Synchronizing	Indicates that the objects in the source bucket are being synchronized. **NOTE** After you create a synchronization task, the task status is **Synchronizing**, which indicates means that the synchronization request from the source bucket can be received and the source objects can be synchronized. You need to configure a synchronization request on the source platform to migrate newly added or modified objects in the source bucket. For more details, see **Configuring a Synchronization Request on the Source Platform**. After the configuration, OMS will synchronize your source objects.
Paused	Indicates that the synchronization of source objects is paused. **NOTE** If you want to pause a synchronization task, you are advised to stop writing data to the source bucket and wait for 15 minutes before clicking **Pause** on the synchronization task page. Otherwise, it may cause a migration failure for some objects covered by the received synchronization requests.

Step 8 Restart, pause, or delete the synchronization task.

- Restarting

  NOTE

  - Only synchronization tasks in the **Paused** state can be restarted.
  - For security purposes, the system does not save your personal data. When you restart the synchronization task, you need to enter the AKs and SKs for accessing the source and destination buckets again to complete identity authentication.

- Pausing

  NOTE

  - Only synchronization tasks in the **Synchronizing** state can be paused.
  - If you want to pause a synchronization task, you are advised to stop writing data to the source bucket and wait for 15 minutes before clicking **Pause** on the synchronization task page. Otherwise, it may cause a migration failure for some objects covered by the received synchronization requests.

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- Deleting

NOTE

- Only synchronization tasks in the **Paused** state can be deleted.

----End

5.2 Configuring a Synchronization Request on the Source Platform

Scenarios

After you create a synchronization task, you need to configure a synchronization request on the source platform. Then the source object storage will call the synchronization API of OMS through a message notification or function to migrate newly added or modified source objects.

Desired Effects

- The names of newly added and modified objects in the source bucket can be obtained in real time.
- The synchronization API can be invoked to migrate the newly added and modified objects to the destination bucket.

Configuration Methods

- Using the object storage service and function service

  NOTE

  On the source platform, you need to use a function service to create a function and configure event notification for synchronizing incremental source objects through OMS.

  When objects are added to or modified in the source bucket, the source object storage service will call the configured function to trigger migration of these objects to the destination bucket.

- Using a self-built service system

  NOTE

  When objects are added or modified in the source bucket, the self-build service system proactively captures the information about these objects through the messages received from the object storage service on the source platform or by analyzing the database changes to the service system. Then the system invokes the synchronization API of OMS to migrate the newly added and modified objects from the source bucket to the destination bucket.

Procedure

Following operations use HUAWEI CLOUD as the source platform to describe how to use FunctionGraph to configure synchronization requests:

Step 1 Log in to the management console.

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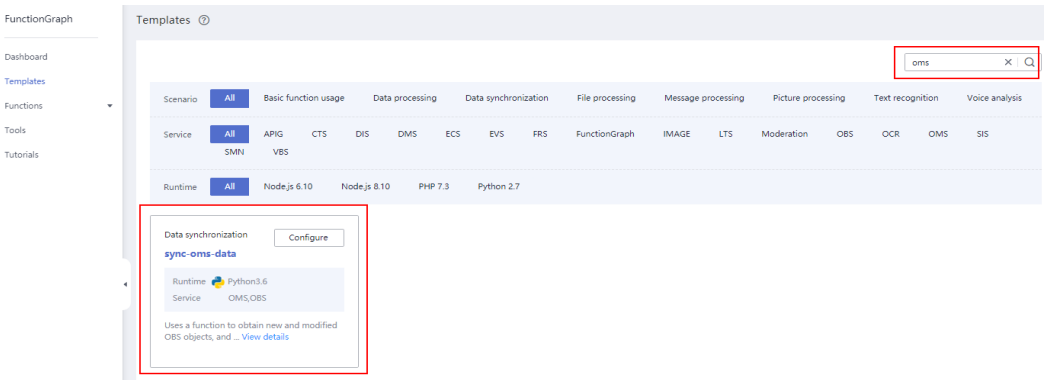
Step 2 Click **Service List** and choose **Computing** > **FunctionGraph**.

The FunctionGraph console is displayed.

Step 3 In the navigation pane on the left, choose **Templates**.

Step 4 In the search box in the upper right corner of the displayed page, enter **OMS** and locate the **OMS Data Synchronization** template, as shown in **Figure 5-1**.

Figure 5-1 OMS data synchronization template



NOTE

Click **View Details** to view the template details, such as template type, input parameters, output parameters, and precautions.

Step 5 Click **Configure**. The **Create Function** page is displayed, as shown in **Figure 5-2**. Set function parameters. For details about the parameters, see **Table 5-6**.

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Figure 5-2 Creating a function

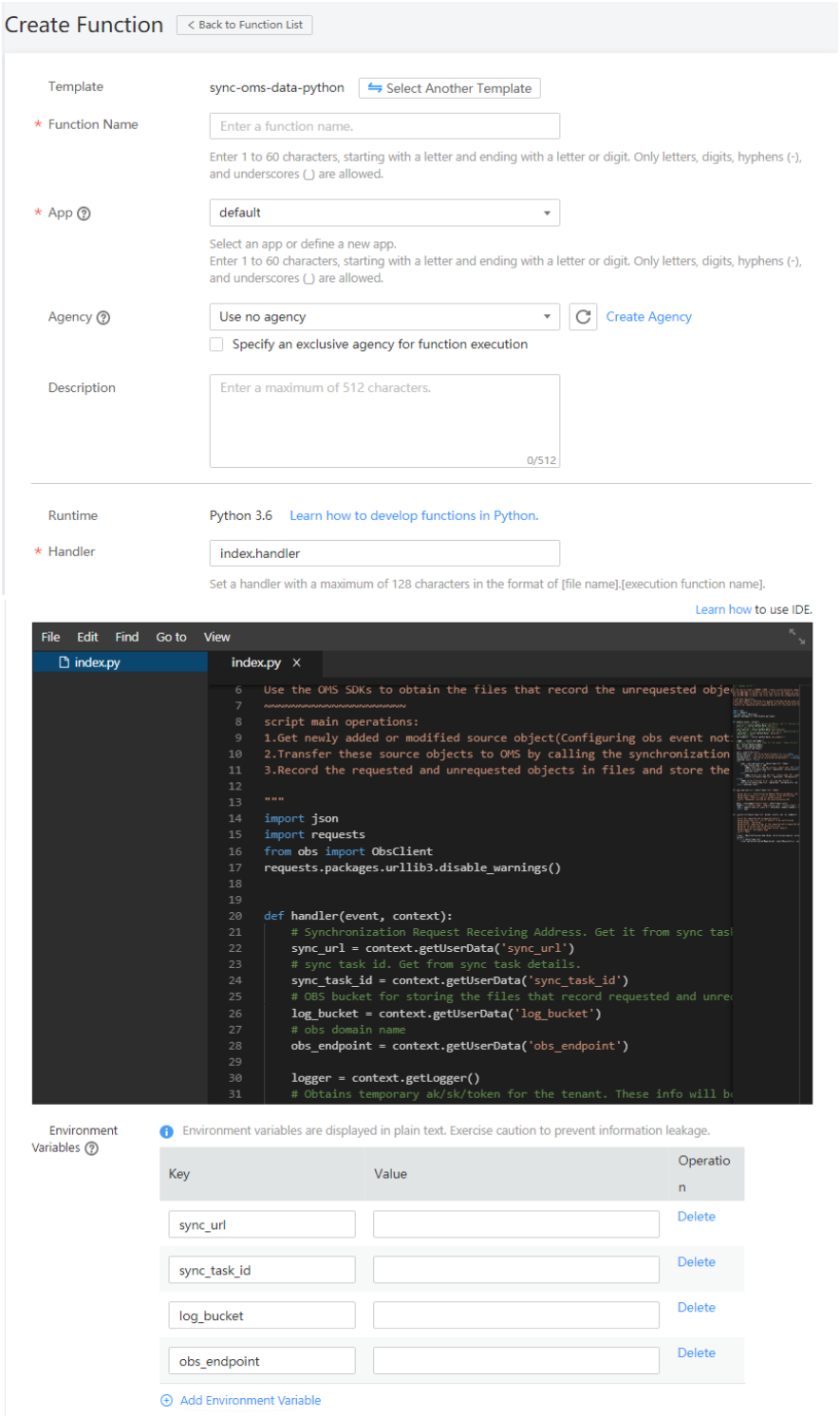

Table 5-6 Parameters required for creating a function

Parameter	Description
Template	sync-oms-data-python

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Parameter	Description
Function Name	Specify the function name as needed. The name must meet the following requirements: • Consists of 1 character to 60 characters, and only letters, digits, hyphens (-), and underscores (_) are allowed. • Starts with a letter and ends with a letter or digit.
App	Select **default**, the default app on FunctionGraph.
Agency	Select **Use no agency**.
Enterprise Project	Set this parameter as needed. The default value is **default**.
(Optional) Description	Describe the function as needed.
Runtime	Python 3.6
Handler	Enter **index.handler**.
Environment Variables	• **sync_url**: Enter the address for receiving synchronization requests, which can be obtained from the synchronization task details. • **sync_task_id**: Enter the synchronization task ID, which can be obtained from the synchronization task list page. • **log_bucket**: Enter the name of the bucket used for storing the function invoking logs. The lists of requested or unrequested objects will also be stored into this bucket. The bucket must reside in the current region. • **obs_endpoint**: Enter the OBS domain name for current region. For details about regions and endpoints, see **Regions and Endpoints**. • **hw_ak**: HUAWEI CLOUD access key ID • **hw_sk**: HUAWEI CLOUD private access key **NOTE** Click **Add Environment Variable** to add a customized environment variable.

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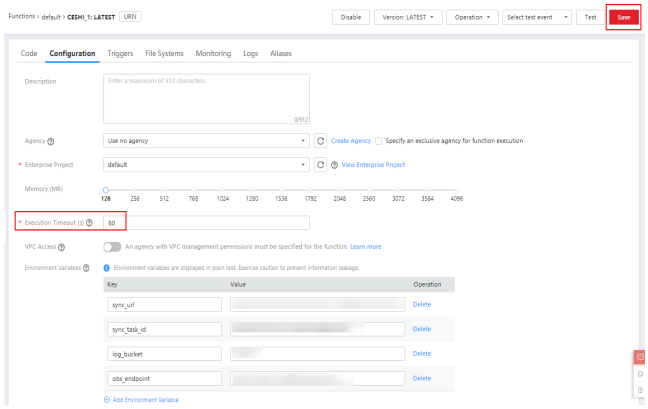
Step 6 Click **Create Now** in the pane on the right.

The function details page is displayed.

Step 7 On the displayed **Code** page, click **Select** on the right of **Dependencies**. In the displayed **Select Dependency** dialog box, select dependency **obssdk-v3** and click **OK**.

Step 8 Click the **Configuration** tab. On the displayed page, set **Execution Timeout (s)** to **60** (recommended), and click **Save** in the upper right corner, as shown in **Figure 5-3**.

Figure 5-3 Setting the execution timeout duration



Step 9 Click the **Triggers** tab. In the upper right corner of the displayed page, click **Create Trigger**. The **Create Trigger** dialog box is displayed, as shown in **Figure 5-4**. Set trigger parameters. For details about the parameters, see **Table 5-7**.

Figure 5-4 Creating a trigger

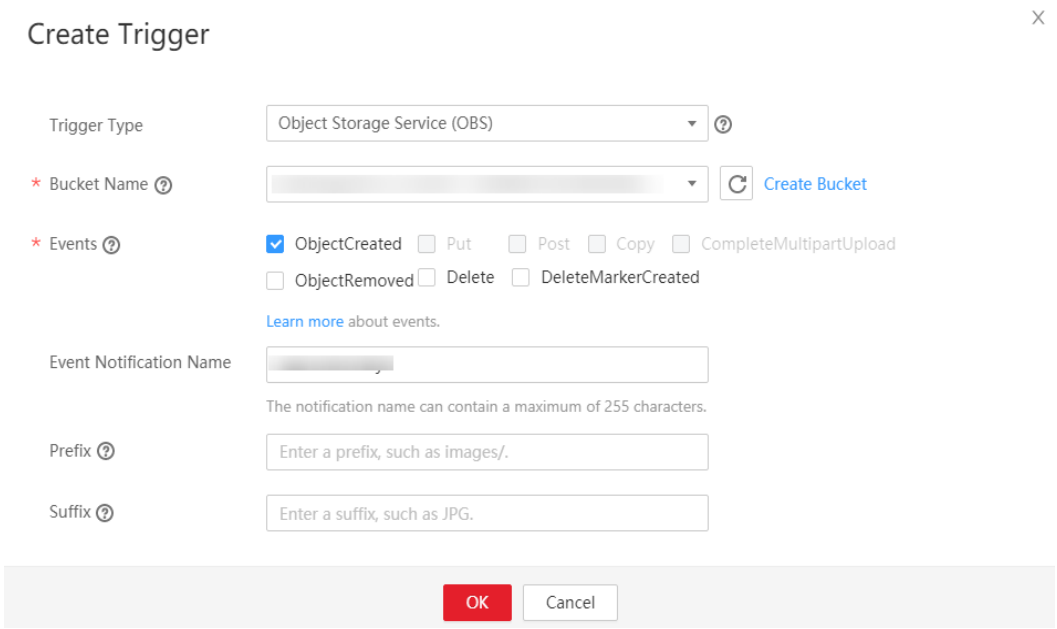


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Table 5-7 Parameters required for creating a trigger

Parameter	Description
Trigger Type	Select **Object Storage Service (OBS)** from the drop-down list.
Bucket Name	Select the bucket where the data to be synchronized resides from the drop-down list.
Events	Set this parameter based on your requirements.
(Optional) Event Notification Name	An event name is automatically generated. You can specify a name as needed.
(Optional) Prefix	Enter a prefix to limit notifications to objects whose names start with the matching characters.
(Optional) Suffix	Enter a suffix to limit notifications to objects whose names end with the matching characters.

Step 10 Click **OK**.

NOTICE

You need to configure a test event to verify the function.

Step 11 In the upper right corner of the function details page, select **Configure Test Event** from the **Select test event** drop-down list. The **Configure Test Event** dialog box is displayed, as shown in **Figure 5-5**. Set the parameters listed in **Table 5-8**.

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Figure 5-5 Configuring a test event

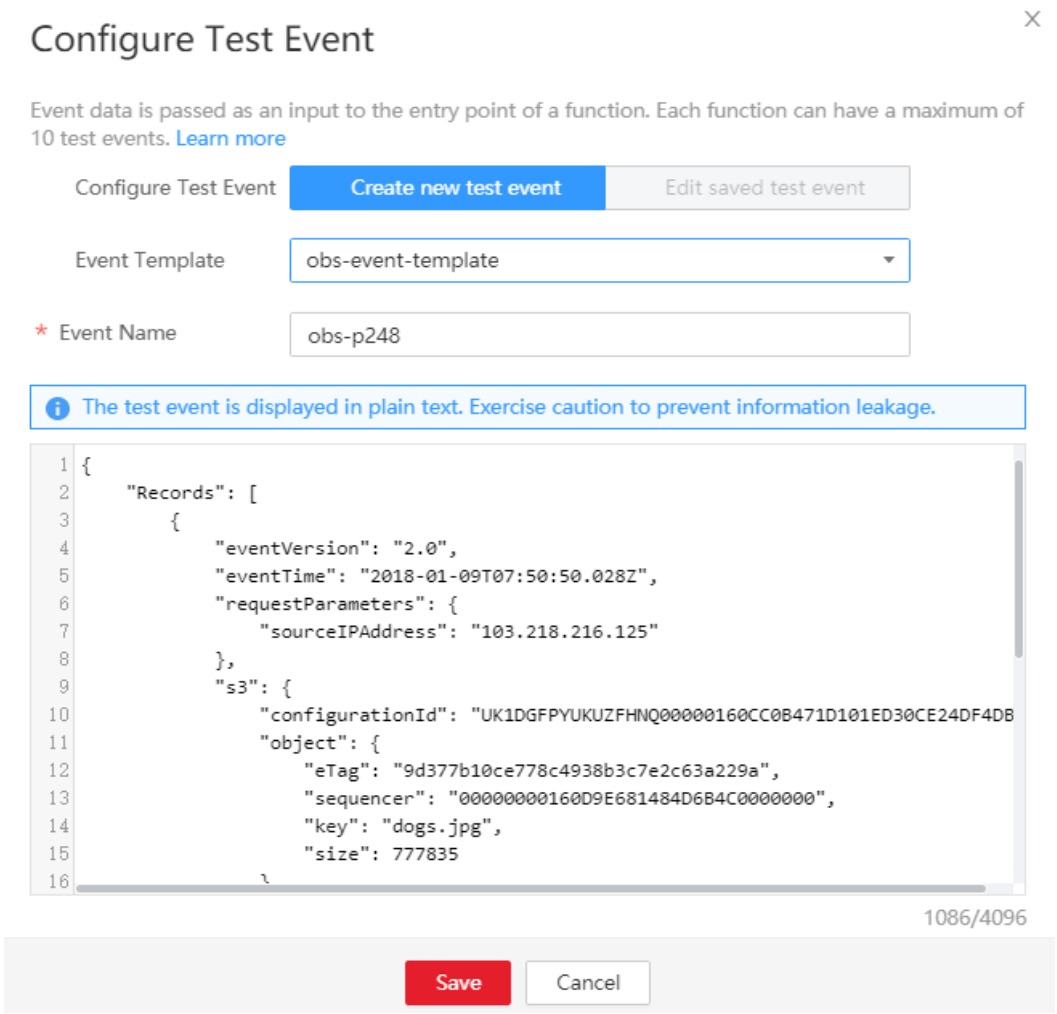

Table 5-8 Parameters required for configuring a test event

Parameter	Description
Configure Test Event	Use the default option **Create new test event**.
Event Template	Select **obs-event-template** from the drop-down list.
Event Name	An event name is automatically generated. You can specify a name as needed.

Step 12 Click **Save**.

Step 13 Click **Test** in the upper right corner of the function details page. The test result is displayed in the upper part of the page.

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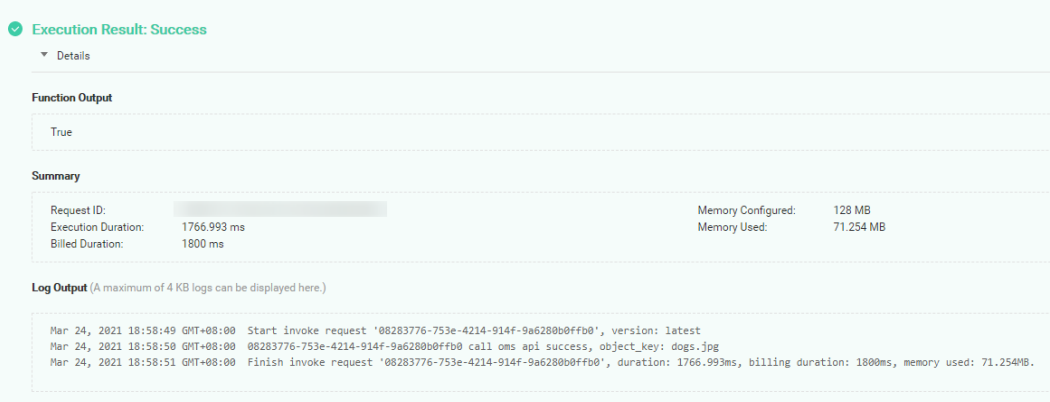
Figure 5-6 Test result



NOTE

After the test succeeds, upload an object to the source bucket. Wait for 10 minutes. Then the object will be synchronized to the destination bucket.

----End

Obtaining Object Lists

Object List	Path
List of requested objects	**oms_source_record/success_object**
List of unrequested objects	**oms_source_record/failed_object/**

NOTE

The objects in the lists are those to be synchronized.

5.3 Monitoring a Synchronization Task

Scenarios

After a synchronization task is started, you can view the synchronization task progress and details at any time.

Procedure

Step 1 Log in to the management console and enter the **Object Storage Migration Service** page.

Step 2 In the navigation pane on the left, choose **Synchronization Task**.

Step 3 Click ⌄ on the left of the task ID and view the task progress. For details about the parameters, see **Table 5-9**.

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Figure 5-7 Monitoring a synchronization task

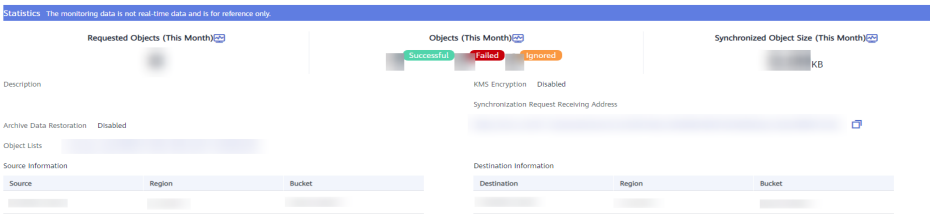

Table 5-9 Monitored synchronization task data

Parameter	Description
Requested Objects (This Month)	Number of objects covered by the synchronization requests received from the source platform this month.
Objects (This Month)	• Successful Number of objects that have been synchronized this month. You can view the synchronized objects in the synchronized object list stored in the destination bucket. • Failed Number of objects that failed to be synchronized this month. You can view the failed objects in the failed object list stored in the destination bucket. • Ignored Number of objects that have been ignored this month. You can view the ignored objects in the ignored object list stored in the destination bucket. **NOTE** If an object with the same name and size exists in the destination bucket, and its last modification time is later than that in the source bucket, the source object will be ignored during synchronization.
Synchronized Object Size (This Month)	Total size of objects that have been synchronized this month.
Object Lists	OMS records the successfully synchronized objects, objects that failed to be synchronized, and ignored objects in three separate lists and stores these lists in the destination bucket. You can use these lists to verify the numbers and names of the synchronized, failed, and ignored objects. For details, see **Table 5-10**.
Synchronization Request Receiving Address	Specifies the address for receiving the synchronization requests from the source platform. These requests will trigger synchronization. For details about OMS API for synchronization requests, see **Creating a Synchronization Event**.

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Table 5-10 Object lists

Object Type	Directory	List Content
Synchronized objects	oms/sync_task/*synchronization task ID*/success_object_lists	Occurrence time (local UTC), non-URL-encoded names of successfully synchronized objects, and object sizes (in bytes)
Failed objects	• oms/sync_task/*synchronization task ID*/failed_object_lists For example, oms/sync_task/*synchronization task ID*/failed_object_lists/oms-task-sync-test-20210107111623197_596 **NOTE** This directory stores the list of objects that failed to be synchronized during the migration. • oms/sync_task/*synchronization task ID*/creation_failures For example, oms/sync_task/*synchronization task ID*/failed_object_lists/creation_failures/1609833838031_5ff41d6e85e877149d44bb55_4.failed_list.txt **NOTE** This directory stores the list of objects that fail to be migrated due to task creation failures. If the account is in arrears, frozen, or does not have the required permissions, the task creation will fail.	Failure causes, occurrence time (local UTC), URL-encoded and non-URL-encoded names of failed objects, and error codes returned by source SDKs
Ignored objects	oms/sync_task/*synchronization task ID*/skip_object_lists	Occurrence time (local UTC), non-URL-encoded names of ignored objects, and object sizes (in bytes)

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Object Type	Directory	List Content
Objects to be synchronized	oms/sync_task/*synchronization task ID*/object_lists	Named of objects to be synchronized **NOTE** OMS automatically records the names of objects to be synchronized covered by the received synchronization requests in a .txt object list file, and stores the file in the **oms/sync_task/***synchronization task ID*/**object_lists** path of the destination bucket.

NOTE

The statistics displayed on the synchronization task details page are delayed for about 1 hour and for reference only.

----End

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6 Viewing CTS Traces

With Cloud Trace Service (CTS), you can record operations associated with OMS. For details, see **Table 6-1**.

You can view these operations to evaluate their impacts on services. For details, see **Querying Real-Time Traces**.

NOTE

On the **Trace List** page on the CTS console, click **Filter**. In the displayed pane, select **OMS** for **Trace Source**, specify other parameters as needed, and click **Query** to query operations related to OMS.

Table 6-1 Key OMS operations recorded by CTS

Operation	Resource Type	Trace Name
Starting migration tasks	migrationTask	startTask
Creating migration tasks	migrationTask	createTask
Pausing migration tasks	migrationTask	stopTask
Deleting migration tasks	migrationTask	deleteTask

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7 Change History

Released On	Description
2021-06-21	This issue is the fourteenth official release. Optimized **Synchronization Tasks**.
2021-03-24	This issue is the thirteenth official release. Optimized **Configuring a Synchronization Request on the Source Platform**.
2021-03-18	This issue is the twelfth official release. • Added **Creating a Migration Task** • Optimized **Creating a Migration Task Group**.
2021-03-10	This issue is the eleventh official release. • Added **Synchronization Tasks**. • Added description of application scenarios in **Migration Tasks**. • Added description of application scenarios in **Migration Task Groups**. • Added description of application scenarios in **Pre-migration Evaluation**.
2020-02-10	This issue is the tenth official release. Added **Creating a User and Assigning OMS Permissions**.
2019-10-15	This issue is the ninth official release. Added Microsoft Azure to the source cloud service provider options.

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Released On	Description
2019-08-31	This issue is the eighth official release. • Added the description about the privacy statement to **Viewing a Migration Task**. • Added the description of task details to **Viewing a Migration Task**. • Added **Creating a Migration Task Group** to **Managing a Migration Task Group**. • Added cloud service providers supported by migration evaluation to **Evaluating Data in a Bucket**. • Added the description about the privacy statement to **Evaluating Data in a Bucket**. • Added the description of viewing evaluation details, terminating evaluation, and evaluation status to **Evaluating Data in a Bucket**. • Added Traffic Limit to the migration task configuration in **Creating Migration Tasks Based on Evaluation**.
2019-04-29	This issue is the seventh official release. • Deleted the subsequent tasks in **Evaluating Data in a Bucket**. • Added the description of operation scenarios in **Evaluating Data in a Bucket**. • Added **Creating Migration Tasks Based on Evaluation**. • Deleted the migration task details table in **Viewing a Migration Task**. • Optimized content about CTS in **Viewing CTS Traces**.
2019-04-17	This issue is the sixth official release. • Updated the description of the **Failed Object List Storage Path** parameter in **Viewing a Migration Task**. • Added steps to go to the Object Storage Migration Service console in topics under **Migration Task Management**.
2018-12-21	This issue is the fifth official release. Changed the CDN parameter to **Custom Domain Name** in the migration task details in **Viewing a Migration Task**.

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Released On	Description
2018-09-30	This issue is the fourth official release. ● Optimized the document structure. ● Supported retransmitting objects that failed to be migrated. ● Added the description of the number of ignored objects to the migration task details. ● Deleted the **Selected Folder** parameter from the migration task details. ● Described how to resume or restart migration tasks in two topics.
2018-08-09	This issue is the third official release. Modified the document based on the changes made to the console.
2017-11-30	This issue is the second official release. Modified the document based on the changes made to the console.
2017-09-15	This issue is the first official release.

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