

# **Migration Service Platform**

## **Migration Tutorial**

### **Product Documentation**



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# Migration Tutorial

## Migrating from Alibaba Cloud OSS

### Agent Semi-Managed Migration

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## Overview

In Agent semi-managed migration mode, you need to manually deploy the Agent on the service of the cloud vendor that hosts your source data, so that the Agent can pull the source data through the private network and push it to Tencent Cloud COS.

Traffic is not billed during Agent semi-managed migration if a direct connection is established between the source-data cloud vendor and Tencent Cloud COS. Therefore, we recommend you perform Agent semi-managed migration if Direct Connect is available.

The following describes how to configure an Agent semi-managed migration task to migrate data from Alibaba Cloud OSS to Tencent Cloud COS.

## Preparations

### Alibaba Cloud OSS

1. Prepare a direct connection (if there is no Direct Connect environment, and the migration is made over the public network, then you can ignore this step):  
If you want to perform Agent semi-managed migration through Direct Connect, before migration, confirm with your sales rep that the COS SDK used by the server in Alibaba Cloud can access COS through Direct Connect.
2. Create a RAM sub-account and grant the required permissions:
  - i. Log in to the RAM console.
  - ii. Select **People Management** > **Users** > **Create User**.
  - iii. Select console password login and programming access, and then enter the user account information.
  - iv. Save the generated account, password, `AccessKeyID`, and `AccessKeySecret`.
  - v. Select the user login name and click **Add Permissions** to grant the sub-account read and write permissions (AliyunOSSFullAccess).

## Tencent Cloud COS

1. Create a bucket to store the migrated data. For more information, please see [Creating Buckets](#).
  2. Create a sub-user for migration and grant the required permissions:
    - i. Log in to the [CAM console](#).
    - ii. On the left sidebar, select **Users > User List** to enter the user list page.
    - iii. Create a sub-user and select **Programming access** and **Tencent Cloud console access**.
    - iv. Search for and select the `QcloudCOSAccessForMSPRole` and `QcloudCOSFullAccess` policies.
    - v. Finish creating the sub-user and save the sub-username, login password, `SecretId`, and `SecretKey`.
- Click [here](#) to download the Agent.

### Note :

You can use Migration Service Platform (MSP) with your root account. However, for security reasons, we recommend you create a sub-account, use the sub-account's API key for migration, and delete the sub-user after migration.

## Migration Speed Limit

MSP provides a QPS limit for object storage mode and a bandwidth limit for URL list mode. During Agent-based migration, you can set a speed limit on the migration server and select **No Speed Limit** when creating a task on MSP.

1. Run the following command to view the serial number of the ENI.

```
[root@VM_10_12_centos ~]# ifconfig
```

2. Run the following command to test the download speed before applying speed limit.

```
[root@VM_10_12_centos ~]# wget https://msp-test-src-12000000000.cos.ap-guangzhou.myqcloud.com/bkce_src-5.0.2.tar.gz
```

3. Run the following command to install the iproute tool. It is installed on CentOS 7.x by default. If this is the case, you can skip this step.

```
[root@VM_10_12_centos ~]# yum -y install iproute
```

4. Run the following command to limit the speed of eth0 to 50 Kbit/s.

```
[root@VM_10_12_centos ~]# /sbin/tc qdisc add dev eth0 root tbf rate 50kbit latency 50ms burst 1000
```

**Note :**

- eth0 is the serial number of the ENI, which is obtained in Step 1.
- If you need to limit the speed to 10 Mbit/s, change 50kbit to 10Mbit .

5. Run the following command to check whether the download speed is limited.

```
[root@VM_10_12_centos ~]# wget https://msp-test-src-12000000000.cos.ap-guangzhou.myqcloud.com/bkce_src-5.0.2.tar.gz
```

6. Run the following command to remove the speed limit when needed.

```
[root@VM_10_12_centos ~]# /sbin/tc qdisc del dev eth0 root tbf
```

## Migration Implementation

1. Create a temporary server (master server) for migration.

You need to enter the IP address of the Agent master server when creating a migration task. This IP address is a private IP address for communicating with the worker server in the migration cluster. Therefore, prepare a virtual machine with the CentOS 7.x 64-bit operating system before creating the migration task.

**Note :**

- If you migrate over Direct Connect, we recommend you configure the server on the migration source side.
- If you migrate over the public network, we recommend you use Tencent Cloud CVM as the server.

2. Create a migration task on Tencent Cloud MSP.

- In the **Mode Selection** section under **Select migration mode**, select **Create a migration task and download the Agent manually to start migration**.
- In the **Master Node Private IP** section, enter the private IP address of the server created on Alibaba Cloud, such as 172.XXX.XXX.94 .
- In the **OSS Private Network EndPoint** section, enter the **EndPoint** (region node) of the OSS

bucket.

### Select migration mode

Mode Selection

☒ Create a migration task and download the Agent manually to start migration  
Agent migration: User deploys ([Download Agent](#)) and executes migration tasks in local.

Master Node Private IP

Please enter the private IP of the primary r

OSS private network EndPoint

Please enter the OSS private EndPoint

If the Agent deployment server is in the same area as the migration source bucket, setting the private network EndPoint of the OSS can avoid public network traffic charges caused by file reading. The specific EndPoint refers to the Alibaba Cloud console. If it's left empty, the public network EndPoint is used.

Agent speed limit

☐ Set the upper limit for migration speed of a single agent

#### Note

1. The size of a single file in the migration source is recommended to be no more than 50GB.
2. File names can only consist of letters, numbers, "-" or ".".
3. The migration speed is determined by various factors such as the total number of files, the total file size, the network status, and the service stability of the migration source. For details, see [How to Estimate Migration Time](#).

☒ I have learned about the time required for migration and the associated costs that may arise.

Cancel

Create and Start

### Note :

- If the files with the same name exist in both the migration source and destination, we recommend you select **Skip (keep the file with the same name in the destination bucket)** for **File with the same name**. By default, **Overwrite (the file in the source bucket replaces the file with the same name in the destination bucket)** is selected.
- Perform secondary migration if the object (file) content is changed during migration.

3. Click **Create and Start** after setting all the parameters. In Agent mode, the task does not automatically run after creation. Instead, you need to manually start the Agent on the Alibaba Cloud master server as follows:
4. Deploy and start the Agent on the master server.
  - i. Decompress the Agent toolkit (there are no special requirements on the directory).
  - ii. Modify the configuration file.

```
./agent/conf/agent.toml
# Enter the Tencent Cloud API key pair for migration
secret_id = 'Enter the Tencent Cloud API AccessKey here'
secret_key = 'Enter the Tencent Cloud API SecretKey here'
```

- iii. Start the Agent.

```
# chmod +x ./agent/bin/agent
# cd agent/bin // Start the Agent from the bin directory. Otherwise, you may not be able to fi
```

*nd the configuration file*

*#./agent*

The Agent periodically retrieves **detailed** task configurations from MSP. You **do not** have to **start the** Agent repeatedly **for** multiple created migration tasks.

#### 5. Scale out the migration cluster by adding worker servers.

The Agent mode supports distributed migration (multi-server collaboration). To increase the migration speed, add worker servers to the migration cluster when the available bandwidth allows.

- Ensure that the added worker servers can communicate with the master server.
- If migration is performed through Direct Connect, ensure that the worker servers can directly access COS with Direct Connect.

You can configure the worker servers as needed, but we recommend you configure them in the same way as the master server. The Agent is deployed and started in the same way as the master server, and you need to change `secret_id` and `secret_key` in `agent.toml`. Because the master server is designated when the task is created, the newly added Agent works as a worker node to communicate with the master server and receive the task.

You can add worker servers to the migration cluster at any time. However, we recommend you create all worker servers and the master server and configure and start the Agent before creating a task. In this way, the master server can effectively schedule segments during task startup.

## Migration Status and Progress

You can view the status and progress of all file migration tasks on the file migration tool homepage:

- For the "task completed" status, green indicates that the migration task was completed and all files were successfully migrated, while yellow indicates that the migration task was completed but some files failed to be migrated.
- After you click the "Retry failed task" link, files that failed in the task will be retried for migration, while files that have been successfully migrated will not be transferred again.
- You can click the "Export" link to export the list of files that failed to be migrated.



# Migrating Between Tencent Cloud COS

Last updated : 2020-06-30 17:22:16

## Overview

In the fully managed migration on a public network, there is no need to deploy the Agent, and tasks are automatically executed once they are created. During migration between Tencent Cloud COS, MSP will use the private network to pull data from the source COS bucket and save it to the destination COS bucket at no additional charge.

This document introduces how to configure a fully-managed public network migration task to migrate data between Tencent Cloud COS.

## Preparations

### Tencent Cloud COS

1. Create a destination bucket to store the migrated data. For more information, see [Creating Buckets](#).
2. Create a sub-user for migration and grant the required permissions:
  - i. Log in to the [CAM Console](#).
  - ii. Choose **Users** -> **User List** in the left sidebar to go to the **User list** page.
  - iii. Create a sub-user, enter the required information, and select **Programming Access** and **Tencent Cloud Console access** for **Access mode**.
  - iv. Search for and select the QcloudCOSAccessForMSPRole and QcloudCOSFullAccess policies.
  - v. Finish creating the sub-user and save the sub-user name, login password, SecretId, and SecretKey.

You can use Migration Service Platform (MSP) with your root account. However, for security reasons, we recommend that you create a sub-user, use the sub-user's API key for migration, and delete the sub-user after migration.

## Directions

### Logging in to the Migration Service Platform

1. Log in to the [MSP Console](#).
2. Click **Object Storage Migration** in the left sidebar to enter the **Object Storage Migration** page.

### Creating a migration task

1. In the **Object Storage Migration** page, click **Create a Task** to enter the **New Object Storage Migration Task** page and configure the migration parameters.
2. Set the migration task name.

**Task Settings**

Task Name

1 to 60 characters, including Chinese characters, letters, 0-9, \_ -

**Task Name:** enter 1 to 60 characters, including Chinese characters, letters, 0-9, underscores (\_), and hyphens (-). You can use this name to view the migration status and progress in the task list.

3. Set the file source to be migrated.

Select **Tencent Cloud COS** for **ISP**, enter the SecretId and SecretKey of the new Tencent Cloud sub-user created earlier for migration in the **AccessKey** and **SecretKey** text boxes, and then click the **Refresh** icon on the right of the drop-down list to get the source COS buckets.

#### Migration Source Information

ISP \*

AlibabaCloud OSS

Tencent Cloud COS

URL list

AWS S3 (International)

AccessKey

SecretKey

Please enter the AccessKey and SecretKey to ensure access to the source data bucket.

Migration bucket name

↻

Click "Refresh" on the right to get the list of available source data buckets.

4. Select the file storage method.

Set the way to store the migrated files as needed. There are four options: **Use standard storage for all**, **Use Standard Infrequent Access Storage for all**, **Keep the original storage**

**properties**, and **Save all as archive storage**.

---

File Storage Method ☒ Use standard storage for all ☐ Use Standard Infrequent Access Storage for all ☐ Keep the original storage properties ☐ Save all as archive storage

The migration target storage type currently supports "standard storage", "infrequent access storage" and "archive storage". If the migration source is "archive storage", please unfreeze it or convert it to standard or infrequent access storage before migration.

---

5. Select the Header setting.

If the file in the source bucket has a Header/Tag that needs to be retained after migration, select **Keep all source headers** or **Set the Header replacement rule**.

---

Header migration mode ☒ Keep all source headers ☐ Discard all source headers ☐ Set the Header replacement rule

Headers that do not conform to the COS label naming rules will not be retained. Please refer to [COS custom Header](#)

---

6. Set the migration rule.

Choose to migrate all files or only the files with a specified prefix from the specified bucket.

7. Set the time range.

Enable the time range, and only migrate files that have been added or changed within the specified time range.

8. Set the maximum concurrence number.

Each public cloud vendor has a limit for the max concurrent tasks of object storage services. To ensure business stability, check with the source vendor and set the maximum available migration QPS before migrating.

---

File name filtering rule ☒ Not filtered (full amount) ☐ Only migrate files that match the prefix ☐ Only migrate files that match regular expressions

Time Range ☒ Only migrate files that have been added or changed within the specified time range

00:00 of start date to 00:00 of end date

2019-11-14 ~ 2019-11-21

Concurrent Number ☒ Set a limit for the max concurrent tasks

50 QPS 400 QPS 800 QPS 1200 QPS 1600 QPS 2000 QPS

This feature limits the number of concurrent migrations that can be achieved during the migration process, so as to avoid affecting customers' other business due to excessive QPS.

---

9. Select the migration destination.

Under **Migration Destination Information**, enter the SecretId and SecretKey of the Tencent Cloud sub-user for migration, and then click the **Refresh** icon on the right of the drop-down list to get the destination COS buckets.

**Migration Target Information**

Please enter the SecretId and SecretKey below to get access to COS or [Create a new SecretId and SecretKey](#)

SecretId

Please enter SecretId

SecretKey

Please enter the SecretKey

Migration bucket name

Please select the target bucket to migrate the file to in the drop-down box (refresh and select)

The target bucket is located at -.

Please select the bucket you want to mig ▾ ↻

10. Specify the storage path in the destination bucket.

- **Save to the root directory:** directly save the files to the destination bucket's root directory, maintaining the original relative path.
- **Save to the specified directory:** save the files to the destination bucket's specified directory, maintaining the original relative path.

Storage Path

☒ Save to the root directory
 ☐ Save to the specified directory

File with the same name

☒ Overwrite (the file in the source bucket replaces the file with the same name in the target bucket)
 ☐ Skip (keep the file with the same name in the target bucket)

For example:

There are two files `/a.txt` and `/dir/b.txt` in the source bucket and you enter "dest" for the **Storage Path**, the two files will be stored at `/dest/a.txt` and `/dest/dir/b.txt` in the destination bucket after the migration.

If you enter "dest/20180901" for the **Storage Path**, the two files will be stored at `/dest/20180901/a.txt` and `/dest/20180901/dir/b.txt` in the destination bucket after the migration..

- If the files with the same name exist in both the migration source and destination, we recommend that you select **Skip (keep the file with the same name in the Destination bucket)** for **File with the same name**. By default, **Overwrite (the file in the source bucket replaces the file with the same name in the destination bucket)** is selected.
- If the object (file) content changes during migration, you need to migrate it again.

11. Select the migration mode.

- **Create a migration task and start fully-managed migration immediately:** you choose the fully-managed migration and click **Create and Start**, MSP will access and

migrate the source bucket on a public network.

- **Create a migration task and download the Agent manually to start migration:** you choose the Agent migration and click **Create and Start**, only the task configuration will be created. You must manually download Agent and deploy it on the source server to start the migration. Agent mode is applicable to scenarios where you want to perform the migration using an existing Direct Connect.

**Select migration mode**

Mode Selection ☒ Create a migration task and download the Agent manually to start migration  
Agent migration: User deploys [\(Download Agent\)](#) and executes migration tasks in local.

Master Node Private IP

Agent speed limit ☐ Set the upper limit for migration speed of a single agent

**Note**

1. The size of a single file in the migration source is recommended to be no more than 50GB.
2. File names can only consist of letters, numbers, "-" or "\_"
3. The migration speed is determined by various factors such as the total number of files, the total file size, the network status, and the service stability of the migration source. For details, see [How to Estimate Migration Time](#).

☒ I have learned about the time required for migration and the associated costs that may arise.

12. Click **Create and Start** to start the migration task.

## Checking the Migration Status and Progress

You can check the migration task status and progress of all files in the **Object Storage Migration** page.

- Task completed: a task in green means the task is completed and all files are migrated. A task in yellow means the task is completed and some files are migrated.
- Click **Tasks failed to retry** to only migrate the failed migration files again.
- Click **Export**, so you can save failed migration file entries locally.

## Estimating the File Migration Duration

The migration speed depends on the slowest speed during each stage of the migration process and is affected by factors such as the network transmission speed and the maximum concurrency. The following table describes these factors.

Influencing Factor	Description
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Influencing Factor	Description
Read speed of the migration source	<p>The read speed of the data source varies by ISPs.</p> <ul style="list-style-type: none"><li>• Generally, the transmission speed ranges from 50 Mbps to 200 Mbps.</li><li>• The file reading concurrence ranges from 500 to 3000. The transmission of a large number of small files is subject to this concurrence limit.</li></ul>
MSP transfer speed	MSP provides a maximum migration bandwidth of 200 Mbps.
Write speed of the migration destination	<p>For Tencent Cloud COS, the write speed is 200 Mbps and the write concurrence ranges from 500 to 800.</p> <p>Generally, the migration speed ranges from 6 MByte to 25 MByte, that is, 21 GB/hr to 87 GB/hr.</p>

# URL List Migration

Last updated : 2020-05-12 16:30:40

## Scenarios

The fully-managed migration into and out of public network requires no Agent and automatically executes new tasks. Migration Service Platform (MSP) saves the URL data obtained through public network to Tencent Cloud Object Storage (Tencent Cloud COS). However, this incurs CDN traffic fees to source vendor. For specific fees, refer to the pricing of the source vendor.

The following section describes how to use the URL list method to configure a fully-managed public network migration task and implement data migration.

## Preparations

### Tencent Cloud COS

1. Create a bucket to store the migrated data. For more information, see [Creating Buckets](#).
2. Create a sub-user account for migration and grant the required permissions:
  - i. Log in to the [Cloud Access Management](https://console.cloud.tencent.com/cam/overview) console.
  - ii. Click **Users** -> **User List** in the left sidebar to go to the **User list** page.
  - iii. Create a sub-user, enter the required information, and select **Programming Access** and **Tencent Cloud Console access** for **Access mode**.
  - iv. Search for and select the QcloudCOSAccessForMSPRole and QcloudCOSFullAccess policies.
  - v. After creating the sub-user, save the sub-user name, login password, SecretId, and SecretKey.

You can use MSP with your root account. However, for security reasons, we recommend you create a sub-user, use the sub-user's API key for migration, and delete the sub-user after migration.

## Directions

### Logging in to MSP

1. Log in to [Migration Service Platform](https://console.cloud.tencent.com/msp).
2. Click **Object Storage Migration** in the left sidebar to go to the **Object Storage Migration** page.

### Creating a Migration Task

1. Click **Create a Task** in the **Object Storage Migration** page to go to **New Object Storage Migration Task**, and then configure the migration parameters.
2. Set the migration task name.

**Task Settings**

Task Name

1 to 60 characters, including Chinese characters, letters, 0-9, \_ -

**Task Name:** You may enter a string of 1-60 characters, including Chinese characters, English letters, 0-9, backslashes (\), underscores (\_) or hyphens (-). This name will be displayed in the task list, and you can check the status and progress of the migration.

3. Set the file source to be migrated.

Select **URL list** for **ISP**. You can upload the URL list files or provide the URL list file download address. For large URL list files, the browser upload may time out. We recommend you save the URL list file to COS, select **Provide URL list file download address**, and then enter the COS URL of this file. You need to place all URLs in a text file, with one URL per line.

For example, if you choose **Provide URL list file download address and enter the file address** `http://xxx.xxx.xxx/url.txt` , which includes URLs `http://xxx.xxx.xxx/xxx/l.jpg` and `http://xxx.xxx.xxx/xxx/xxxxxx/test.mp4` , both files contained in URLs will be migrated in **MSP**.

**Migration Source Information**

ISP \* ☐ AlibabaCloud OSS ☐ Tencent Cloud COS ☒ URL list ☐ AWS S3 (International)

Upload URL list file ☒ Upload URL list file ☐ Provide URL list file download address

The URL list file should be in text format, and each line is a file URL address that can be accessed via http/https, for example:  
`http://xxx.xxx.xxx/xxx/l.jpg`  
`http://xxx.xxx.xxx/xxx/xxxxxx/test.mp4`  
If the number of file records is large, the URL list file is large and not convenient for uploading via browser. It is recommended to save the URL list file to COS, select "Provide URL list file download address", and fill in the COS URL access address of this file.


### 4. Set the task execution time.



Data migration will occupy the network resources of the source vendor. You can set the start execution time of the migration task according to your business circumstances.

Execution Time

☒ Task start execution time

2019-11-14 09:59:26 

#### 5. Set data migration execution speed.

You can set the upper limit of the migration speed to avoid the extra CDN bandwidth cost due to excessive migration speed. The actual migration speed will be lower than the set value due to network fluctuations.

Execution Speed

☒ Limit the maximum migration speed

50 Mbps200 Mbps400 Mbps600 Mbps800 Mbps1000 Mbps

This feature sets the upper limit of the migration speed, so as to avoid the extra bandwidth cost of the CDN due to excessive migration speed. The actual migration speed will be lower than the set upper limit due to network fluctuations.

#### 6. Select the migration destination.

In the **\*\*Migration Destination Information**, enter **SecretId** and **SecretKey** of the Tencent Cloud sub-user. Select the migration destination bucket by clicking **Refresh** next to the drop-down box.

Migration Target Information

Please enter the SecretId and SecretKey below to get access to COS or [Create a new SecretId and SecretKey](#)

SecretId


Please enter SecretId

SecretKey

Please enter the SecretKey

Migration bucket name

Please select the target bucket to migrate the file to in the drop-down box (refresh and select)  
The target bucket is located at -.

Please select the bucket you want to migrate 

#### 7. Specify the storage path of the destination bucket.

- **Save to the root directory:** directly save files to the root directory of the destination bucket, maintaining the original relative path in the source bucket.

- **Save to the specified directory:** save files to the specified directory of the destination bucket, maintaining the original relative path in the source bucket.

Bucket Path Setting

☒ Use the path in the URL for the bucket  
Use the relative path in the URL except the domain name as the COS Key. For example if you want to migrate `http://test.com/game/1.apk` to COS, it will be saved as `cos://game/1.apk`.  
☐ Ignore path in the URL  
All files are placed directly in the root directory of the bucket, replacing files with the same name. For example, if you migrate `http://test.com/game/1.apk` to COS, it will be saved as `cos://1.apk`.

Storage Path

☐ Save to the root directory ☒ Save to the specified directory  

Example: `aaa/bbb/cc`

For multiple directories, use slashes, for example: `aaa/bbb/cc`

File with the same name

☒ Overwrite (the file in the source bucket replaces the file with the same name in the target bucket) ☐ Skip (keep the file with the same name in the target bucket)

For example:

For two files `/a.txt` and `/dir/b.txt` in the source bucket, you enter **dest** in the text box. After migration, the two files will be found in `/dest/a.txt` and `/dest/dir/b.txt` of the destination bucket.

If you enter `dest/20180901` in the text box, and after migration, the two files will be found in `/dest/20180901/a.txt` and `/dest/20180901/dir/b.txt` of the destination bucket.

- If the files with the same name exist in both the migration source and destination, we recommend you select **Skip (keep the file with the same name in the destination bucket)** for **File with the same name**. By default, **Overwrite (the file in the source bucket replaces the file with the same name in the destination bucket)** is selected.
- If the file content is changed during migration, you need to migrate again.

viii. Select a migration mode.

**-Create a migration task and start fully-managed migration immediately:** select the managed migration mode. After you click **\*\*Create and Start**, MSP accesses and migrates the source files through public network.

- **Create a migration task and download the Agent manually to start migration:** select Agent mode migration. After you click **Create and Start**, only the task configuration will be created. You must manually download Agent and deploy it on the migration source server to officially launch the migration. Agent mode is applicable to scenarios where you want to

migrate through an existing Direct Connect.

**Select migration mode**  
Mode Selection ☒ Create a migration task and download the Agent manually to start migration  
Agent migration: User deploys ([Download Agent](#)) and executes migration tasks in local.  
Master Node Private IP   
Agent speed limit ☐ Set the upper limit for migration speed of a single agent  

**Note**  
1. The size of a single file in the migration source is recommended to be no more than 50GB.  
2. File names can only consist of letters, numbers, "-" or "\_".  
3. The migration speed is determined by various factors such as the total number of files, the total file size, the network status, and the service stability of the migration source. For details, see [How to Estimate Migration Time](#).  
☒ I have learned about the time required for migration and the associated costs that may arise.

- i. Click **Create and Start** to launch the migration task.

## Checking Migration Status and Progress

You can check the status and progress of all migration tasks in the **Object Storage Migration** page.

- Under **Status**, tasks in green are completed and fully migrated, and tasks in yellow are completed but partially migrated.
- Click **Retry**. Only files in the task that fail to be migrated will be migrated again.
- Click **Export**. The list of files failed to be migrated will be downloaded.

## Estimated Migration Period

The migration speed is determined by the lowest speed during each stage of the migration process and is affected by factors such as the network transmission speed and the maximum concurrency. The following table describes these factors:

Influencing factor	Description
--------------------	-------------

Influencing factor	Description
Read speed of the migration source	<p>The read speed of the data source varies depending on service providers. Generally,</p> <ul style="list-style-type: none"><li>• the transmission speed generally ranges from 50 Mbps to 200 Mbps.</li><li>• The file reading concurrency ranges from 500 to 3000. The transmission of a large number of small files is subject to this concurrency limit.</li></ul>
MSP transfer speed	<p>The MSP provides a maximum migration bandwidth of 200 Mbps.</p>
Write speed of the migration destination	<p>For Tencent Cloud COS, the write speed is 200 Mbps and the write concurrency ranges from 500 to 800.</p> <p>Generally, the migration speed ranges from 6 MByte to 25 MByte, that is, 21 GB/h to 87 GB/h.</p>

Data that is migrated by using the URL list uses standard storage on Tencent Cloud by default.

# AWS S3 Migration Tutorial

Last updated : 2020-03-11 15:14:13

## AWS S3 Migration Tutorial

### Agent Semi-Managed Migration

#### Scenario

In Agent semi-managed migration mode, you need to manually deploy the Agent on the service of the cloud vendor that hosts your source data so that the Agent can pull the source data through a private network and push it to Tencent Cloud COS.

Outbound traffic is not billed during Agent semi-managed migration if a direct connection is established between the source-data cloud vendor and Tencent Cloud COS. Therefore, we recommend that you perform Agent semi-managed migration if direct connect is available.

The following describes how to configure an Agent semi-managed migration task to migrate data from the source object storage in AWS S3 to Tencent Cloud COS.

#### Preparations

##### AWS S3

###### 1. Confirm that direct connect is available

If you want to perform Agent semi-managed migration with direct connect, before the migration, confirm with the your sales rep that the COS SDK used by the server in AWS S3 can access COS with direct connect.

###### 2. Create an AWS IAM account and grant required permissions

- i. Log in to the AWS console.
- ii. In the navigation pane, choose **Users** > **Add user** and enter a user name for the new user.

- iii. Select **Programmatic access** and **AWS console access** for **Access type**.
- iv. Select **Next: Permissions**. On the **Set permissions** page, specify a permission assignment mode for the user. Grant the user bucket read and write permissions under the AWS Identity and Access Management (IAM) account.
- v. Click **Create user**.
- vi. To view the user's AccessKey pair (AccessKey ID and AccessKey Secret), click **Show** next to the target password and AccessKey pair. To save the AccessKey pair, download the CSV file for the pair, which contains the AccessKey ID and AccessKey Secret.

## Tencent Cloud COS

### 1. Create a destination bucket

Create a bucket to store the migrated data. For more information, see [Creating a Bucket](#).

### 2. Create a sub-user for migration and grant the required permissions

- i. Log in to the Tencent Cloud Console.
- ii. Search for **Access Management** or click **Account Information** under the user name to go to the **Cloud Access Management** page.
- iii. In the left sidebar, click **User Management** to go to the **User List** page.
- iv. Create a sub-user, enter the required information, and select **Programmatic access** and **Tencent Cloud Console access** for **Access mode**.
- v. Search for and select the QcloudCOSAccessForMSPRole and QcloudCOSFullAccess policies.
- vi. Finish creating the sub-user and save the sub-user name, login password, SecretId, and SecretKey.
- vii. Click [here](#) to download the Agent.

#### Note:

You can use Migration Service Platform (MSP) with your root account. However, for security reasons, we recommend that you create a sub-user, use the sub-user's API key for migration, and delete the sub-user after migration.

## 3. Migration Speed Limit

MSP provides a Query Per Second (QPS) limit for object storage mode and a bandwidth limit for URL list mode. During Agent-based migration, you can set a speed limit on the migration server and select **No Speed Limit** when creating a task on MSP.

1. Run the following command to view the SN of the NIC

```
[root@VM_10_12_centos ~]# ifconfig
```

2. Run the following command to test the download speed before applying speed limiting:

```
[root@VM_10_12_centos ~]# wget https://msp-test-src-12000000000.cos.ap-guangzhou.myqcloud.com/bkce_src-5.0.2.tar.gz
```

3. Run the following command to install the iproute tool. iproute has been installed in CentOS 7.x by default. If this is the case, you can skip this step.

```
[root@VM_10_12_centos ~]# yum -y install iproute
```

4. Run the following command to limit the speed of eth0 to 50 Kbit:

```
[root@VM_10_12_centos ~] # /sbin/tc qdisc add dev eth0 root tbf rate 50kbit latency 50ms burst 1000
```

**Note:**

- eth0 is the SN of the NIC, which is obtained in Step 1.
- You can also limit the NIC speed to 10 Mbit.

5. Run the following command to check whether the download speed is limited:

```
[root@VM_10_12_centos ~]# wget https://msp-test-src-12000000000.cos.ap-guangzhou.myqcloud.com/bkce_src-5.0.2.tar.gz
```

6. Run the following command to remove the speed limit when needed:

```
[root@VM_10_12_centos ~]# /sbin/tc qdisc del dev eth0 root tbf
```

## 4. Migration implementation

1. Create a temporary server (primary server) for migration at the migration source.

You need to enter the IP address of the Agent primary server when creating a migration task. This IP address is a private IP address for communicating with the Worker server in the migration cluster. Therefore, prepare a virtual machine with the CentOS 7.x 64-bit operating system in AWS before creating the migration task.

2. Create a migration task on Tencent Cloud MSP.

- i. In the **Mode Selection** section under **Select migration mode**, select **Create a migration task and download the Agent manually to start migration**.

- ii. In the **Master Node Private IP** section, enter the private IP address of the server created on AWS, such as 172.XXX.XXX.94.

The screenshot shows the 'Select migration mode' configuration panel. It includes a 'Mode Selection' section with two radio buttons: 'Create a migration task and download the Agent manually to start migration' (selected) and 'Fully-Managed Migration'. Below this is a text input field for 'Master Node Private IP' with a placeholder 'Please enter the private IP of the primary node'. At the bottom, there is a toggle switch for 'Agent speed limit' with the label 'Set the upper limit for migration speed of a single agent'.

### Note:

- If the migration source and the destination source contain files with the same name but different contents, we recommend that you select **Skip (keep the file with the same name in the destination bucket)** for **File with the same name**. By default, **Overwrite (the file in the source bucket replaces the file with the same name in the destination bucket)** is selected.
- Perform secondary migration if the object (file) content is changed during migration.

3. Click **Create and Start** after setting all the parameters. In Agent mode, the task does not automatically run after creation. Instead, you need to manually start the Agent on the AWS primary server as follows:

4. Deploy and start the Agent on the primary server.



- i. Decompress the Agent toolkit to a directory.
- ii. Modify the configuration file.

```
./agent/conf/agent.toml
# Enter the Tencent Cloud API AccessKey pair for migration.
secret_id = 'Enter the Tencent Cloud API AccessKey ID here'
secret_key = 'Enter the Tencent Cloud API AccessKey Secret here'
```

- iii. Start the Agent.

```
# chmod +x ./agent/bin/agent
# cd agent/bin //Start the Agent from the **bin** directory. Otherwise, you may not be able to
find the configuration file.
#./agent
The Agent periodically retrieves detailed task configurations from MSP. You do not have to sta
rt the Agent repeatedly when multiple migration tasks are created.
```

## 5. Scale out the migration cluster by adding Worker servers.

The Agent mode supports distributed migration (multi-server collaboration). To increase the migration speed, add Worker servers to the migration cluster when the available bandwidth allows.

- Ensure that the added Worker servers can communicate with the primary server.
- If migration is performed through direct connect, ensure that the Worker servers can directly access COS with direct connect.

You can configure the Worker servers as needed, but we recommend that you configure them in the same way as the primary server. The Agent is deployed and started in the same way as the primary server, and you need to change `secret_id` and `secret_key` in `agent.toml`. Because the primary server is designated when the task is created, the newly added Agent works as a Worker node to communicate with the primary server and receive the task.

You can add Worker servers to the migration cluster at any time. However, we recommend that you create all Worker servers and the primary server and configure and start the Agent before creating a task. In this way, the primary server can effectively schedule segments during task startup.

## 5. Estimating the file migration duration

The migration speed is determined by the lowest speed during each stage of the migration process and is affected by factors such as the network transmission speed and the maximum concurrency. The following table describes these factors.

Influencing Factor	Description
Read speed of the migration source	The read speed of the data source varies depending on different service providers. The transmission speed typically ranges from 50 Mbit/s to 200 Mbit/s. The file reading concurrency ranges from 500 to 3000. The transmission of a large number of small files is subject to this concurrency.
Direct connect bandwidth	The data transmission speed between access points depends on the available bandwidth of direct connect.
Write speed of the migration destination	For Tencent Cloud COS, the write speed is 200 Mbit/s and the write concurrency ranges from 500 to 800. Generally, the migration speed ranges from 6 MB/s to 25 MB/s, that is, 21 GB/h to 87 GB/h.