

**Migration Center**

# **Best Practices**

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# 1 Migrating On-premises Servers to Huawei Cloud

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## Scenario

This section describes how to use MgC to migrate on-premises servers and cloud servers from other platforms to Huawei Cloud.

## Preparations

- Prepare a Windows server for installing Edge in the source intranet environment. The Windows server must:
  - Be able to access the Internet.
  - Use PowerShell **4.0** or later.
  - Have at least 100 MB of available space on drive D. If there is no drive D on the server, split a drive D with at least 100 MB of space from the existing drive C.
- Open the required ports on source servers to the server where Edge is installed.
  - Windows: port 5985
  - Linux: port 22
- Disable any antivirus and protection software on the Windows server where Edge is installed. This type of software may stop Edge from executing migration commands, resulting in migration failures.
- Enable WinRM on, if any, Windows source servers. You can run the following command and enter **y** to enable WinRM:

```
winrm quickconfig
```
- Prepare a Huawei account or an IAM user that can access MgC. For details, see [Preparations](#).
- [Create a migration project](#) on the MgC console.

## Step 1: Download and Install Edge

Install Edge and connect it to MgC. For details, see [Installing Edge](#).

## Step 2: Add Servers to MgC

- Step 1** Log in to the **MgC** console.
- Step 2** In the navigation pane on the left, choose **Research > Application Discovery**. Select a **migration project** in the upper left corner of the page.
- Step 3** Click the **Resources** tab, click **Server** in the **Category** column or the number in the **Total Resources** column.
- Step 4** Click **Add**.
- Step 5** In the displayed dialog box, configure parameters listed in **Table 1-1** and click **Confirm**. The system automatically checks the credential status and starts collecting resource details.

**Table 1-1** Parameters for adding a server

Parameter	Description
Name	Enter a name.
Edge Device	Select the Edge device installed in the source environment.
Type	Select the OS type of the source server.
IP Address	Enter the IP address of the source server. If the source server is in the same VPC as the Edge device, you can enter the private IP address of the server. Otherwise, you have to enter its public IP address.
Port	Enter the port on the source server opened to the Edge device. <ul style="list-style-type: none"> <li>By default, port 5985 on Windows source servers must be opened to the Edge device. The port cannot be changed.</li> <li>By default, port 22 on Linux source servers must be opened to the Edge device. You can specify another port if needed.</li> </ul>
Credential	Select the server credential. If the credential has not been added to MgC, go to the Edge console and <b>add the server credential</b> to the Edge device and synchronize it to MgC.

- Step 6** View the added server on the **Servers** tab page.

----End

## Step 3: Group Servers as an Application

You can group the added servers as an application for subsequent resource evaluation and migration.

- Step 1** In the **Servers** list of the **Resources** page, select the servers to be added to the same application and choose **Resource Management > Manage Application Association** in the upper left corner.
- Step 2** Select the application from the drop-down list. If no applications are available, click **Create Application**. In the displayed dialog box, enter an application name and description, select the business scenario, environment, and region, and click **OK**. For details, see [Creating an Application](#)
- Step 3** Click **OK**. You can view the application name in the **Application** column of these servers.
- End

### (Optional) Step 4: Bind the Source Servers to Existing Target Servers

If you have created a target server, you can bind a source server to the target server. Then you skip step 5 and go to [Step 6: Create a Migration Workflow](#).

If you choose to skip the target binding step, go to [Step 5: Getting Target Recommendations](#).

---

#### CAUTION

A target server must meet the following requirements:

- Disks on the target server can be formatted. During the migration, disks on the target server are formatted and re-partitioned based on the source disk settings for receiving data migrated from the source server.
- To migrate over the Internet, the target server must be able to access the Internet.
- The target server must be in the same region as the **application** to which the source server is added.

- 
- Step 1** In the navigation tree on the left, choose **Design > Migration Solutions**.
- Step 2** Click **View Resources** in the **Target Configuration** card.
- Step 3** On the displayed **Servers** tab page, locate a source server and click **Associate** in the **Target Association** column.
- Step 4** In the displayed dialog box, select the region of the **application** and select a project. Then, select the target server and click **Confirm**.

After the association is complete, **Associated** is displayed in the **Target Association** column. You can click **Details** to view the specifications of the associated target server.

----End

### Step 5: Getting Target Recommendations

Assessing an application can get recommendations for most suitable Huawei Cloud resources based on the specifications, performance, and business purpose data of the source resources added to the application, as well as your selected

recommendation references, such as, cost or performance reference and ECS type references.

 **NOTE**

If your source servers have been **associated with existing servers** on Huawei Cloud, you can skip this section and directly create a migration workflow to migrate them.

- Step 1** On the **Migration Solutions** page, click **Assess** in the **Target Configuration** card.
- Step 2** In the **Select Application** drop-down list, select the **application** into which the source servers have been grouped.
- Step 3** In the **Select Resources** area, select the resources to be assessed in the application.
- Step 4** Configure the assessment policy based on **Table 1-2**.

**Table 1-2** Parameters for configuring an assessment policy

Parameter	Description
Target Region	Select the region where you want to purchase resources on Huawei Cloud. You are advised to select a region close to your target users for lower network latency and quick access.
Sizing Criterion	<ul style="list-style-type: none"> <li>● Source specifications-based MgC recommends the most appropriate Huawei Cloud resources based on source resource specifications.</li> <li>● Business scenario-based MgC recommends appropriate Huawei Cloud resources based on the business scenarios of source resources and Huawei Cloud best practices.</li> <li>● Cross-AZ migration This policy applies only to migration of ECSs between AZs on Huawei Cloud, and MgC only assesses servers in the application. You need to select the target AZ you want to migrate to.</li> </ul>
Preference	<ul style="list-style-type: none"> <li>● Performance-first MgC recommends target resources based on your performance requirements.</li> <li>● Price-first MgC recommends target resources based on your cost requirements.</li> </ul>
(Optional) Advanced Options	Advanced options are only applied to recommendations for server resources. You can select ECS types, CPU types, and disk types you prefer. The configured advanced options have the highest priority during the resource assessment.

- Step 5** Click **OK**.
- Step 6** In the application list on the **Migration Solutions** page, locate the applications and click **View Target Configurations** in the **Operation** column.



In the **Target Configurations** area, you can view the specifications of Huawei Cloud resources recommended based on the source resource specifications and your selected preferences. It also gives you the ability to estimate the cost of running on Huawei Cloud. In addition, you can modify the recommended target configurations.

----End

## Step 6: Create a Migration Workflow

Create a workflow to migrate the source servers to Huawei Cloud by referring to [Creating a Server Migration Workflow](#).

# 2 Migrating Servers Across AZs on Huawei Cloud

## Scenario

This section describes how to use MgC to quickly migrate ECSs from AZ 1 to another AZ in the CN South-Guangzhou region of Huawei Cloud. This practice applies to migration of fewer than 30 ECSs in a single batch across AZs within a region. You only need to specify a resource group name, and MgC takes care of all the rest, from resource discovery, collection, and assessment to migration.

## Preparations

You need to prepare a Huawei account or an IAM user that can access MgC. For details, see [Preparations](#).

## Procedure

- Step 1** Log in to the [MgC](#) console.
- Step 2** In the navigation pane on the left, choose **Overview**.
- Step 3** In the **Process Flow** area, click the **Cross-AZ Migration** tab. In the **Automated Process** area, click **Get Started**.



- Step 4** In the displayed dialog box, specify an application name and select the target AZ you want to migrate to.
- Step 5** Click **Create and Run**. MgC will automatically collect information about servers in the selected source AZ under the current account, creates an application, adds the discovered servers to the application, and starts the assessment process.
- Step 6** After the assessment process is complete, click **Close** to configure the workflow.
- Step 7** Configure the workflow parameters listed in [Table 2-1](#).

**Table 2-1** Parameters required for configuring a workflow

Area	Parameter	Description
Workflow Details	Name	Enter a workflow name.
	Description	Enter a workflow name.
Application	Application	Select the application defined in <a href="#">Step 4</a> .
Migration Settings	Region	Select the region the source AZ belongs to. By default, the value is CN South-Guangzhou and cannot be modified.
	Target AZ	Select the AZ you want to migrate to. The configuration must be the same as that of the created application.
	Target Network	Only <b>Retain original</b> is available.
	Target Server	Create now. MgC creates backups and images for source servers, and uses the images to create target servers immediately after the workflow runs.
	Stop Target Server	<ul style="list-style-type: none"><li>• If you select <b>Yes</b>, target servers will be stopped after being created.</li><li>• If you select <b>No</b>, target servers will be started after being created.</li></ul>
	Stop Source Server	<ul style="list-style-type: none"><li>• If you select <b>Yes</b>, source servers will be stopped before incremental backups are created for them. This ensures data consistency as high as possible.</li><li>• If you select <b>No</b>, source servers remain running when incremental backups are created for them.</li></ul>
Advanced Settings	Delete Intermediate Resources	If this function is enabled, intermediate resources generated during the migration, such as backups, snapshots, and images, will be deleted after the service cutover is complete.
	Retain Primary NIC IP Addresses	If this function is enabled, the private and public IP addresses of the primary NIC on source servers will be retained on target servers, and random private IP addresses will be allocated to source servers. You need to manually roll back this operation if needed.

**Step 8** Configure the workflow and click **Next: Confirm**. After confirming that the configuration is correct, click **Create**. The migration workflow will be created and displayed in the workflow list.

 **CAUTION**

After a migration workflow is created, it switches to the **Waiting** status, and the migration has not started.

---

**Step 9** Click the workflow name to go to the details page. The steps are predefined standard steps in the template. You can or [add a step](#) to the workflow.

**Step 10** Click **Run** in the **Operation** column to start the migration.

- You can view the migration progress on the **Steps** tab page. The workflow can continue only after you perform the manual steps contained.
- On the **Servers** tab page, you can view the migration status of each server.

----End

# 3 Migrating Servers Across AZs on Huawei Cloud

## Scenario

This section describes how to use MgC to migrate a large number of servers between AZs within a region of Huawei Cloud. For a small-scale, single-batch migration of less than 30 servers, see [Migrating Servers Across AZs on Huawei Cloud](#).

## Preparations

- Prepare a Huawei account or an IAM user that can access MgC. For details, see [Preparations](#).
- [Create a migration project](#) on the MgC console.

## Step 1: Download and Install Edge

Install Edge and connect it to MgC. For details, see [Installing Edge](#).

## Step 2: Discovers Servers in the Source AZ

- Step 1** Log in to the [MgC](#) console.
- Step 2** In the navigation pane on the left, choose **Research > Application Discovery**. Select a [migration project](#) in the upper left corner of the page.
- Step 3** In the upper right corner of the page, choose **Discover > Over Internet**.
- Step 4** Configure the parameters listed in [Table 3-1](#).

**Table 3-1** Parameters for creating an Internet-based discovery task

Region	Parameter	Description	Mandatory
Task Basics	Task Name	Enter a task name.	Yes

Region	Parameter	Description	Mandatory
	Task Description	Describe the task.	No
Task Settings	Source Platform	Select <b>Huawei Cloud</b> .	Yes
	Credential	Select the credential of the source account. If no credential is available, choose <b>Create</b> to create a credential by referring to <b>Adding a Credential</b> . <b>NOTE</b> <ul style="list-style-type: none"><li>The AK/SK of the source account must be specified in the new credential.</li><li>Set <b>Location</b> to <b>Cloud</b>.</li></ul>	Yes
	Region	Select the region where the source servers are located. You can select multiple regions.	Yes

**Step 5** Enable cloud platform collection, select **Servers** from the **Resource Type** drop-down list.

**Step 6** (Optional) Group the servers to be discovered as an application.

- If an application is available, select the **application** from the **Application** drop-down list.
- If no applications are available, click **Create Application**. In the displayed dialog box, enter an application name and description, select the business scenario, environment, and region, and click **OK**.

**Step 7** Click **OK**. After the discovery task is created, MgC starts to automatically discover servers in the selected regions selected in **Step 4**.

- On the **Application Discovery** page, click the **Resources** tab and click the number in the **Server** row.
- On the **Application Discovery** page, click **View** next to **Total tasks** to go to the task list and view the task status. If the task status is **Failed**, click **View** in the **Operation** column to view the data source that failed to be collected. You can move the cursor to the collection status of the data source to view the failure cause. After handling the failure causes, you need to delete the collection item and add it again if you still want to collect this item.

**Step 8** When the task status changes to **Succeeded**, perform the following steps to perform a deeper collection on the servers before creating a workflow:

1. On the **Application Discovery** page, click **View Resources** in the **Resource** pane.
2. Locate the server for which a deeper discovery is to be performed, click **Associate** in the **Device** column.

To perform a deeper discovery on multiple servers, select them and choose **Resource Management > Manage Device Association** in the upper right corner of the page.

3. Select your Edge device. For **Access Setting**, if the servers to be discovered deeply are in the same VPC as the Edge device, select **Private access**. Otherwise, select **Public access**. Then click **OK**. Wait until the device association status changes to **Associated**.
4. Click **Associate** in the **Credential** column to associate the credential used for performing a deeper discovery on the server.
5. Select the server credential. If the credential has not been added to MgC, go to the Edge console and [add the server credential](#) to the Edge device and synchronize it to MgC.
6. Click **OK**. MgC will check whether the server can be accessed using the associated credential and perform a deeper discovery. You can click **Rediscover** in the **Status** column to perform a second deeper discovery if needed.

----End

### Step 3: Group Servers as an Application

If the servers discovered have already been grouped into an application in [Step 6](#), skip this section and go to [Step 4: Getting Target Recommendations](#).

- Step 1** In the **Servers** list of the **Resources** page, select the servers to be added to the same application and choose **Resource Management > Manage Application Association** in the upper left corner.
- Step 2** Select the application from the drop-down list. If no applications are available, click **Create Application**. In the displayed dialog box, enter an application name and description, select the business scenario, environment, and region, and click **OK**. For details, see [Creating an Application](#)
- Step 3** Click **OK**. You can view the application name in the **Application** column of these servers.

----End

### Step 4: Getting Target Recommendations

- Step 1** On the **Migration Solutions** page, click **Assess** in the **Target Configuration** card.
- Step 2** In the **Select Application** drop-down list, select the [application](#) into which the source servers have been grouped.
- Step 3** In the **Select Resources** area, select the resources to be assessed in the application.
- Step 4** Configure the assessment policy based on [Table 3-2](#).

**Table 3-2** Parameters for configuring an assessment policy

Parameter	Description
Target Region	Select the region you want to migrate to.
Sizing Criterion	Select <b>Cross-AZ migration</b> and select the target AZ.
Preference	<ul style="list-style-type: none"><li>• Performance-first MgC recommends target resources based on your performance requirements.</li><li>• Price-first MgC recommends target resources based on your cost requirements.</li></ul>
(Optional) Advanced Options	You can select ECS types, CPU types, and disk types you prefer. The configured advanced options have the highest priority during the resource assessment.

**Step 5** Click **OK**.

**Step 6** In the application list on the **Migration Solutions** page, locate the applications and click **View Target Configurations** in the **Operation** column.

In the **Target Configurations** area, you can view the specifications of Huawei Cloud resources recommended based on the source resource specifications and your selected preferences. It also gives you the ability to estimate the cost of running on Huawei Cloud. In addition, you can modify the recommended target configurations.

----End

## Step 5: Creating a Cross-AZ Migration Workflow

Create a workflow to migrate the source servers to Huawei Cloud by referring to [Creating a Server Migration Workflow](#).



# 4 Migrating Data to Huawei Cloud

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## Scenario

MgC allows you to quickly, easily migrate data to Huawei Cloud, from object storage to file storage, or from file storage to object storage. The choice is yours. This section describes how to use MgC to migrate data in object storage or file storage from other cloud platforms to Huawei Cloud.

The following regions are supported:

- CN North-Beijing4
- CN South-Guangzhou
- CN East-Shanghai1
- CN South-Guangzhou-InvitationOnly

## Highlights

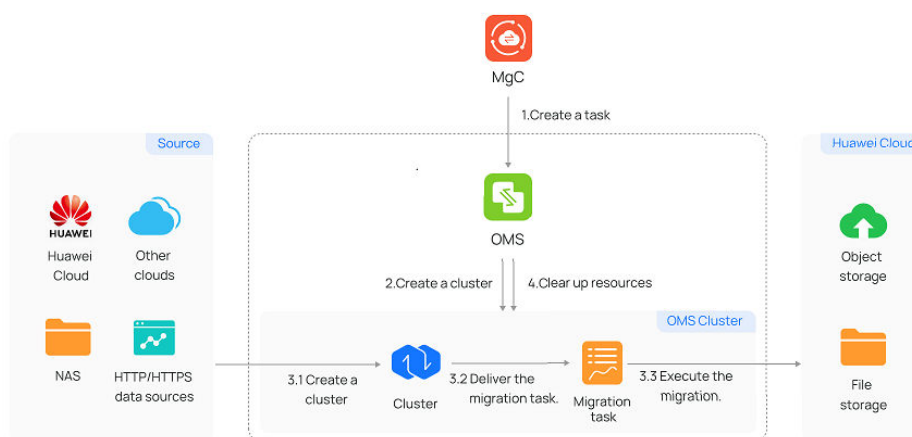
- Dedicated migration clusters reduce resource contention and improve migration efficiency.
- Supported are object and file storage services on popular cloud platforms and self-built network storage systems. Supported migration sources include:
  - Huawei Cloud OBS
  - Alibaba Cloud OSS
  - Baidu Cloud BOS
  - Tencent Cloud COS
  - Kingsoft Cloud KS3
  - Qiniu Cloud KODO
  - UCloud US3
  - Amazon S3
  - Azure Blob Storage
  - QingCloud QingStor
  - NAS\_SMB
  - NAS\_NFS\_V3\_MOUNT
  - NAS\_NFS\_V3\_PROTOCOL

- HTTP/HTTPS data sources

## Architecture

The figure shows the logical architecture of storage migrations using MgC.

**Figure 4-1** Logical architecture of storage migration



## Preparations

- Prepare a Huawei account or an IAM user that can access MgC. For details, see [Preparations](#).
- [Create a migration project](#) on the MgC console.
- Ensure that the source and target accounts have the permissions required for the migration. For details, see [How Do I Obtain Required Permissions for the Source and Target Accounts?](#)

## Step 1: Create an OBS Bucket or SFS File System

MgC supports migrations from object storage to file storage and from file storage to object storage. [Create an OBS bucket](#) or [create an SFS file system](#) on Huawei Cloud as needed.

## Step 2: Create a Storage Migration Workflow

- Step 1** Log in to the [MgC](#) console.
- Step 2** In the navigation pane on the left, choose **Migrate > Workflows**. Select a [migration project](#) in the upper left corner of the page.
- Step 3** Click **Create Workflow** in the upper right corner of the page.
- Step 4** Select **Storage Migration** and click **Configure Workflow**. Click **Preview Steps** to view the migration stages and steps predefined in the template and the description of each stage and step. Steps of the **Automated** type will be automatically performed by MgC.
- Step 5** Set workflow basics based on [Table 4-1](#).

**Table 4-1** Basic parameters

Parameter	Description
Name	Enter a workflow name.
Region	Select a region where you want to migrate to.
Description	Enter a description.
Cluster	Select a migration cluster. The cluster must contain migration nodes and execution nodes. If no cluster is available, <a href="#">create a cluster</a> .

**Step 6** Configure the migration source and target based on [Table 4-2](#) and [Table 4-3](#).

**Table 4-2** Parameters for configuring a migration source

Parameter	Description	Remarks
Location Type	The supported migration sources include: <ul style="list-style-type: none"><li>● Huawei Cloud OBS</li><li>● Alibaba Cloud OSS</li><li>● Baidu Cloud BOS</li><li>● Tencent Cloud COS</li><li>● Kingsoft Cloud KS3</li><li>● Qiniu Cloud KODO</li><li>● UCloud US3</li><li>● Amazon S3</li><li>● Azure Blob Storage</li><li>● NAS_SMB</li><li>● NAS_NFS_V3_MOUNT</li><li>● NAS_NFS_V3_PROTOCOL</li><li>● HTTP/HTTPS data source</li></ul>	-
AK	Enter the AK of the source cloud account.	These parameters are available when cloud storage is selected for <b>Location Type</b> .
SK	Enter the SK of the source cloud account.	
Bucket	Enter the name of the source bucket to be migrated.	
Endpoint	Enter the endpoint of the region where the source bucket is located.	

Parameter	Description	Remarks
Type	Set this parameter based on the source bucket type. You can <a href="#">view the bucket type in its basic information</a> .	This parameter is available when <b>Huawei Cloud OBS</b> is selected for <b>Location Type</b> .
APPID	Enter the APPID of your Tencent Cloud account. <b>NOTE</b> You can view the APPID on the account information page of the Tencent Cloud console.	This parameter is available when <b>Tencent Cloud COS</b> is selected for <b>Location Type</b> .

Parameter	Description	Remarks
List Path	<p>Enter the path for storing the lists that record the files to be migrated. These lists must be stored in the same region as the target bucket.</p> <p>You need to write the URLs of files to be migrated and their new names at the target into the lists. Each line in the list can contain only one URL and one file name.</p> <p>Restrictions on list files are:</p> <ul style="list-style-type: none"><li>• The files must be in .txt format, and their metadata <b>Content-Type</b> must be <b>text/plain</b>.</li><li>• A single file can contain a maximum of 100,000 rows.</li><li>• A single file cannot exceed 300 MB.</li><li>• A maximum of 10,000 list files can be stored in the folder.</li><li>• The files must be in UTF-8 without BOM.</li><li>• The length of each line in a file cannot exceed 65,535 characters, or the migration will fail.</li><li>• The <b>Content-Encoding</b> metadata of the files must be left empty, or the migration will fail.</li><li>• In the files, a tab character (\t) must be used to separate the URL and new file name in each line. The format is [URL] [Tab character][New file name]. Only the Chinese and special characters in the names must be URL encoded.</li><li>• Spaces are not allowed in each line in a file. Spaces may cause migration failures because they may be mistakenly identified as object names.</li></ul>	<p>These parameters are available when <b>HTTP/HTTPS data source</b> is selected for <b>Location Type</b>.</p>
File System Address	Enter the mount address of the source file system. The format is <i>IP address:/xxx</i> , for example, 192.1.1.1:/0001.	These parameters are available when <b>Location Type</b> is set to <b>NAS_SMB</b> , <b>NAS_NFS_V3_MOUNT</b> , or <b>NAS_NFS_V3_PROTOCOL</b> .
Path	Enter the directory where files to be migrated are located. The format is <i>/Folder name</i> .	

Parameter	Description	Remarks
Username	Enter the username of the account that can access all files in the source file system, for example, <b>administrator</b> .	These parameters are available when <b>Location Type</b> is set to <b>NAS_SMB</b> .
Password	Enter the password of the account.	
Domain on Windows	Enter the domain that the account has joined in. <b>NOTE</b> You only need to enter the content before .com. For example, if the domain is test.com, enter test.	

**Table 4-3** Parameters for configuring a migration target

Parameter	Description	Remarks
Location Type	Select Huawei Cloud storage based on the source storage type.	-
AK	Enter the AK of the Huawei Cloud account you are migrating to.	These parameters are available when <b>Location Type</b> is set to <b>Huawei Cloud OBS</b> .
SK	Enter the SK of the Huawei Cloud account you are migrating to.	
Bucket	Select the OBS bucket you are migrating your data to.	
Endpoint	Enter the endpoint of the region where the target OBS bucket is located. <b>NOTE</b> If the migration source is an OBS bucket, you can view the endpoint in the OBS bucket overview.	
Specify Prefix	Specify a prefix for files migrated to the target bucket. For example, if you specify a prefix <b>/D</b> , source file <b>/A/B/C.txt</b> will be migrated to <b>/D/A/B/C.txt</b> at the target. For details, see <a href="#">Adding a Prefix or Directory Prefix to Migrated Objects</a> .	
File System Address	Enter the mount address of the target file system. The format is <i>IP address:/xxx</i> , for example, 192.1.1.1:/0001.	These parameters are available when <b>Location Type</b> is set to <b>NAS_SMB</b> or <b>NAS_NFS_V3_MOUNT</b> .
Path	Enter the directory for storing files migrated. The format is <i>/Folder name</i> .	

Parameter	Description	Remarks
Username	Enter the username of the account that can access all files in the target file system, for example, <b>administrator</b> .	These parameters are available when <b>Location Type</b> is set to <b>NAS_SMB</b> .
Password	Enter the password of the account.	
Domain on Windows	Enter the domain that the account has joined in. <b>NOTE</b> You only need to enter the content before .com. For example, if the domain is test.com, enter test.	

**Step 7** Configure the migration task based on [Table 4-4](#).

**Table 4-4** Parameters for configuring a migration task

Parameter	Value	Description
Task Type	Full migration	Migrates all data in the source bucket or specified paths.
	Partial migration by list	Migrates files recorded in the list files.
	Partial migration by prefix	This option is only available for migrations from cloud storage. If you enter a file name or name prefix in the <b>Prefix</b> text box, only the objects that exactly match the specified name or prefix are migrated. <b>NOTE</b> If the files to be migrated are stored in the root directory of the source bucket, add their prefixes directly. If the files are stored in a non-root directory, add their directories and their prefixes in the format of <i>Folder name Prefix</i> .
Concurrent Subtasks	-	Specify the maximum number of concurrent subtasks. The value cannot exceed the number of online migration nodes multiplied by 5. For example, if the number of online migration nodes is 2, the maximum number of subtasks can be 10 or any number below.
Overwrite Existing	Never	Files existing at the migration target are never overwritten.

Parameter	Value	Description
	Always	Files existing at the migration target are always overwritten.
	If older or different size	Files existing at the migration target are overwritten if they are older than or have different sizes from files at the migration source.
Migrate Metadata	-	Determine whether to migrate metadata. <ul style="list-style-type: none"> <li>If you select this option, object metadata will be migrated.</li> <li>If you do not select this option, only the ContentType metadata will be migrated.</li> </ul>
Clear Cluster	-	Determine whether to clear the migration cluster after the migration is complete. <ul style="list-style-type: none"> <li>If you select this option, a step for clearing the migration cluster will be created in the workflow. You can also choose whether to clear resources used by the cluster, such as NAT gateways, security groups, and VPCEP resources.</li> <li>If you do not select this option, a step for clearing the migration cluster will not be created in the workflow.</li> </ul>

**Step 8** (Optional) Configure advanced options based on [Table 4-5](#).

**Table 4-5** Advanced options

Parameter	Description	Remarks
Enable KMS Encryption	<ul style="list-style-type: none"> <li>If you do not select this option, objects are in the same encryption status before and after the migration.</li> <li>If you select this option, all migrated objects will be encrypted before they are stored in the target bucket.</li> </ul> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>Using KMS to encrypt migrated data may decrease the migration speed by about 10%.</li> <li>This option is available only when KMS is supported in the region you are migrating to.</li> </ul>	This parameter is only available for migrations to Huawei Cloud OBS.



Parameter	Description	Remarks
Restore Archive Data	<p>Only restored data can be migrated. You can select this option if the source cloud platform supports automatic restoration of archive data. Currently, the following cloud platforms can automatically restore archive objects: Huawei Cloud, Alibaba Cloud, Kingsoft Cloud, and Tencent Cloud.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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 skips and records it in the list of objects that failed to be migrated and continues to migrate other objects in the migration task.</li> </ul> <p><b>NOTE</b> The system will restore archive data before migrating it, and you will pay to the source cloud platform for the API requests and storage space generated accordingly.</p>	-
Filter Source Data	<p>Filter files to be migrated using filters. For details about the filters, see <a href="#">Source Data Filters</a>.</p>	
Limit Traffic	<p>Allocate the maximum bandwidth to be used by the workflow during a specified period.</p> <ul style="list-style-type: none"> <li>• If you do not select this option, migration traffic is not limited.</li> <li>• If you select this option, limit the migration traffic by setting <b>Start Time</b>, <b>End Time</b>, and <b>Bandwidth Limit</b>. For example, if you set <b>Start Time</b> to <b>08:00</b>, <b>End Time</b> to <b>12:00</b>, and <b>Bandwidth Limit</b> to <b>20 MB/s</b>, the maximum migration speed is limited to 20 MB/s when the migration task is running from 08:00 to 12:00. The migration speed is not limited beyond this period.</li> </ul> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>- The bandwidth limit ranges from 1 MB/s to 200 MB/s.</li> <li>- You can create a maximum of 11 rules.</li> <li>- The time is the local standard time of the region you are migrating to.</li> </ul>	

Parameter	Description	Remarks
Obtain Data from CDN	<p>If the default domain name cannot meet your migration requirements, then if the source cloud service provider supports custom domain names, you can bind a custom domain name to the source bucket, and enable the CDN service on the source platform to reduce data download fees. Enter a custom domain name in the <b>Domain Name</b> text box and select a transmission protocol. HTTPS is more secure than HTTP and is recommended.</p> <p>If the migration source is the Alibaba Cloud OSS or Tencent Cloud COS, you also need to select an authentication type and enter an authentication key.</p>	
Send SMN Notification	<p>Determine whether to use SMN to notify you of migration results.</p> <ul style="list-style-type: none"> <li>• If you do not select this option, no SMN messages are sent after the migration.</li> <li>• If you select this option, SMN messages are sent after the migration to the subscribers of the selected topic. You can select the language and trigger conditions for sending messages.</li> </ul>	

**Step 9** Click **Next: Confirm**.

**Step 10** Confirm the workflow settings, and click **Confirm**. The **Run Workflow** dialog box is displayed, which indicates that the workflow has been created.

- If you want to start the migration immediately, click **Confirm** to run the workflow.
- If you want to **add a stage or step** to the workflow, click **Cancel**. The workflow goes to a **Waiting** state and the migration is not started. To start the migration, click **Run** in the **Operation** column.

**Step 11** On the migration workflow details page, view the workflow settings and the migration progress. You can also perform the following operations:

- Move the cursor to the migration progress bar of a resource. In the displayed window, view the migration details about the resource.
- When a migration reaches a step that requires manual confirmation, place the cursor on the progress bar and click **Confirm** next to the step status in the displayed window. The migration can continue only after you confirm.
- In the **Basic Information** area, click **Manage** next to the cluster name. The cluster details page is displayed on the right. On the displayed page, you can:
  - Add, edit, or delete traffic limiting rules to control cluster traffic based on your requirements.
  - Add or delete migration nodes, list nodes, or upgrade plug-ins for existing nodes as required.

**Step 12** (Optional) Click the migration progress bar of a resource or click **Migration Progress** in the window displayed when you move course to the progress bar. The migration details page is displayed on the right. You can view the task overview and progress details. You can also perform the following operations:

Operation	Description
Modify the concurrent subtasks.	<ol style="list-style-type: none"><li>In the <b>Progress</b> area, click <b>Modify</b> under <b>Expected Concurrent Subtasks</b> to change the expected number of concurrent subtasks. The maximum number of concurrent subtasks cannot exceed the number of online migration nodes multiplied by 20. For example, if the number of online migration nodes is 2, the maximum number of concurrent subtasks is 40.</li><li>Click <b>Confirm</b>.</li></ol>
Add traffic limiting rules.	<ol style="list-style-type: none"><li>In the <b>Migration Speed</b> area, click <b>Add</b> to add a rule to limit the bandwidth the migration can use in a specified period. <b>NOTICE</b><ul style="list-style-type: none"><li>The bandwidth limit ranges from 1 MB to 1,024 GB.</li><li>Time periods in different rules cannot overlap. For example, if there is a rule added for the period from 8:00 to 12:00, you cannot configure rules for any overlapped periods, such as from 7:00 to 13:00, 7:00 to 8:00, and 9:00 to 12:00.</li><li>The start time cannot be later than the end time in a rule. For example, the time period from 23:00 to 01:00 is not allowed.</li></ul></li><li>Click <b>Save</b>.</li></ol>
Obtain the list of files that fail to be migrated, skipped or migrated.	In the <b>File Statistics</b> area, view the path for storing the list of files that fail to be migrated, skipped, or migrated. Click a path, and you will navigate to the OBS bucket where the list is stored. You can download the list from the bucket.
View traffic statistics.	In the <b>Traffic Statistics</b> area, view the migration traffic in the last hour, last 6 hours, last 24 hours, or the entire migration period.

----End

## Creating a Cluster

**Step 1** In the cluster drop-down list, click **Create Cluster**.

**Step 2** Set cluster parameters based on [Table 4-6](#).

**Table 4-6** Parameters for creating a cluster

Area	Parameter	Description
Basic Configuration	Cluster Name	Enter a name.
	VPC	Select a VPC from the drop-down list.
	Subnet	Select a subnet. Make sure that the number of unused IP addresses in the subnet is at least 1 larger than the total number of migration nodes and list nodes in the cluster.
Migration Node	ECS Specifications	The recommended specifications are 8 vCPUs and 16 GB of memory.
	Quantity	The number of nodes must meet the following requirements: <ul style="list-style-type: none"><li>• Number of migration nodes + Number of list nodes + 1 ≤ 100</li><li>• Number of migration nodes + Number of list nodes + 1 ≤ Number of unused IP addresses in the subnet</li></ul>
List Node	ECS Specifications	The recommended specifications are 8 vCPUs and 16 GB of memory.
	Quantity	The number of nodes must meet the following requirements: <ul style="list-style-type: none"><li>• Number of migration nodes + Number of list nodes + 1 ≤ 100</li><li>• Number of migration nodes + Number of list nodes + 1 ≤ Number of unused IP addresses in the subnet</li></ul>
Network	Public	Select a public NAT gateway. If no gateway is available, choose <b>Buy Gateway</b> from the drop-down list and select the gateway specifications and EIPs you want to associate with the gateway. A maximum of 20 EIPs can be selected at a time.
	Private	Enter an IP address of such as Nginx or gateway that is allowed to forward or send requests over the private line.
	Log Collection	<ul style="list-style-type: none"><li>• If this option is enabled, logs generated during storage migrations are collected for locating problems if any.</li><li>• If this option is disabled, logs generated during storage migrations are not collected.</li></ul>

----End

## Source Data Filters

The following table describes the rules and restrictions for setting source data filters.

**Table 4-7** Filter options

Option	Description	Patten Rule	Constraint
Exclude Patterns	If a file matches any excluded pattern, the file will not be migrated or compared for consistency. Both exact match and fuzzy match are supported.	<ul style="list-style-type: none"> <li>Exact match: You need to specify the absolute paths and use slashes (\) to escape special characters in the paths.</li> <li>Fuzzy match                             <ul style="list-style-type: none"> <li>An asterisk (*) matches zero or more characters except for slashes (/).</li> <li>A pair of asterisks (**) matches zero or more characters including slashes (/).</li> <li>A question mark (?) matches exactly one character except for a slash (/).</li> <li>Commas (,) are used to separate patterns in {}. Patterns in {} are in the OR relationship.</li> <li>Wildcard characters asterisk (*) and question mark (?) are</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Except for {}, consecutive characters specified in pattern rules are not allowed, for example, ***, *?, **?, ?*, ?**, *{*, *}*, *}?, ?{* , {*}, {,}, {*, , *}, and ,*.</li> <li>Only asterisks (*) can be used as wildcard characters in {}.</li> <li>{1} cannot be nested in {0}.</li> <li>Excluded patterns take precedence over included patterns.</li> <li>Semicolons (;) are used to separate patterns outside {}.</li> </ul>
Include Patterns	<ul style="list-style-type: none"> <li>If no included patterns are specified, all files in the source will be migrated.</li> <li>If included patterns are specified, only the files whose absolute paths match the specified patterns will be migrated or compared for consistency.</li> </ul>		

Option	Description	Pattern Rule	Constraint
		escaped by backslashes (\). In other cases, a backslash (\) means itself.	
Time Range	Filters files and directories to be migrated by time. Only files and directories whose last modification times fall in the configured time range will be migrated. The start time and end time can be left empty. If they are left empty, the system will not filter out source files by time. The time can be accurate to minute.		

# 5 Reducing Disk Capacity for Target Servers

MgC enables you to reduce disk capacity and quantity for target servers based on the disk usage of source servers. This helps you reduce storage costs.

## Precautions

- The system disk capacity ranges from 40 GB to 1,024 GB.
- The data disk capacity ranges from 10 GB to 32,768 GB.
- Only Linux disk sizes can be decreased, and decreased sizes must be larger than the used sizes of source disks.
- In the cross-AZ migration scenario, disk sizes can only be increased. Even if you decrease disk sizes here, the settings will not be applied, and the system will create target disks as large as source disks.

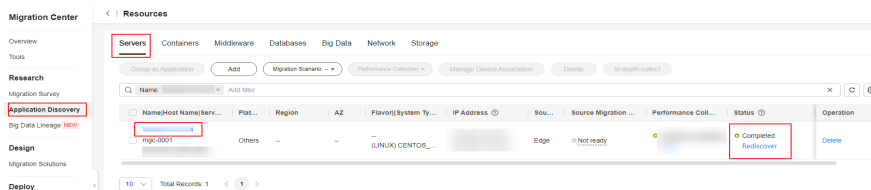
## Collecting Disk Information of Source Servers

You need to collect the disk information of source servers and then, against the collected information, reduce disk capacity for target servers.

**Step 1** Select a collection method based on your requirements.

- [Discovering Resources over the Internet](#)
- [Discovering Resources over an Intranet](#)
- [Manually Adding Resources to MgC](#)

**Step 2** Wait for the first discovery and deeper discovery to complete. View the server list on the **Resources** page and click a source server.



**Step 3** In the disk information area, view the number and usage of disks on the source server. Based on the information, you can adjust disk settings for paired target servers.



Disk (2) Disk Usage: 6%

Disk type	Name	EVS disk type	Partition Format	Size	Used Space	Utilization
System Disk	/dev/vda	--	MBR	50 GB	2.97 GB	5.94
Data Disk	/dev/vdb	--	MBR	20 GB	0 byte	--

----End

## Associating Source Servers with Target Servers and Reducing Disk Capacity for Target Servers

- Step 1** In the navigation tree on the left, choose **Design > Migration Solutions**.
- Step 2** Click **View Resources** in the **Target Configuration** card.
- Step 3** On the displayed **Servers** tab page, locate a source server and click **Associate** in the **Target Association** column.
- Step 4** Select the region of the **application** that the source server was added to, and select a project in that region. In the project, select a target server based on the **collected disk information of the source server** and your requirements.

 **CAUTION**

Ensure that the disk capacity of the selected target server is greater than the used disk capacity of the source server.

Assume the source server has a 50 GB system disk with a little space used and a 20 GB data disk that is unused at all. You can associate a target server containing only a 40 GB system disk with the source server.

**Bind Target** ✕

**Basic Settings**

Region:  ⓘ

Project:  ⓘ

Target Server [More Rules](#)

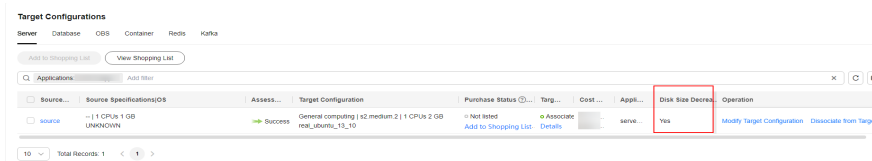
Name:

Source: source |  Recommended Target: OS: UNKNOWN | System Disk: 50 GB | Data Disk: 20 GB

ⓘ Only Linux disk sizes can be decreased, and decreased sizes must be larger than the used sizes of source disks. In cross-AZ migrations, disk sizes can only be increased. Even if you decrease disk sizes here, the settings will not be applied, and the system will create target disks as large as source disks. ✕

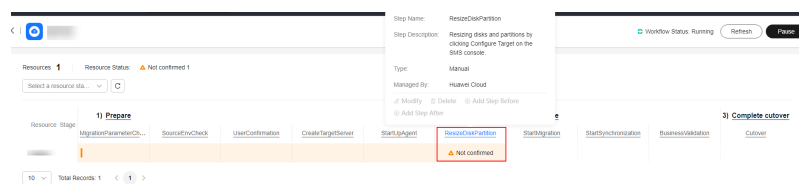
Name	Status	OS	Disk	Private IP A...	Public IP Ad...
<input checked="" type="radio"/> e-...	<span style="color: green;">●</span> Power On	Linux Linux(6...	System Disk: 40 GB		
<input type="radio"/> m-...	<span style="color: green;">●</span> Power On	Ubuntu 14.04...	System Disk:...		-----

- Step 5** Click **Confirm**. The system will automatically check whether the disk capacity of the associated target server is reduced compared with the source server. If it is, **Yes** will be displayed in the **Disk Size Decreased** column. If it is not, **No** will be displayed.



**Step 6 Create a server migration workflow.** When the workflow reaches the **ResizeDiskPartition**, the system identifies whether disk capacity reduction has been performed on the target server.

- If yes, this step is paused. You need to go to **SMS console** and resize disks and partitions for the target server. For details, see **Resizing Disks and Partitions for Target Servers**. After the adjustment is complete, go back to the MgC console and click **Confirm** next to the step status so that the workflow can continue.



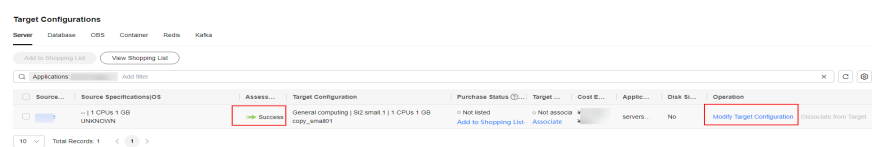
- If no, skip this step and proceed with the subsequent migration steps.

----End

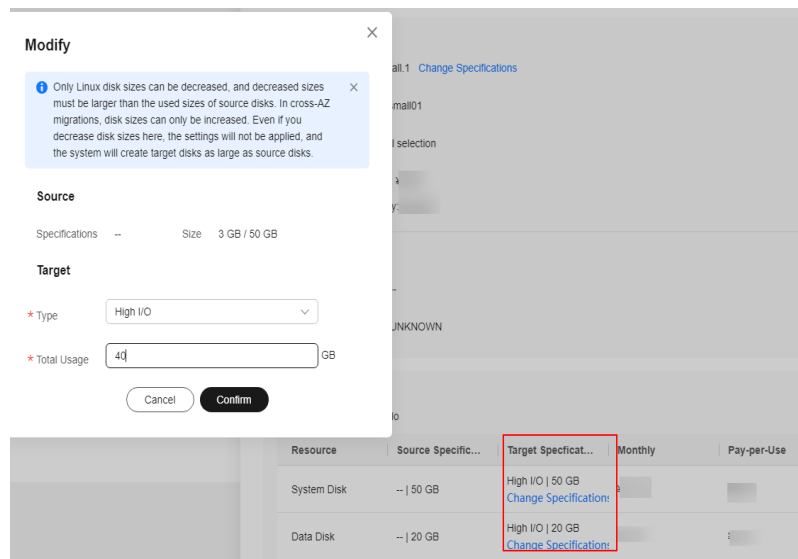
## Getting Target Server Recommendations and Reducing Disk Capacity for Target Servers

**Step 1** Get recommendations for target servers. For details, see **Getting Target Recommendations**.

**Step 2** In the **Target Configurations** area, locate the server that you want to modify the recommended target configurations for and click **Modify Target Configuration** in the **Operation** column.



**Step 3** Locate the desired disk and click **Modify** in the **Target Specifications** column.



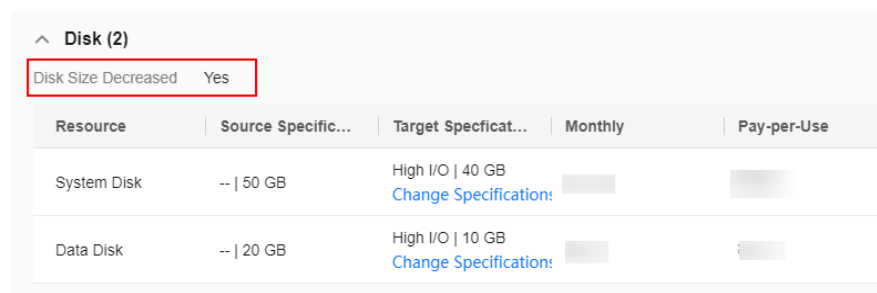
**Step 4** Modify the disk capacity based on the **collected disk information of the source server** and your service requirements.

Assume the source server has a 50 GB system disk and a 20 GB data disk, and the usage of both disks is very low. You can reduce the system disk to 40 GB and the data disk to 10 GB for the target server.

**CAUTION**

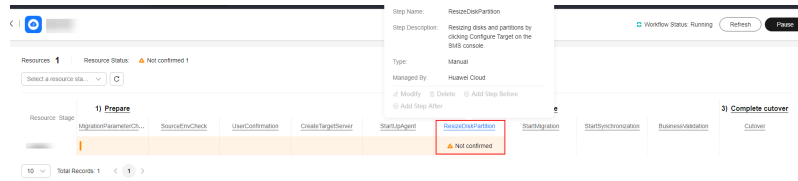
Ensure that the disk capacity of the selected target server is greater than the used disk capacity of the source server.

**Step 5** Click **Confirm**. You can see **Yes** is displayed after **Disk Size Decreased**, which means the system has detected that the disk capacity reduction has been performed. If you do not change the disk specifications of the target server, **No** will be displayed after **Disk Size Decreased**.



**Step 6** **Create a server migration workflow**. When the workflow reaches the **ResizeDiskPartition**, the system identifies whether disk capacity reduction has been performed on the target server.

- If yes, this step is paused. You need to go to **SMS console** and resize disks and partitions for the target server. For details, see **Resizing Disks and Partitions for Target Servers**. After the adjustment is complete, go back to the MgC console and click **Confirm** next to the step status so that the workflow can continue.



- If no, skip this step and proceed with the subsequent migration steps.

----End

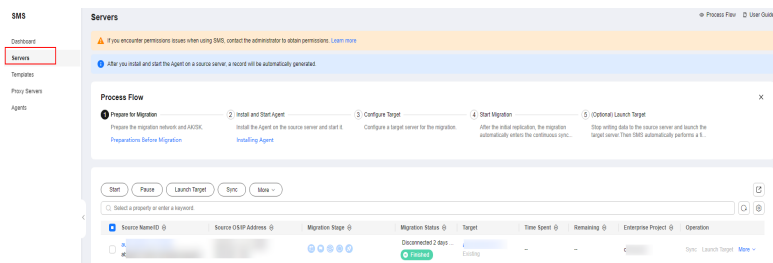
# 6 Resizing Disks and Partitions for Target Servers

In a server migration workflow, if the system detects that the disk capacity reduction has been performed on a target server, the workflow will be paused, and you need to go to the SMS console to resize disks and partitions for the target server.

## Procedure

**Step 1** Log in to the [SMS console](#).

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




**Step 3** Locate the desired server in the server list based on the resource name in the MgC migration workflow, and click **Configure** in the **Target** column.


**Step 4** Select **Configure now** next to **Advanced Settings**.

**Step 5** Click **Resize Partition** next to **Partition Resizing**.

Migration Method



Linux block-level OBT  
High efficiency but p...



Linux file-level  
Low efficiency but e...

Block-level: Migration is performed block by block.  
File-level: Migration is performed file by file.  
For Windows servers, SMS only supports block-level migration.

IP Address Version  IPv4  IPv6

Continuous Synchronization  No  Yes ?

Partition Resizing  No  Yes Resize Partition

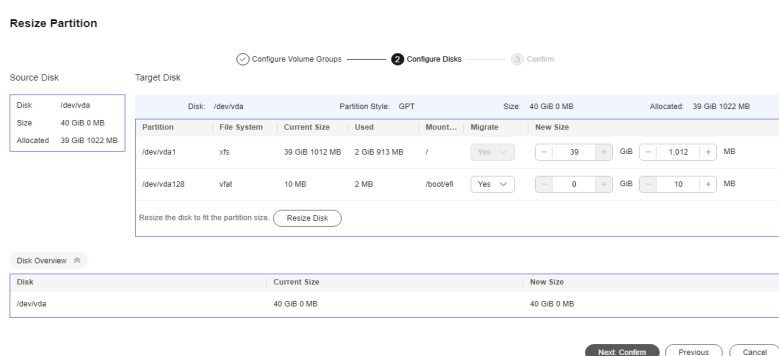
Start Target Upon Launch  No  Yes

Measure Network Performance  No  Yes ?

Enable Concurrency  Automatic  Manual ?

**Step 6** Adjust the disk size, disk quantity, and partition size based on the target server specifications configured in the workflow.

**Figure 6-1** Resizing disks and partitions on Linux



**NOTE**

- For a Linux server using LVM, you can choose whether to migrate physical or logical volumes and resize the paired target volumes.
- Partition resizing is not available for Btrfs partitions on Linux.
- In a Linux migration, the system and swap partitions are migrated by default.
- You can choose to migrate all or none volume groups by configuring **Migrate All Volume Groups**.
- If you choose to migrate none of the logical volumes in a volume group, their physical volumes will not be migrated by default.

**Step 7** After the configuration is completed, click **Next: Confirm**. After confirming that the configuration is correct, click **OK**.

**Step 8** Click **Next: Configure Target** in the lower right corner.

- Step 9** In the server list, select the target server paired with the source server and click **Next: Confirm**. You can view the name of the target server by clicking the **CreateTargetServer** step in the MgC migration workflow.
  - Step 10** After confirming that the configuration is correct, click **Save**. Read the migration checklist carefully and click **OK**.
  - Step 11** Return to the MgC migration workflow. Locate the **ResizeDiskPartition** step, and click **Confirm** next to the step status to continue the subsequent migration steps.
- End

# 7 Change History

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Released On	What's New
2024-03-14	This issue is the second official release. <ul style="list-style-type: none"><li>• Added <a href="#">Reducing Disk Capacity for Target Servers</a>.</li><li>• Added <a href="#">Resizing Disks and Partitions for Target Servers</a>.</li></ul>
2023-10-30	This issue is the first official release.