Server Migration Service

Getting Started

Issue 09

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Huawei Technologies Co., Ltd.

Address: Huawei Industrial Base
Bantian, Longgang
Shenzhen 518129
People's Republic of China

Website: https://www.huawei.com

Email: support@huawei.com

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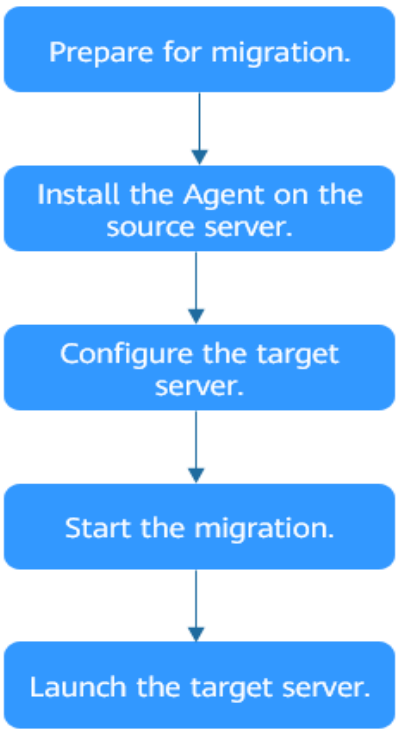
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1 SMS Usage Process

Figure 1-1 shows the process of using SMS.

Figure 1-1 Usage process



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2 Preparations Before Migration

Before using SMS, ensure that you have made the following preparations:

1. Register an account with HUAWEI CLOUD and completed **real-name authentication**.
2. Obtain the required permissions.

   If you use an account for migration, you have the permissions required by default. However, if you use an IAM user for migration, follow the instructions provided in **Creating a User Group and Assigning Permissions**.
3. Obtain the AK/SK pair of your HUAWEI CLOUD account.

   The AK/SK pair is used for authentication during the migration. For details about how to obtain the AK/SK of your HUAWEI CLOUD account, see **How Do I Create an AK/SK Pair for an Account?** or **How Do I Create an AK/SK pair for an IAM User?**
4. Ensure that the account balance is at least ¥100 CNY.

   To avoid migration failure, ensure that the account balance is no less than ¥100 CNY (top-up or cash coupons included).

   NOTE

   SMS is free. You pay the standard fees other related services used during the migration. For details about the fees, see **Pricing Details**.
5. Ensure that the source server OS is supported by SMS.

   For details, see **Supported Windows OSs** and **Supported Linux OSs**.
6. Ensure that the following network requirements are met:
   a. The source server can connect to HUAWEI CLOUD API Gateway over TCP port 443. For details, see **Connecting Source Servers to HUAWEI CLOUD API Gateway**.

      NOTE

      It is recommended that all outbound ports on the source server be allowed.
   b. The source server can connect to the target server. For details, see **Connecting Source Servers to Target Servers**.

      - To implement migration over the Internet, purchase and configure an EIP for the target server in advance.

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- To implement migration using Direct Connect or VPN, purchase and configure Direct Connect or VPN connections in advance.

c. The required ports are enabled in the security groups to which the target server belongs.

- Windows: TCP ports 8899, 8900, and 22
- Linux: TCP port 22 for block-level migration, and ports 8900 and 22 for file-level migration

NOTE

Open the same ports on the firewall of the target server.

For details, see **Ports to Be Enabled in the Security Groups of Target Servers**.

7. Ensure that your source server meets the following requirements:

Available Space

- Windows

  At least 320 MB of available space on a partition equal to or larger than 600 MB

  At least 40 MB of available space on a partition smaller than 600 MB

- Linux

  At least 200 MB of available space on the root partition

Source Environment

- The system time of the source server must be consistent with the local standard time to prevent Agent registration failures.
- For Linux servers, ensure that **rsync** has been installed. To check whether **rsync** has been installed, run the **rsync -v** command.

  If it is not installed on your servers, run the following command to install it:

  - CentOS: **yum –y install rsync**
  - Ubuntu: **apt-get -y install rsync**
  - Debian: **apt-get -y install rsync**
  - SUSE: **zypper install rsync**
  - For other distributions, refer to the official website documentation.

    NOTE

    rsync usually comes pre-installed on most distributions by default.

- For Windows servers, install one of the following Agents:

  - Windows Agent (Python 3): Windows Server 2019/2016/2012 and Windows 10/8.1
  - Windows Agent (Python 2): Windows Server 2008 and Windows 7

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3 Installing the Agent on Source Servers

3.1 Windows

Scenarios

You need to install the Agent on each Windows source server that you want to migrate. During the Agent installation, you need to enter the AK/SK pair of your HUAWEI CLOUD account. After the Agent is started successfully, it automatically reports source server information to SMS. All collected data is used for migration only. For details, see **What Information Does SMS Collect About Source Servers?**

There are two options for Windows:

- GUI-based Windows Agent (Python 3): Windows Server 2019/2016/2012 and Windows 10/8.1
- CLI-based Windows Agent (Python 2): Windows Server 2008 and Windows 7

> ⚠ CAUTION
>
> You must log in to the Windows source server as user **Administrator**.

Prerequisites

- You have obtained the AK/SK pair of your HUAWEI CLOUD account.
  - To create an AK/SK pair for an IAM user, see **How Do I Create an AK/SK Pair for an IAM User?**
  - To create an AK/SK pair for an account, see **How Do I Create an AK/SK Pair for an Account?**
- You have obtained the administrator permissions of the source server.
- You have confirmed that the source server OS is included in **Supported Windows OSs**.
- There is no antivirus software installed on the source server. Antivirus software may prevent the Agent from starting up.

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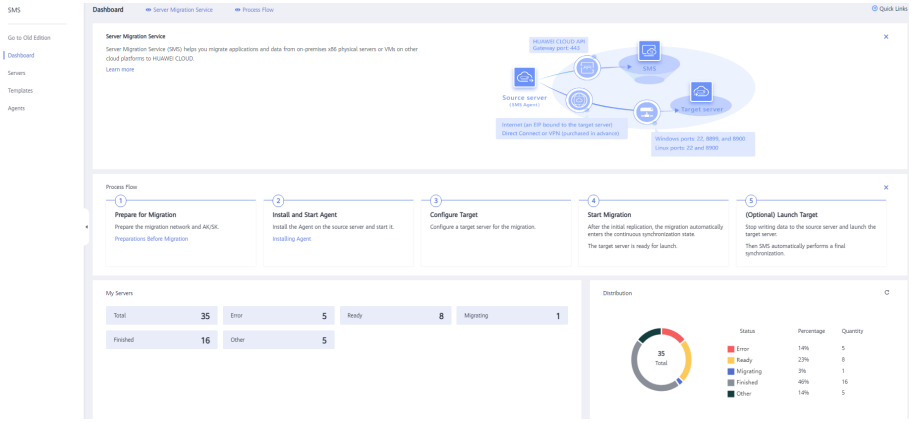
If message "Failed to start I/O monitoring" is displayed when you start the Agent, rectify the fault by following instructions provided in **How Do I Fix the Error "Failed to start the I/O monitoring module" When I Start the Agent?**

Downloading the Agent Installation File

Step 1 Log in to the management console.

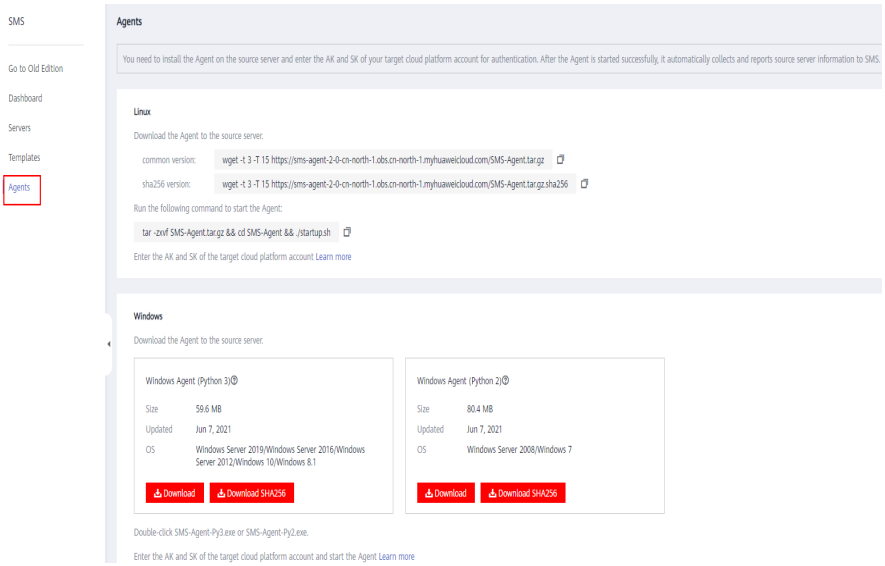
Step 2 Click **Service List**. Under **Migration**, click **Server Migration Service**.

Figure 3-1 SMS console



Step 3 In the navigation pane on the left, click **Agents**.

Figure 3-2 Agents



Step 4 In the **Windows** area, click **Download** to download the Agent you need.

- Windows Agent (Python 3)

  This GUI-based version is designed for Windows Server 2019/2016/2012 and Windows 10/8.1.

  Copy the **SMS-Agent-Py3.exe** file to a local directory.

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- Windows Agent (Python 2)

  This CLI-based version is designed for Windows Server 2008 and Windows 7.

  Copy the **SMS-Agent-Py2.exe** file to a local directory.

Step 5 (Optional) Click **Download SHA256** in the pane of the Agent you have downloaded. Use the the hash value contained in the downloaded file to verify the integrity of the Agent installation package. For details, see **How Do I Verify the Integrity of the Agent?**

----End

Installing Windows Agent (Python 3)

Step 1 Upload the **SMS-Agent-Py3.exe** file to the source server.

Step 2 Log in to the source server as user **Administrator** and double-click the **SMS-Agent-Py3.exe** file.

Step 3 Click **Install** and wait for the installation to complete.

Step 4 Click **Finish**. The SMS-Agent GUI is displayed.

Step 5 Enter the AK/SK pair of the HUAWEI CLOUD account that the target server belongs to, and click **Start**.

If you do not need to use an HTTPS proxy, select **Directly connection**.

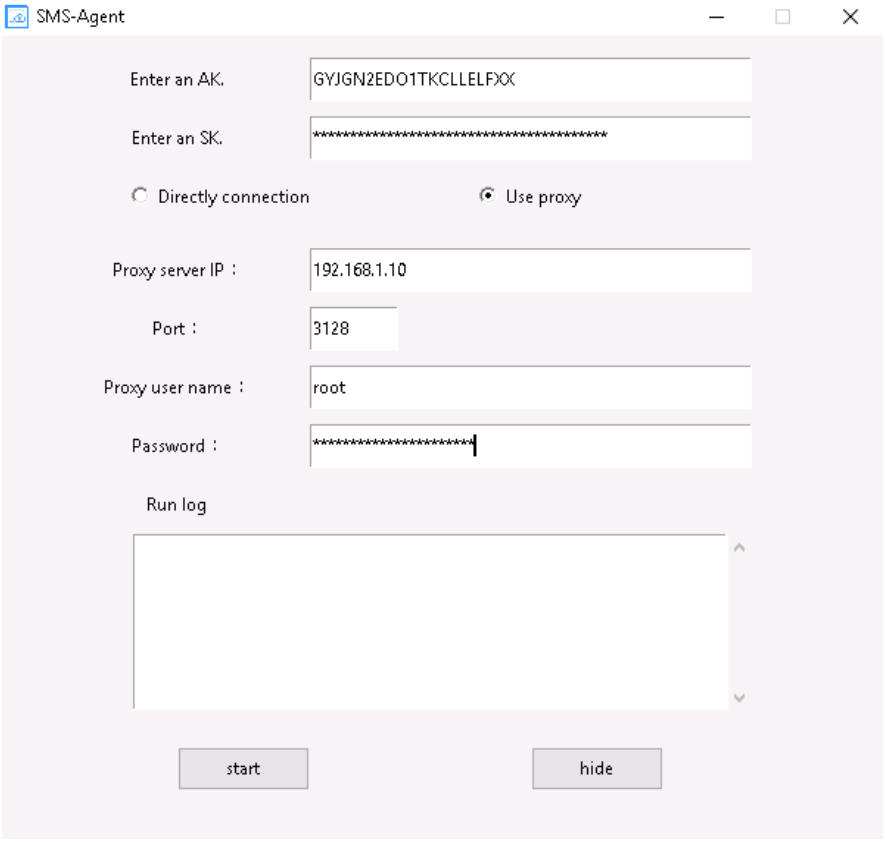
If you need to use to use an HTTPS proxy, select **Use proxy** and enter the IP address, port number, username, and password of the proxy server.

NOTE

- A proxy server is a special network service. If your source server cannot access HUAWEI CLOUD through the Internet, you can use a proxy server to access HUAWEI CLOUD. You need to configure a proxy server by yourself.
- The IP address of the proxy server is not the IP address of the target server.
- The proxy is used for registering the source server with SMS when a Direct Connect or VPN connection is used. It is not used for data migration.
- In **Figure 3-3**, the details shown are just examples. Enter the actual values based on your specific server configuration.

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Figure 3-3 Starting the Agent



Step 6 Click **Start**.

Step 7 Carefully review the **Privacy Statement** and click **Yes** if you want to continue.

When message **Upload success. Waiting for the SMS instruction** is displayed, the Agent has been started. You need to log in to the SMS console and perform subsequent operations.

----End

Installing Windows Agent (Python 2)

Step 1 Upload the **SMS-Agent-Py2.exe** file to the source server.

Step 2 Log in to the source server as user **Administrator** and double-click the **SMS-Agent-Py2.exe** file.

Step 3 Click **Install** and wait for the installation to complete.

Step 4 Click **Finish**. The SMS-Agent CLI is displayed.

Step 5 If you need to use an HTTPS proxy server, go to **Step 6**.

If you do not need to use an HTTPS proxy server, go to **Step 7**.

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NOTE

- A proxy server is a special network service. If your source server cannot access HUAWEI CLOUD through the Internet, you can use a proxy server to access HUAWEI CLOUD. You need to configure a proxy server by yourself.
- The proxy is used for registering the source server with SMS when a Direct Connect or VPN connection is used. It is not used for data migration.

Step 6 (Optional) Configure an HTTPS proxy server.

Go to the directory where the Agent was installed (typically **C:\SMS-Agent-Py2\config**) and edit the **auth.cfg** file. The values shown here are for reference only. Do not to edit the **auth.cfg** file unless you need to use an HTTPS proxy.

```
[proxy-config]
enable = true
proxy_addr = proxyip
proxy_port = proxyport
proxy_user =
use_password = false
```

NOTE

- **proxy_addr**: IP address of the proxy server. The proxy is used for registering the source server with SMS when Direct Connect or a VPN is used. It is not used for data migration. It is different from the IP address of the target server.
- **enable**: Whether to use the proxy. To use the proxy, set this parameter to **true**.
- **proxy_user**: If a username is required to use the proxy, set it to the username. If not username is required, leave it blank.
- **use_password**: If a password is required to use the proxy, set it to **true**. If none is required, set it to **false**.

Step 7 When prompted, enter the AK/SK pair of the HUAWEI CLOUD account that the target server belongs to.

After the authentication succeeds, the Agent starts to report source server information to SMS, and the window is closed.

----End

Troubleshooting

How Do I Resolve the Error "AK/SK authentication failed. Ensure that the system time is consistent with the standard time and the AK and SK are correct" When I Start the Agent?

3.2 Linux

Scenarios

You need to install the Agent on each Linux source server that you want to migrate. During the Agent installation, you need to enter the AK/SK pair of your account. After the Agent is started successfully, it automatically reports source server information to SMS. All collected data is used for migration only. For details, see **What Information Does SMS Collect About Source Servers?**

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Prerequisites

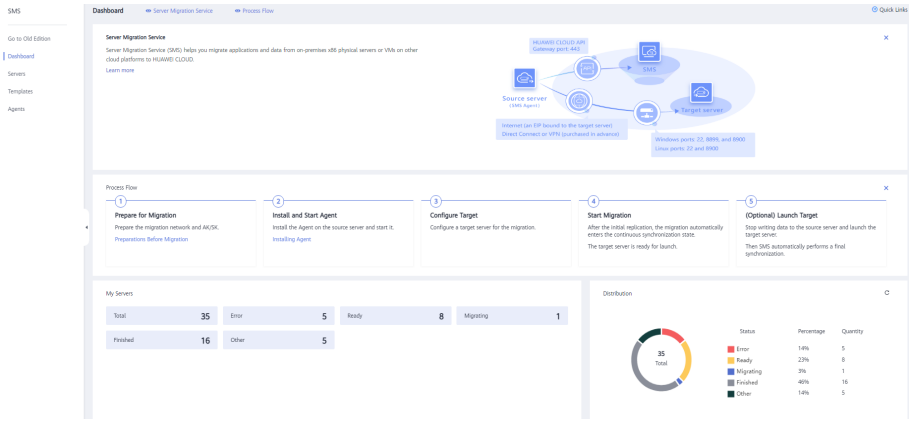
- You have obtained the AK/SK pair of the HUAWEI CLOUD account that the target server belongs to.
  - To create an AK/SK pair for an IAM user, see **How Do I Create an AK/SK Pair for an IAM User?**
  - To create an AK/SK pair for an account, see **How Do I Create an AK/SK Pair for an Account?**
- You have confirmed that the source server OS is included in **Supported Linux OSs**.

Installation

Step 1 Log in to the management console.

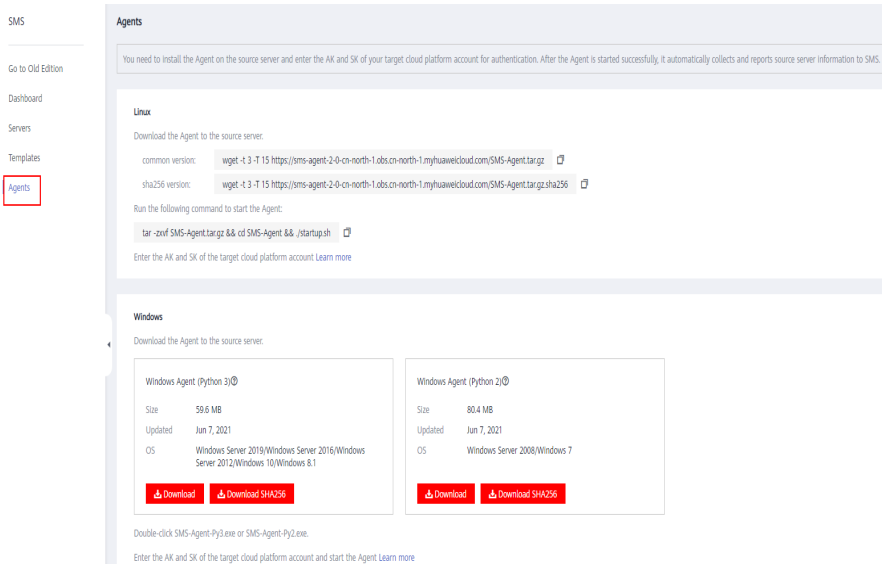
Step 2 Click **Service List**. Under **Migration**, click **Server Migration Service**.

Figure 3-4 SMS console



Step 3 In the navigation pane on the left, click **Agents**.

Figure 3-5 Agents



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Step 4 Run any of the following commands to download the Agent installation package as prompted on the **Agents** page of the SMS console.

wget -t 3 -T 15 https://sms-agent-2-0-cn-north-1.obs.cn-north-1.myhuaweicloud.com/SMS-Agent.tar.gz

curl -O https://sms-agent-2-0-cn-north-1.obs.cn-north-1.myhuaweicloud.com/SMS-Agent.tar.gz

Step 5 (Optional) Run the command following **sha256 version** to download the SHA256 file. Use the hash value contained in the SHA256 file to verify the integrity of the Agent installation package. For details, see **How Do I Verify the Integrity of the Agent?**

Step 6 Run the following command to decompress the downloaded package:

tar -zxvf SMS-Agent.tar.gz

Step 7 Run the following command to switch to the **SMS-Agent** directory of the source server:

cd SMS-Agent

Step 8 If you need to use an HTTPS proxy server, go to **Step 9**.

If you do not need to use an HTTPS proxy server, go to **Step 10**.

CAUTION

A proxy server is a special network service. If your source server cannot access HUAWEI CLOUD through the Internet, you can use a proxy server to access HUAWEI CLOUD. You need to configure a proxy server by yourself.

Step 9 (Optional) Configure an HTTPS proxy server.

1. Run the following command to go to the **config** directory:

   cd SMS-Agent/agent/config

2. Run the following command to open and edit the **auth.cfg** file. The values shown here are for reference only. Do not edit the **auth.cfg** file unless you need to use an HTTPS proxy server.

   vi auth.cfg

```
[proxy-config]
enable = true
proxy_addr = 192.168.1.10
proxy_port = 3128
proxy_user = root
use_password = true
```

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NOTE

- **proxy_addr**: IP address of the proxy server. The proxy is used for registering the source server with SMS when Direct Connect or a VPN is used. It is not used for data migration. It is different from the IP address of the target server.
- **enable**: Whether to use the proxy. To use the proxy, set it to **true**.
- **proxy_user**: If a username is required to use the proxy, set it to the username. If not username is required, leave it blank.
- **use_password**: If a password is required to use the proxy, set it to **true**. If none is required, set it to **false**.

3. Run the following command to save the **auth.cfg** file and exit:

   :wq

Step 10 Run the following command to start the Agent:

./startup.sh

Step 11 Carefully review the description of what information will be collected by the Agent, enter **y**, and press **Enter**.

Figure 3-6 Entering y

```
After being started, the migration Agent collects system configuration information and uploads the
information to SMS for migration task creation. The information to be collected includes server IP
address and MAC address. For details, see the Server Migration Service User Guide. Are you sure you
 want to collect the information?(y/n)y
```

Step 12 Enter the AK/SK pair of the HUAWEI CLOUD account to which the target server belongs.

When the following information is displayed, the Agent has been started up and will automatically start reporting source server information to SMS.

Figure 3-7 Entering the AK/SK pair

```
Please input AK(Access Key ID) of the destination public cloud:
Please input SK(Secret Access Key) of the destination public cloud:**********
agent is starting...
sms agent start up successfully!
check the source server in Server Migration Service Console now!
You can use the agent-cli tool to monitor the sms agent
```

----End

Troubleshooting

- **How Do I Resolve the Error "No such file or directory: 'rsync':'rsync" When I Start the Linux Agent?**
- **How Do I Resolve the Error "AK/SK authentication failed. Ensure that the system time is consistent with the standard time and the AK and SK are correct" When I Start the Agent?**

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4 (Optional) Creating a Migration Template

SMS allows you to create migration templates for quick configuration. When you configure the migration settings, you can use these templates to quickly configure parameters **Network**, **Migration Rate Limit**, **Continuous Synchronization Region**, and **Project**. For details, see **Creating a Migration Template**.

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5 (Optional) Creating a Server Template

SMS allows you to create server templates for quick configuration. When you configure the target server, you can use these templates to quickly configure parameters such **VPC**, **Subnet**, and **Security Group**. For details, see **Creating a Server Template**.

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6 Configuring the Target Server

Scenarios

Before the migration, you need to configure the target server. The target server is used to receive data from the source server. You can clone the target server for service testing, and launch the target server after you verify that your services run properly on the target server.

Prerequisites

The migration is in the  stage and **Ready** status.

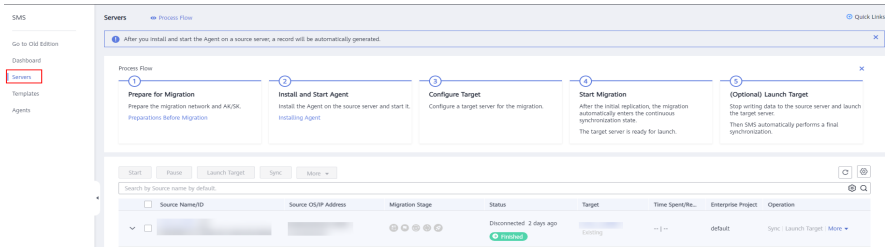
Procedure

Step 1 Log in to the management console.

Step 2 Click **Service List**. Under **Migration**, click **Server Migration Service**.

Step 3 In the navigation pane on the left, click **Servers**.

Figure 6-1 Server list

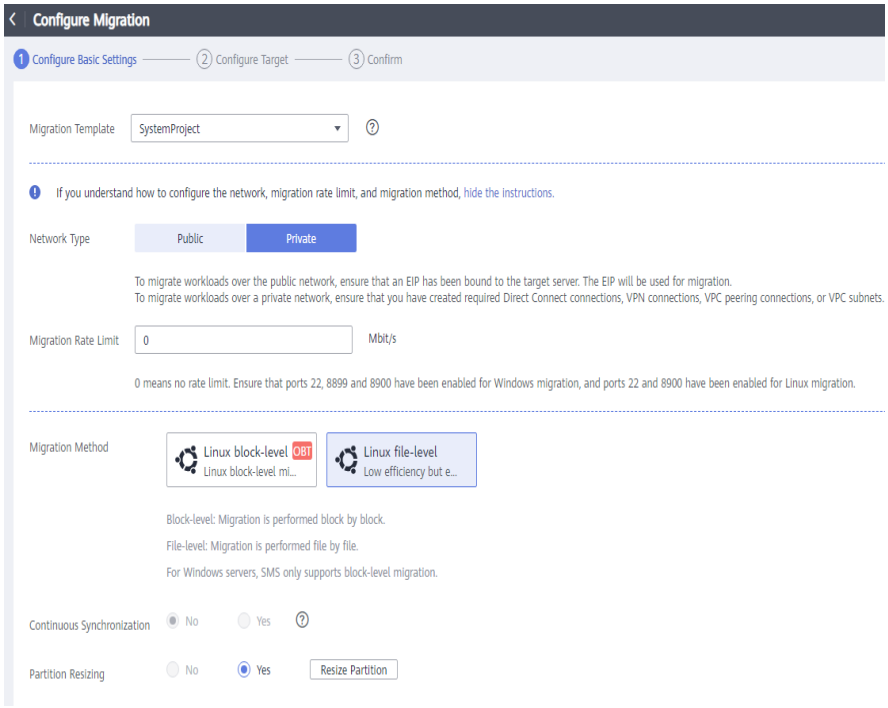


Step 4 In the server list, locate the server to be migrated, and click **Configure** in the **Target** column.

After locating the server, you can also choose **More** > **Configure Target** in the **Operation** column.

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Figure 6-2 Configure Migration



Step 5 On the **Configure Basic Settings** page, configure parameters as prompted.

Table 6-1 Basic settings

Parameter	Sub-Parameter	Description
Migration Template	N/A	After you select a migration template, the system automatically sets **Network**, **Migration Rate Limit**, **Migration Method**, **Continuous Synchronization**, **Partition Resizing**, **Region**, and **Project** based on the template. The system automatically creates a default migration template for you. You can also create a migration template in advance. For details, see **Creating a Migration Template**.
Network Type	Public	An EIP must be bound to the target server. **Network** is set to **Public** by default.

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Parameter	Sub-Parameter	Description
	Private	You need to create required Direct Connect connections, VPN connections, VPC peering connections, and VPC subnets in advance. The private IP address of the target server will be used for migration.
Migration Rate Limit	N/A	You can set the rate limits as needed based on the bandwidth of the source server and service requirements. **0** indicates that the migration rate is not limited.
Migration Method	Linux block-level	Migration and synchronization are performed block by block. This method has high efficiency but poor compatibility.
	Linux file-level	Migration and synchronization are performed file by file. This method has low efficiency but excellent compatibility.
	Windows block-level	Migration and synchronization are performed block by block. For Windows servers, SMS only supports block-level migration. This method has high efficiency.
Continuous Synchronization	No	After the full replication, SMS will automatically launch the target server without synchronizing incremental data. To synchronize incremental data, click **Sync** in the **Operation** column.
	Yes	After the full replication, SMS will periodically synchronize incremental data. To complete the migration, you need to manually launch the target server.
Partition Resizing	No	The disk partitions on the target ECS are the same as those on the source server.
	Yes	You can resize the disk partitions on the target server. For details, see **Resizing disk partitions**.

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- Resizing disk partitions

1. Click **Resize Partition** on the right of option **Yes**. In the displayed **Resize Partition** dialog box, resize the disk partitions on the target server as needed.

Figure 6-3 Resizing disk partitions (Windows)

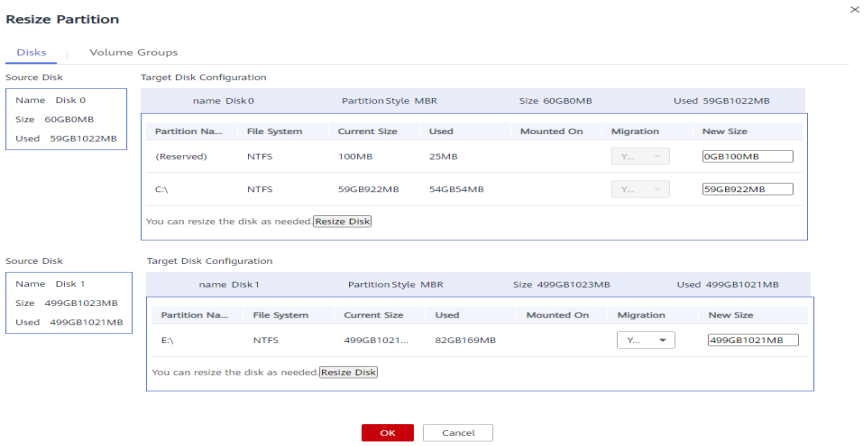
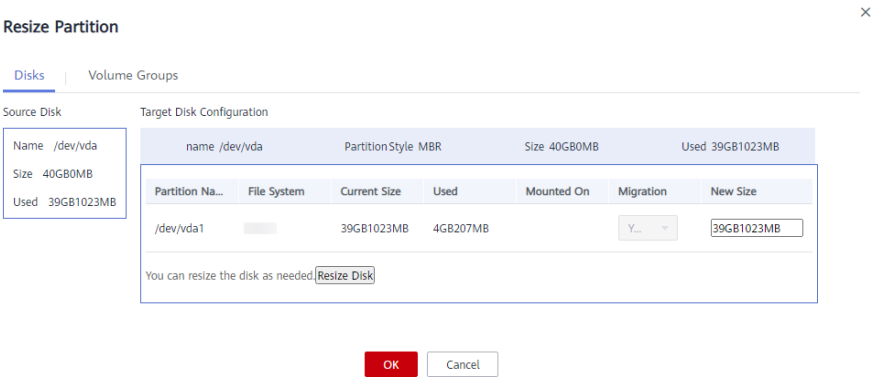


Figure 6-4 Resizing disk partitions (Linux)



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NOTE

- You can choose whether to migrate a source partition and resize the corresponding target partition.

  CAUTION

  - For the system and boot partitions on a Windows source server, **Migration** is fixed to **Yes** by default.
  - For Windows target servers, you can only expand a partition.
  - For the system and swap partitions on a Linux source server, **Migration** is fixed to **Yes** by default.
  - For Linux Btrfs file systems, **Migration** is fixed to **Yes** by default.
  - If you set **Migration** to **No** for all the logical volumes in the LVM, **Migration** will be set to **No** for the corresponding physical volumes automatically.
  - If you set **Migration** to **Yes** for at least one of the logical volumes in the LVM, **Migration** will also be set to **Yes** for the corresponding physical volumes automatically.
  - In Linux block-level migration, you can only increase a partition size, while in Linux file-level migration, you can increase and decrease a partition size. Ensure that the new partition size is 1 GB or more larger than the used partition space.

- If the new partition size is larger than the disk size, click **Resize Disk** to expand the disk.
- If the new partition size is smaller than the disk size, click **Resize Disk** to shrink the disk.

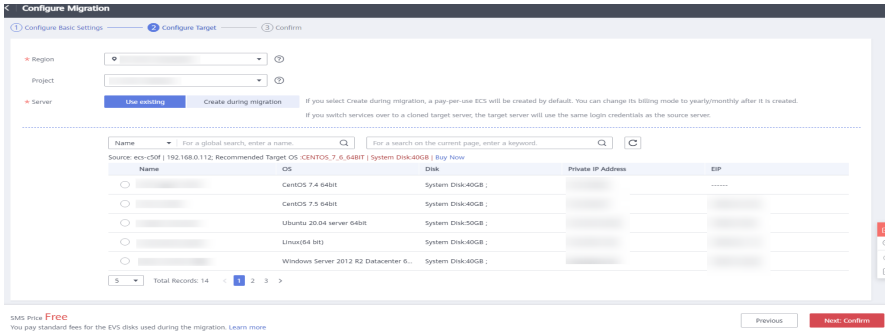
2. Click **OK**.

CAUTION

After you click **OK**, **Partition Resizing** cannot be set to **No**. If you want to restore the original disk partition settings, locate the row that contains the server to be migrated, click **More** in the **Operation** column, and select **Delete** from the drop-down list. Then, restart the Agent installed on the source server, configure the target server again, and set **Partition Resizing** to **No**.

Step 6 Click **Next: Configure Target** in the lower right corner.

Figure 6-5 Configure Target



Step 7 On the **Configure Target** page, set parameters as prompted.

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Table 6-2 Parameters for configuring a target server

Parameter	Sub-Parameter	Description
Region	N/A	• Select a region where the target server is to be provisioned from the drop-down list. • Consider your service requirements.
Project	N/A	• Select a project in the region from the drop-down list. • You can select a project only after selecting a region.
Server	Use existing	Select an existing server based on the recommended target server specifications above the server list. For details, see **Use existing**.
	Create during migration	Configure **VPC**, **Subnet**, **Security Group**, and parameters in **Advanced Settings**. For details, see **Create during migration**.

- Use existing

  A target server must meet requirements listed below. If no existing server meets the requirements, click **Buy Now** to create one that meets the requirements based on the recommended target server specifications. For details, see **Purchasing an ECS**.

  NOTE

  Currently, the source servers can be migrated to pay-per-use or yearly/monthly ECSs. You can select ECSs of whichever billing mode is appropriate.

  - A target server running Windows must have at least 2 GB memory.
  - The target server must have at least as many disks as the source server, and the size of each disk on the target server must be at least as large as the recommended size.
  - The target server must run the same OS as the source server, or there will be a server name conflict.
  - The target server must have been configured with an EIP, VPN, or Direct Connect connection.
  - The security groups of the VPC that the target server is in must be correctly configured. They must be configured to allow access on TCP

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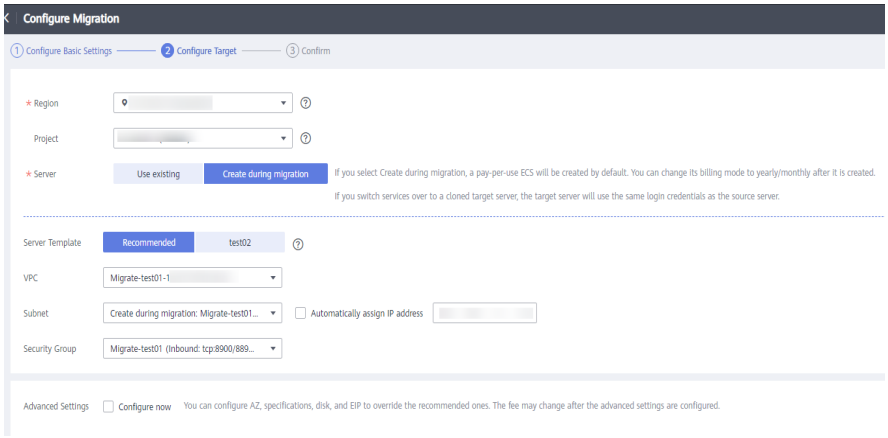
ports **8899**, **8900**, and **22** for Windows and on ports **8900** and **22** for Linux.

For details, see **How Do I Configure the Security Group Rules for Target Servers?**

- Create during migration
  - If you select **Recommended** for **Server Template**, the VPC, subnet, and security group will be automatically created. You can change the configurations as needed.

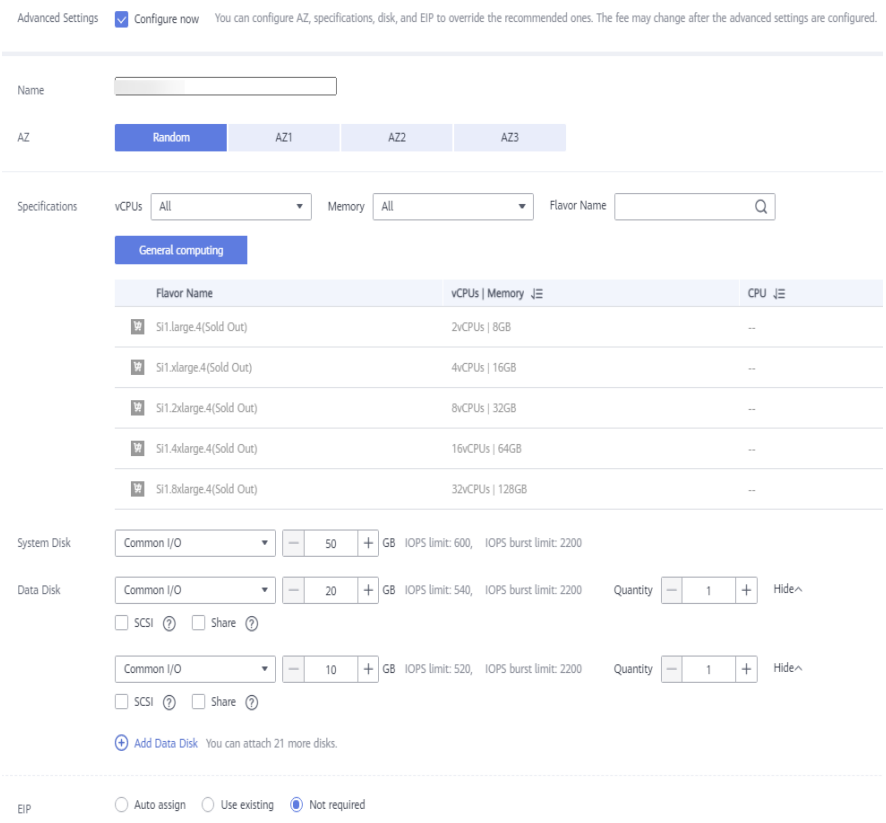
    The server name, AZ, specifications, system disk, data disk and EIP in advanced settings are automatically configured. You can modify the configurations as needed.

Figure 6-6 Recommended



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Figure 6-7 Advanced Settings



NOTE

- Supported device types for data disks are Virtual Block Device (VBD) and Small Computer System Interface (SCSI). VBD is the default data disk device type. For details about disk device types, see **Device Types and Usage Instructions**.
- Data disks can be created as shared disks. For details about shared disks, see **Shared EVS Disks and Usage Instructions**.

– If you select an existing template, the VPC, subnet, security group, AZ, and disk will be configured based on the template. You can change the configuration as needed. For details, see **Creating a Server Template**.

NOTE

If you set **Server Template** to **Recommended**, SMS will automatically:

- Create a VPC and subnet.

  If the source IP address is 192.168.*X.X*, SMS creates a VPC and a subnet that both belong to network segment 192.168.0.0/16.

  If the source IP address is 172.16.*X.X*, SMS creates a VPC and a subnet that both belong to network segment 172.16.0.0/12.

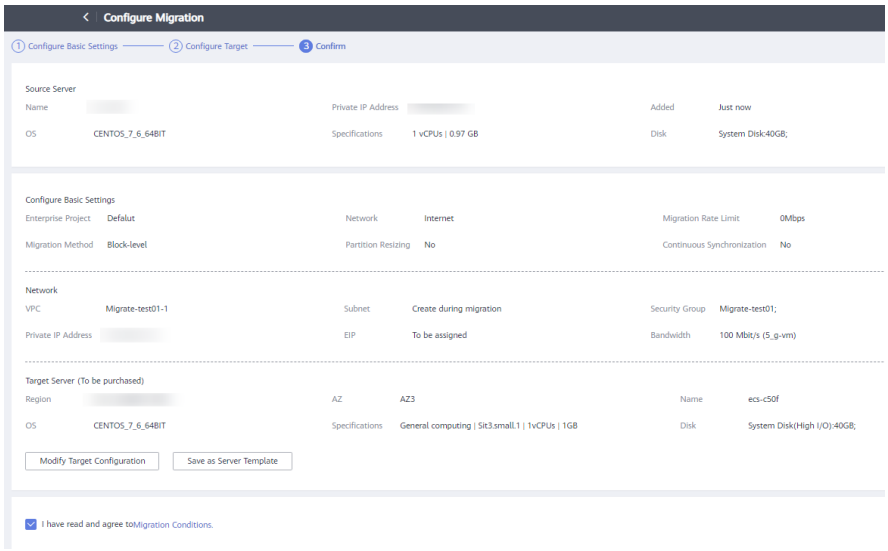
  If the source IP address is 10.*X.X.X*, SMS creates a VPC and a subnet that both belong to network segment 10.0.0.0/8.

- Create a security group and enable ports based on the service requirements: ports 8899, 8900, and 22 for Windows and ports 8900 and 22 for Linux.

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

Figure 6-8 Confirming the configuration



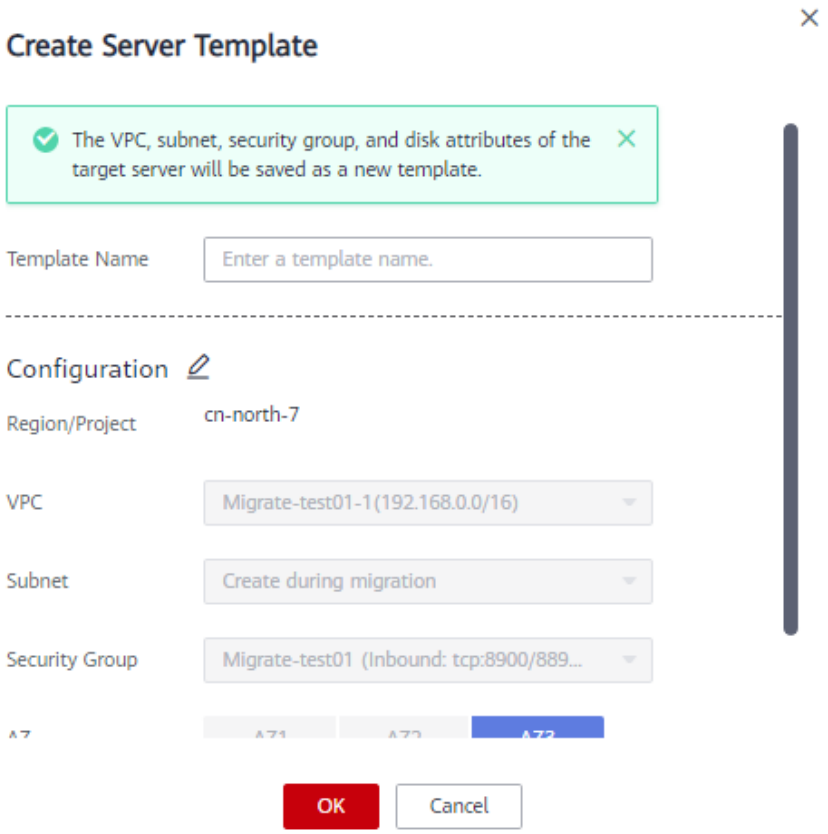
Step 9 (Optional) Click **Save as Server Template**. In the displayed **Create Server Template** dialog box, enter the template name and click **OK** to save the target configuration as a template.

NOTE

Save as Server Template is available only when you set **Server Template** to **Recommended**.

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Figure 6-9 Create Server Template



Step 10 After you confirm that the configuration is correct, click **Save**. In the displayed dialog box, read the migration conditions and click **Yes**.

If you want to start the migration immediately, click **Save and Start**. In the displayed dialog box, read the migration conditions and click **Yes**.

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Figure 6-10 Saving configuration

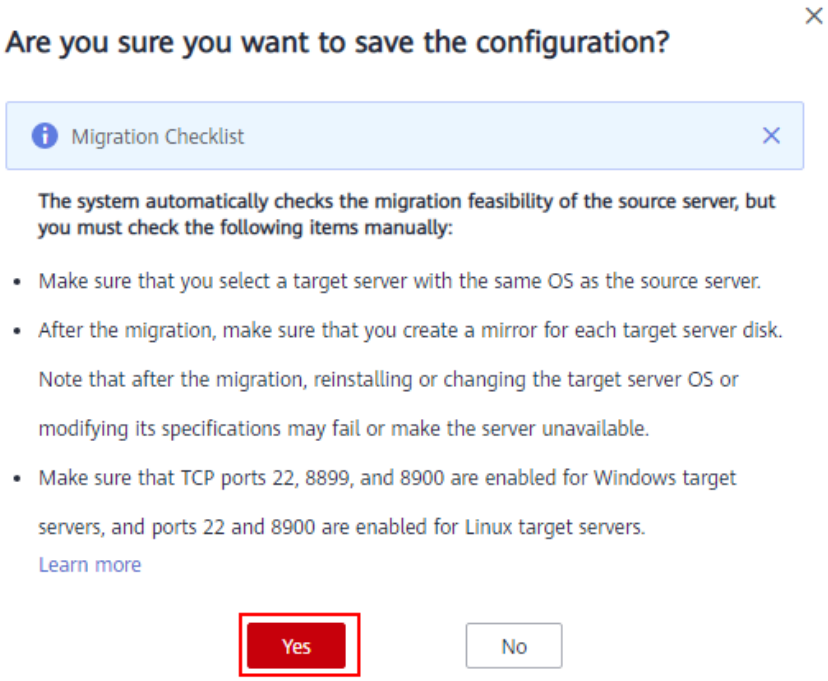
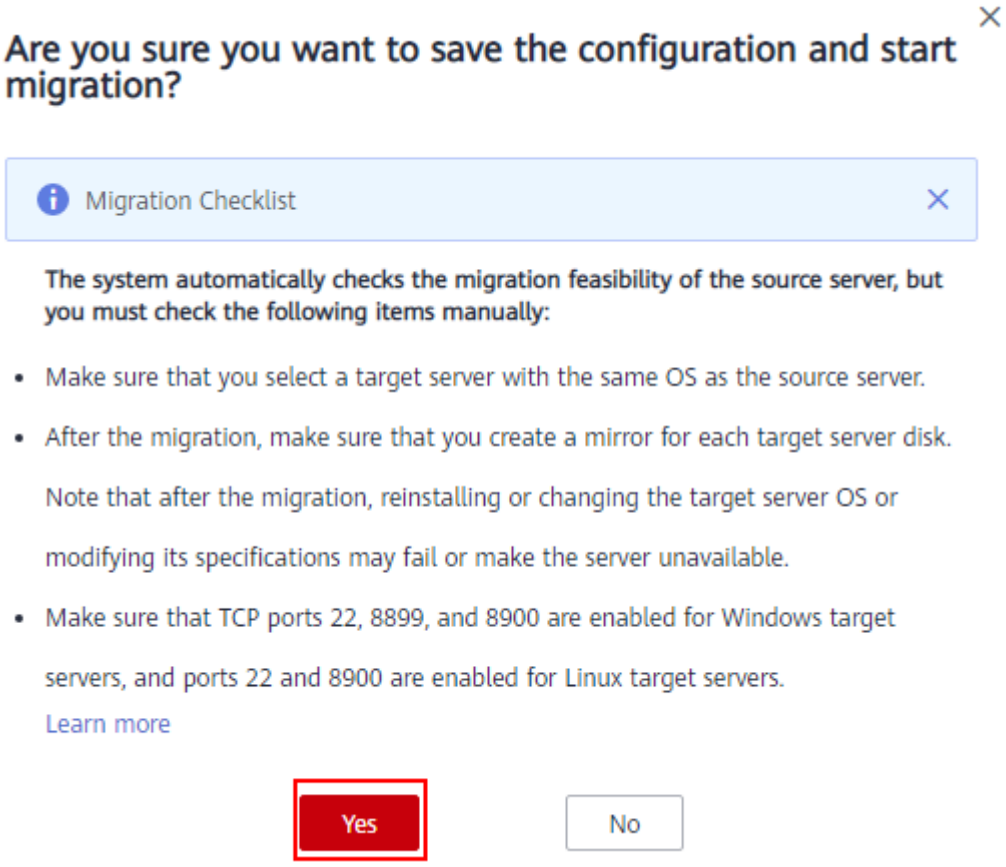


Figure 6-11 Saving configuration and starting migration



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NOTE

If  is displayed in the **Migration Stage** column, the target server has been configured.

----End

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7 Starting a Full Replication

Scenarios

A full replication replicates all data from the source server to the target server. The replication speed depends on the smaller one between the outbound bandwidth of the source server and the inbound bandwidth of the target server.

Constraints

After the full replication starts, do not restart the source server or Agent, or the migration will fail.

Prerequisites

- You have configured the target server. For details, see **Configuring the Target Server**.
- The **Migration Stage** is  .

Procedure

Step 1 Log in to the management console.

Step 2 Click **Service List**. Under **Migration**, click **Server Migration Service**.

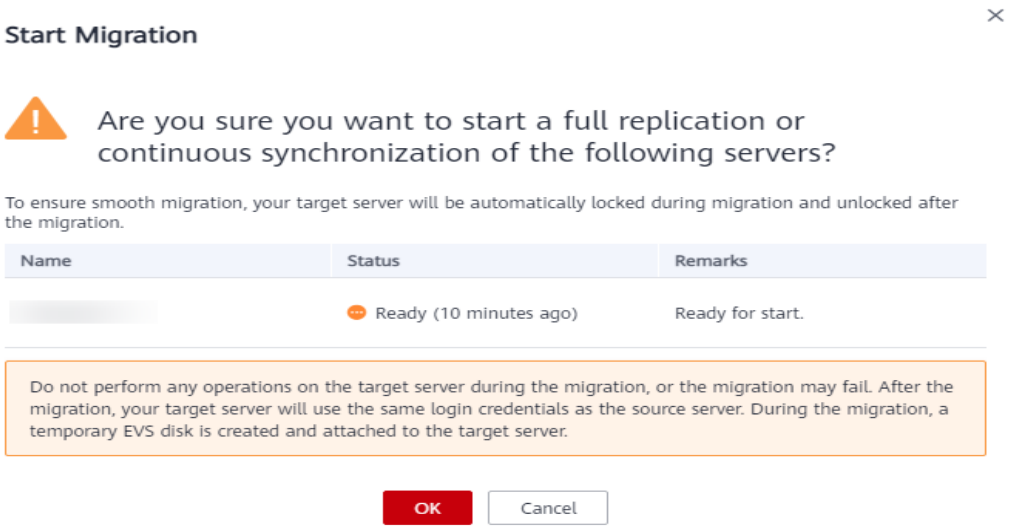
Step 3 In the navigation pane on the left, click **Servers**.

Step 4 Locate the source server to be migrated and click **Start** in the **Operation** column. In the displayed **Start Migration** dialog box, click **OK** to start the full replication.

Alternatively, select the server to be migrated and click **Start** above the server list. In the displayed **Start Migration** dialog box, click **OK** to start the full replication.

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Figure 7-1 Confirmation



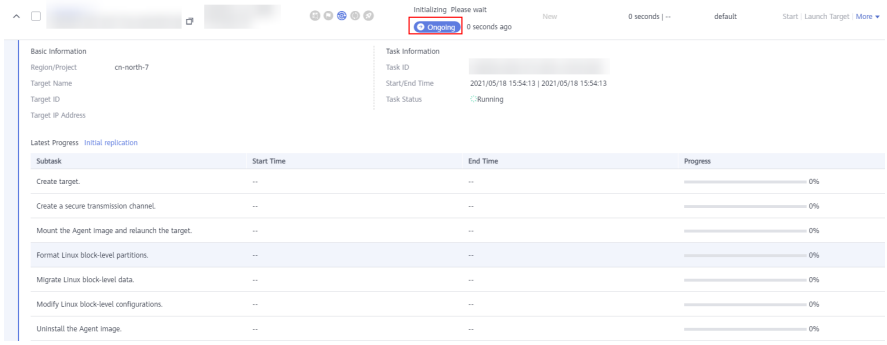
NOTE

During the full replication, the target server is locked by default and you are not allowed to perform any operations on it. After the migration is complete, the system automatically unlocks the target server. If you need to perform operations on the target server during the replication, unlock the target server first. For details, see **Unlocking a Target Server**.

Step 5 During the migration, you can click 

to view the migration progress.

Figure 7-2 Viewing migration progress



Step 6 Wait for the full replication to complete.

- If you set **Continuous Synchronization** to **No** when you configure the migration settings, the migration enters the **Target Launch** stage, and the system launches the target server automatically after the full replication is complete.
- If you set **Continuous Synchronization** to **Yes**, the migration enters the **Continuous sync** state after the full replication is complete. You need to manually launch the target server. For details, see **Launching a Target Server**.

----End

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8 Launching a Target Server

This section describes how to manually launch the target server after the full replication is complete if you set **Continuous Synchronization** to **Yes** when configuring the migration settings.

NOTE

If you set **Continuous Synchronization** to **No**, skip this section because the system will automatically launch the target server after the full replication is complete.

Scenarios

You can launch a target server for a migration in the **Continuous sync** status, and the continuous synchronization will be interrupted. If continuous synchronization is required after you launch the target server, click **Sync** to continuously synchronize incremental data.

Before launching the target server, you can clone the target server for service testing, and only launch the target server until tests confirm there are no issues.

NOTE

The cloned server must be in the same AZ as the target server, but can be in a different VPC.

Procedure

Step 1 Log in to the management console.

Step 2 Click **Service List**. Under **Migration**, click **Server Migration Service**.

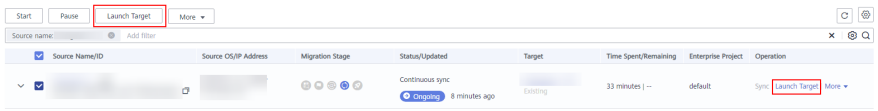
Step 3 In the navigation pane on the left, click **Servers**.

Step 4 Locate the target server you want to launch, and click **Launch Target** in the **Operation** column.

Alternatively, select the server you want to launch, and click **Launch Target** above the server list.

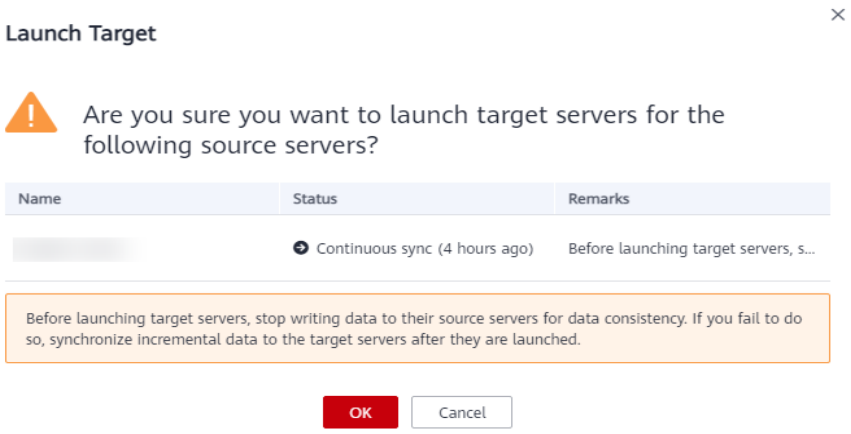
 Copyright © Huawei Technologies Co., Ltd.

Figure 8-1 Launch Target



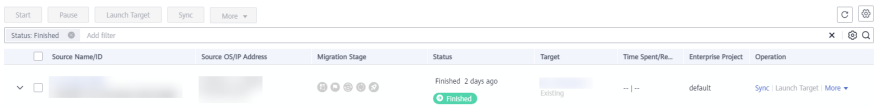
Step 5 In the displayed **Launch Target** dialog box, click **OK**.

Figure 8-2 Confirmation



Step 6 Check whether the **Status** has changed to **Finished**. If it has, the target server has been launched and the migration is complete.

Figure 8-3 Migration completed



----End

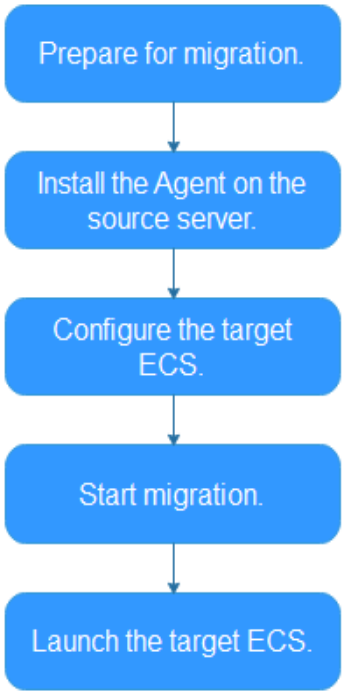
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9 Old Version

9.1 SMS Usage Process

Figure 9-1 shows the basic process of using SMS.

Figure 9-1 Process of using SMS



9.2 Preparations Before Migration

This section describes how to prepare accounts, permissions, and source server and target ECS environments.

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1. Registering an account HUAWEI CLOUD and completing **real-name authentication**
2. **Obtaining Required Permissions**
3. **Obtaining the AK/SK Pair for Your Account**
4. **Ensuring that the Account Balance Is at Least ¥100 CNY**
5. **Meeting OS Requirements**
6. **Meeting Migration Network Requirements**
7. **Meeting Requirements about Source Server Remaining Space and Environment**

Obtaining Required Permissions

If you use an account for migration, you have the permissions required by default. However, if you use an IAM user for migration, follow the instructions provided in **Creating a User Group and Assigning Permissions**.

Obtaining the AK/SK Pair for Your Account

The AK/SK pair is used for authentication during the migration. For details about how to obtain the AK/SK pair of your HUAWEI CLOUD account, see **How Do I Create an AK/SK Pair for an Account?** or **How Do I Create an AK/SK Pair for an IAM User?**

Ensuring that the Account Balance Is at Least ¥100 CNY

To avoid migration failure, ensure that the account balance is greater than ¥100 CNY (top-up or cash coupons included).

NOTE

SMS is free, but the use of other related services will generate some fees during the migration. For details about the fees, see **Pricing Details**.

Meeting OS Requirements

See **What Source Server OSs Are Supported by SMS and Are There Any Restrictions on Using SMS?**

Meeting Migration Network Requirements

1. The source server can connect to HUAWEI CLOUD API Gateway (port 443). For details, see **Connecting Source Servers to HUAWEI CLOUD API Gateway**.

   NOTE

   It is recommended that all outbound ports on the source server be allowed.

2. The source server can connect to the target ECS. For details, see **Connecting Source Servers to Target ECSs**.
   - If you want to use EIP for migration, you need to purchase and configure an EIP for the target ECS in advance.
   - If you want to use Direct Connect or VPN for migration, you need to purchase and configure Direct Connect or VPN connections in advance.

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3. The required ports are enabled in the security groups to which the target ECS belongs.
   - Windows: TCP ports 8899, 8900, and 22
   - Linux: TCP port 22 for block-level migration, and ports 8900 and 22 for file-level migration

   NOTE

   Open the same ports on the firewall of the target server.

   For details, see **Ports to Be Enabled in the Security Groups of Target ECSs**.

Meeting Requirements about Source Server Remaining Space and Environment

Source Server Remaining Space

- Windows
  - At least 320 MB of available space on a partition larger than 600 MB
  - At least 40 MB of available space on a partition smaller than 600 MB
- Linux

  At least of 200 MB of available space on the root partition

Source Server Environment

- The system time of the source server must be consistent with the standard time to prevent the Agent registration failure on the source server.
- For Linux servers, run the **rsync -v** command to check whether **rsync** is installed.

  If it is not installed on your servers, you can install it as follows:
  - CentOS: Run the **yum –y install rsync** command.
  - Ubuntu: Run the **apt-get -y install rsync** command.
  - Debian: Run the **apt-get -y install rsync** command.
  - SUSE: Run the **zypper install rsync** command.
  - For other distributions, refer to the official website documentation.

    NOTE

    rsync usually comes pre-installed on most distributions by default.
- For Windows servers, install one of the following Agents:
  - Windows Agent (Python 3): Windows Server 2019/2016/2012 and Windows 10/8.1
  - Windows Agent (Python 2): Windows Server 2008 and Windows 7

9.3 Installing the Agent on Source Servers

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9.3.1 Windows

Scenarios

You need to install the Agent on each windows source server that you want to migrate. During the Agent installation, you need to enter the AK and SK of your HUAWEI CLOUD account. After the Agent is started successfully, it automatically reports source server information to SMS. All collected information is used for migration only. For details, see **What Information Does SMS Collect About Source Servers?**

There are two options for Windows:

- GUI-based Windows Agent (Python 3): Windows Server 2019, 2016, or 2012/ Windows 10 or 8.1
- CLI-based Windows Agent (Python 2): Windows Server 2008/Windows 7

> ⚠ CAUTION
>
> You must log in to the Windows source server as user **Administrator**.

Prerequisites

- You have obtained the AK/SK pair of the HUAWEI CLOUD account that the target ECS belongs to.
  - To create an AK/SK pair for an IAM user, see **How Do I Create an AK/SK Pair for an IAM User?**
  - To create an AK/SK pair for an account, see **How Do I Create an AK/SK Pair for an Account?**
- (Optional) You have created a migration project. For details, see **Creating a Migration Project**. If you want to use the default migration project, ignore this requirement.
- You have obtained the administrator permissions of the source server.
- You have confirmed that the source server is running an OS included in **Supported Source Server OSs**.
- There is no antivirus software installed on the source server. Antivirus software may prevent the Agent from starting up.

  If the message "Failed to start I/O monitoring" is displayed when you start the Agent, rectify the fault by following the operations provided in **How Do I Fix the Error "Failed to start the I/O monitoring module" When I Start the Agent?**

Obtaining the Agent Installation File

Step 1 Log in to the management console.

Step 2 Click **Service List**. Under **Migration**, click **Server Migration Service**.

The SMS console is displayed.

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

The **Migration Agents** page is displayed.

Step 4 Click **Download** to download the Agent you need.

- Windows Agent (Python 3)

  This GUI-based version is designed for Windows Server 2019/2016/2012 and Windows 10/8.1.

  Save the **SMS-Agent-Py3.exe** file to a local directory.
- Windows Agent (Python 2)

  This CLI-based version is designed for Windows Server 2008 and Windows 7

  Save the **SMS-Agent-Py2.exe** file to a local directory.

Step 5 (Optional) Verify the software integrity of the Agent. For details, see **How Do I Verify the Integrity of the Agent?**

----End

Installing Windows Agent (Python 3)

Step 1 Upload the **SMS-Agent-Py3.exe** file to the source server.

Step 2 Log in to the source server as user **Administrator** and double-click the **SMS-Agent-Py3.exe** file.

The Agent installation wizard is displayed.

Step 3 Click **Install** and wait for the installation to complete.

Step 4 Click **Finish**. The SMS-Agent GUI is displayed.

Step 5 Enter the AK and SK of the HUAWEI CLOUD account that the target ECS belongs to, and click **Start**.

If you do not need to use an HTTPS proxy, select **Directly connection**.

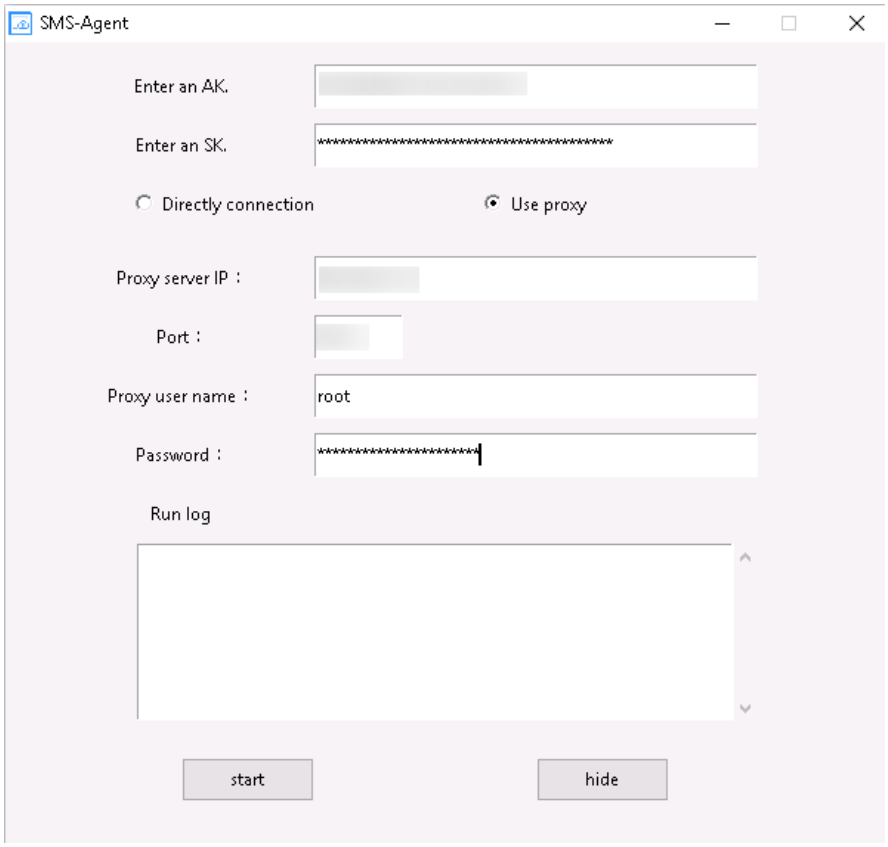
If you need to use to use an HTTPS proxy, select **Use proxy** and enter the IP address, port number, username, and password of the proxy server.

NOTE

- A proxy server is a special network service. If your source server cannot access HUAWEI CLOUD through the Internet, you can use a proxy server to access HUAWEI CLOUD. You need to configure a proxy server by yourself.
- The IP address of the proxy server is not the IP address of the target ECS.
- The proxy is used for registering the source server with SMS when a Direct Connect or VPN connection is used. It is not used for data migration.
- In **Figure 9-2**, the details shown are just examples. Enter the actual values based on your specific server configuration.

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Figure 9-2 Starting the Agent



Step 6 Click **Start**.

Step 7 Carefully review the **Privacy Statement** and click **Yes** if you want to continue.

When message **Upload success. Waiting for the SMS instruction** is displayed, the Agent has been started. You need to log in to the SMS console and perform subsequent operations.

----End

Installing Windows Agent (Python 2)

Step 1 Check whether the source server you have logged in is the server to be migrated.

- If it is, go to **Step 2**.
- If it is not, upload the **SMS-Agent-Py2.exe** file to the source server and perform **Step 2** on the source server.

Step 2 Log in to the source server as user **Administrator** and double-click the **SMS-Agent-Py2.exe** file.

The Agent installation wizard is displayed.

Step 3 Click **Install** and wait for the installation to complete.

Step 4 Click **Finish**. The SMS-Agent CLI is displayed.

Step 5 If you need to use an HTTPS proxy server, go to **Step 6**.

If you do not need to use an HTTPS proxy server, go to **Step 7**.

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NOTE

- A proxy server is a special network service. If your source server cannot access HUAWEI CLOUD through the Internet, you can use a proxy server to access HUAWEI CLOUD. You need to configure a proxy server by yourself.
- The proxy is used for registering the source server with SMS when a Direct Connect or VPN connection is used. It is not used for data migration.

Step 6 (Optional) Configure an HTTPS proxy server.

Go to the directory where the Agent was installed (typically **C:\SMS-Agent-Py2\config**) and modify the **auth.cfg** file.

```
[proxy-config]
enable = true
proxy_addr = proxyip
proxy_port = proxyport
proxy_user =
use_password = false
```

NOTE

- **proxy_addr** indicates the IP address of the proxy server the source server uses to access SMS.
- **enable** controls if the proxy is used or not. To use the proxy, set this to **true**.
- If a username is required to use the proxy, set **proxy_user** to the username, for example, **root**. If not username is required, leave this parameter blank.
- If a password is required to use the proxy, set **use_password** to **true**. If none is required, set it to **false**.
- If the HTTPS proxy is not used during the migration, you are not allowed to modify the **auth.cfg** file.

Step 7 When prompted, enter the AK and SK of the HUAWEI CLOUD account that the target ECS belongs to.

After the authentication succeeds, the Agent starts to report source server information to SMS, and the window is closed.

----End

Troubleshooting

How Do I Resolve the Error "AK/SK authentication failed. Ensure that the system time is consistent with the standard time and the AK and SK are correct" When I Start the Agent?

9.3.2 Linux

Scenarios

You need to install the Agent on each Linux source server that you want to migrate. During the Agent installation, you need to enter the AK and SK of your HUAWEI CLOUDaccount that the target server belongs to. After the Agent is started successfully, it automatically reports source server information to SMS. All collected information is used for migration only. For details, see **What Information Does SMS Collect About Source Servers?**

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Prerequisites

- You have obtained the AK/SK pair of the HUAWEI CLOUD account that the target ECS belongs to.
  - To create an AK/SK pair for an IAM user, see **How Do I Create an AK/SK Pair for an IAM User?**
  - To create an AK/SK pair for an account, see **How Do I Create an AK/SK Pair for an Account?**
- You have confirmed that the source server is running an OS included in **Supported Source Server OSs**.
- (Optional) You have created a migration project. For details, see **Creating a Migration Project**. If you want to use the default migration project, ignore this requirement.

Installing the Linux Agent

Step 1 Use PuTTY or another SSH client to log in to the source server as user **root**.

Step 2 Run either of the following commands to download the Agent:

wget -t 3 -T 15 https://sms-agent-2-0-cn-north-1.obs.cn-north-1.myhuaweicloud.com/SMS-Agent.tar.gz

curl -O https://sms-agent-2-0-cn-north-1.obs.cn-north-1.myhuaweicloud.com/SMS-Agent.tar.gz

Step 3 (Optional) Verify the software integrity of the Agent. For details, see **How Do I Verify the Software Integrity of the Agent?**

Step 4 Run the following command to decompress the downloaded package:

tar -zxvf SMS-Agent.tar.gz

Step 5 Run the following command to switch to the **SMS-Agent** directory on the source server:

cd SMS-Agent

Step 6 If you need to use an HTTPS proxy server, go to **Step 7**.

If you do not need to use an HTTPS proxy server, go to **Step 8**.

CAUTION

A proxy server is a special network service. If your source server cannot access HUAWEI CLOUD through the Internet, you can use a proxy server to access HUAWEI CLOUD. You need to configure a proxy server by yourself.

Step 7 (Optional) Configure an HTTPS proxy server.

1. Run the following command to go to the **config** directory:

   cd SMS-Agent/agent/config

2. Run the following command to open and edit the **auth.cfg** file:

   vi auth.cfg

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```
[proxy-config]
enable = true
proxy_addr = 192.168.1.10
proxy_port = 3128
proxy_user = root
use_password = true
```

3. Run the following command to save the **auth.cfg** file and exit:

   :wq

   NOTE

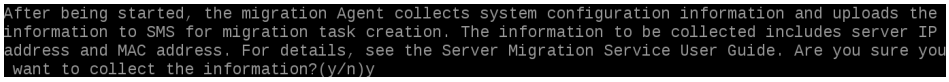
   - **proxy_addr** indicates the IP address of the proxy server the source server uses to access SMS.
   - If the HTTPS proxy is not used during the migration, you are not allowed to modify the **auth.cfg** file.
   - The proxy is used for registering the source server with SMS when a Direct Connect or VPN connection is used. It is not used for data migration.
   - **enable** controls if the proxy is used or not. To use the proxy, set this to **true**.
   - If a username is required to use the proxy, set **proxy_user** to the username, for example, **root**. If not username is required, leave this parameter blank.
   - If a password is required to use the proxy, set **use_password** to **true**. If none is required, set it to **false**.
   - The values shown here are for reference only. Actual values will depend on your server configuration,

Step 8 Run the following command to start the Agent:

./startup.sh

Step 9 Carefully review the description of what information will be collected by the Agent, enter **y**, and press **Enter**.

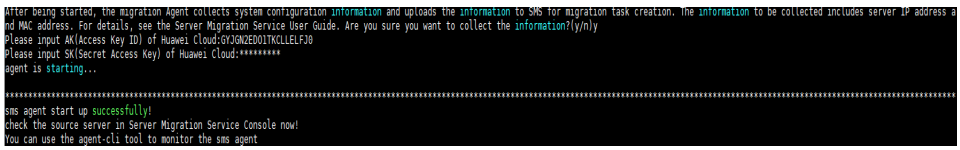
Figure 9-3 Entering y



Step 10 Enter the AK and SK of the HUAWEI CLOUD account that the target ECS belongs to.

When the following information is displayed, the Agent has been started up and will automatically start reporting source server information to SMS.

Figure 9-4 Entering the AK and SK



----End

Troubleshooting

- **How Do I Resolve the Error "No such file or directory: 'rsync':'rsync" When I Start the Linux Agent?**

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- **How Do I Resolve the Error "AK/SK authentication failed. Ensure that the system time is consistent with the standard time and the AK and SK are correct" When I Start the Agent?**

9.4 Configuring the Target ECS

Scenarios

Before the migration, you need to configure the target ECS. The target ECS is used to receive data from the source server. You can clone the target ECS for service testing or launch the ECS.

Prerequisites

Target ECSs can only be configured if the migration is in the state.

Procedure

Step 1 Log in to the management console.

Step 2 Click **Service List**. Under **Migration**, click **Server Migration Service**.

The SMS console is displayed.

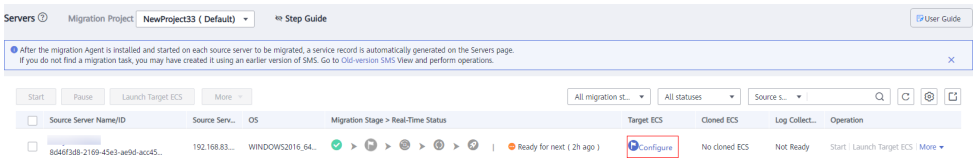
Step 3 In the navigation pane on the left, choose **Servers**.

The server list is displayed.

Step 4 Locate the source server for which you want to configure the target server and click in the **Target ECS** column.

You can also locate the source server, click **More** in the **Operation** column, and select **Set Target ECS** from the drop-down list.

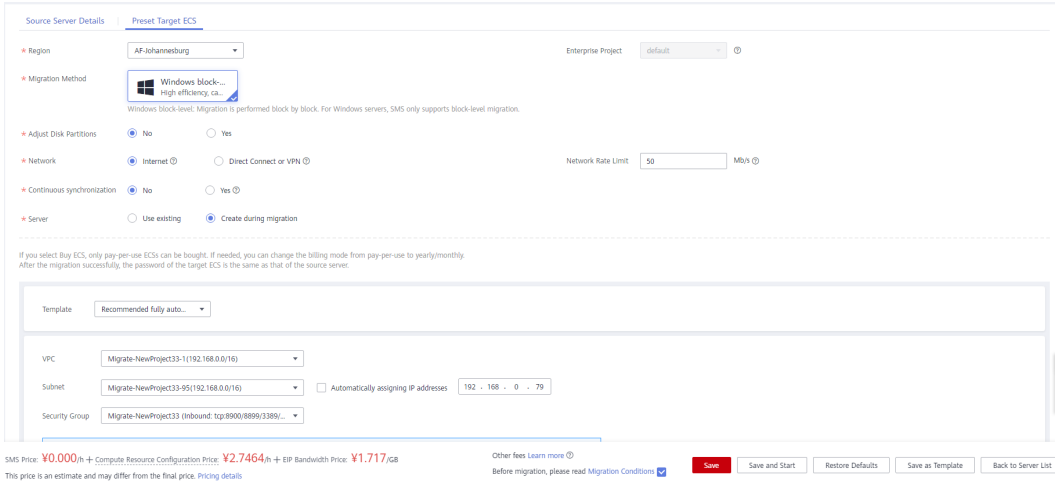
Figure 9-5 Configuring the target ECS



Step 5 On the **Preset Target ECS** page, set parameters as prompted.

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Figure 9-6 Preset Target ECS



1. Select a region for the target ECS.

   NOTE

   By default, the region is the one set for the current migration project, but you can select another region if needed.

2. Select a migration method in the **Migration Method** area.
   - **Linux block-level**

     Individual disk blocks are replicated and synchronized. This method has high synchronization efficiency but poor compatibility.
   - **Linux file-level**

     Replication and synchronization are done file by file. This mode is slower, but provides better compatibility.
   - **Windows block-level**

     Individual disk blocks are replicated and synchronized. Currently, for Windows servers, SMS only supports block-level migration, which has high migration and synchronization efficiency.
3. Determine whether to adjust disk partitions on the target ECS.
   - **No**: If you select this option, the disk partitions on the target ECS are the same as those on the source server.
   - **Yes**: If you select this option, you can adjust the disk partitions on the target ECS. To do so, perform the following operations:

     1. Click **Adjust** on the right of option **Yes**. On the displayed **Adjust Disk Partitions** dialog box, set the disk partitions on the target ECS as needed.

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Figure 9-7 Adjusting disk partitions (Windows)

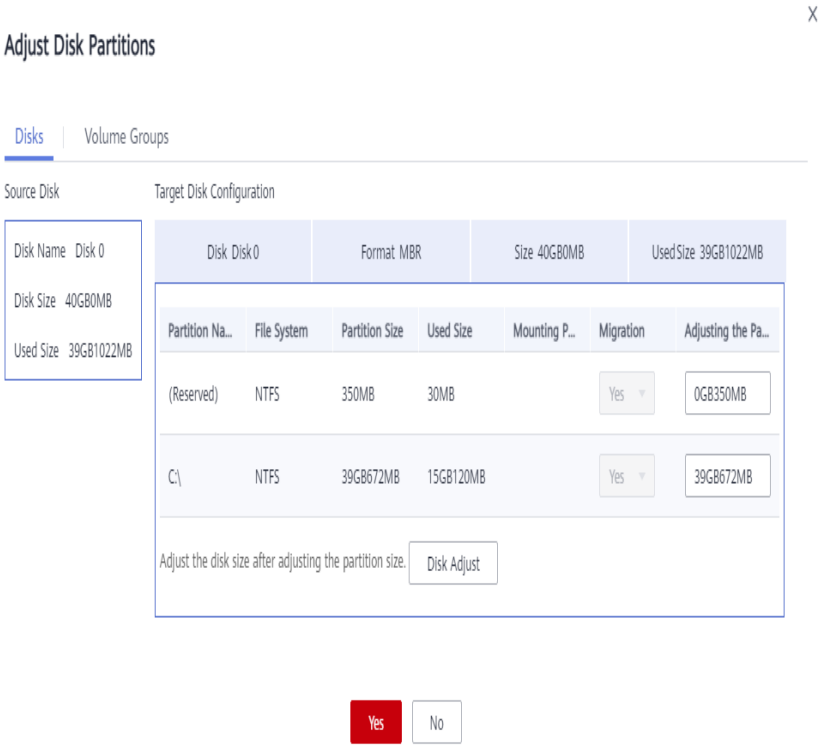
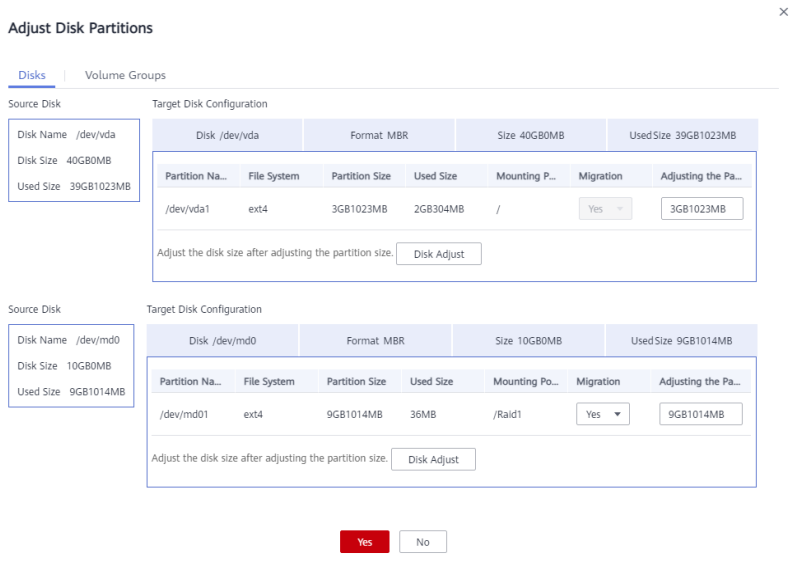


Figure 9-8 Adjusting disk partitions (Linux)



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NOTE

- Disk partition adjustment allows you to determine whether to migrate data on the source partition and adjust the size of the corresponding partition on the target ECS.

  CAUTION

  - For the system and boot partitions on a source server running Windows, **Migration** is set to **Yes** by default.
  - For Windows target ECSs, you can only increase the size of partitions.
  - For the system and swap partitions on a Linux source server, **Migration** is set to **Yes** by default.
  - For Linux Btrfs file systems, **Migration** is set to **Yes** by default.
  - If you set **Migration** to **No** for all the logical volumes in the LVM, **Migration** is set to **No** for the corresponding physical volumes automatically.
  - If you set **Migration** to **Yes** for at least one of the logical volumes in the LVM, **Migration** is set to **Yes** for the corresponding physical volumes automatically.
  - In Linux file-level migration, you can increase and decrease a partition size, while in Linux block-level migration, you can only increase a partition size. Ensure that the new partition size is greater than the used partition space by 1 GB.

- If the new partition size is larger than the disk size, click **Target Disk** to expand the disk.
- If the new partition size is smaller than the disk size, click **Target Disk** to shrink the disk.

2. Click **OK**.

CAUTION

After you click **OK**, **Adjust Disk Partitions** cannot be set to **No**. If you want to restore the original disk partition settings, locate the row that contains the target ECS that you want to restore, click **More** in the **Operation** column, and select **Delete This Server** from the drop-down list. Then, restart the Agent installed on the source server and reconfigure the target ECS. Set **Adjust Disk Partitions** to **No**.

4. Select a network type in the **Network** area.
   - **Internet** (default)

     If you select this option, an EIP must be bound to the target ECS.
   - **Direct Connect or VPN**

     If you select this option, you need to create a Direct Connect connection or VPN connection between the source server and the VPC subnet where the target ECS is located.

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- **Network Rate Limit**

  Set the bandwidth limit as needed based on the bandwidth size of the source server.

  NOTE

  - If the source server and target ECS are in the same VPC, Set **Network** to **Direct Connect or VPN**.
  - By default, **Network Rate Limit** uses the default settings of the migration project. You can change it as needed.

5. Decide whether to perform continuous synchronization after full replication is complete.
   - **No**

     If you select this option, after the full replication, SMS will not perform a continuous synchronization and automatically start the target ECS. To synchronize incremental data, click **Synchronize** in the **Operation** column.
   - **Yes**

     If you select this option, after the full replication, SMS will perform a continuous synchronization. To complete the migration, you need to manually launch the target ECS.
6. Select or create a target ECS.
   - **Use existing**

     A target ECS must meet requirements listed below. If no existing server meets the requirements, click **Buy Now** to create one that meets requirements based on the recommended target server specifications. For details, see **Purchasing an ECS**.

     NOTE

     Source servers can be migrated to pay-per-use or yearly/monthly ECSs. You can select ECSs of whichever billing mode is appropriate.

     - A target server running Windows must have at least 2 GB of memory.
     - The target server must have at least as many disks as the source server, and the size of each disk on the target server must be at least as large as the corresponding source server disk.
     - The target server must have the same OS type as the source server, or there will be a server name conflict.
     - The source servers must have network access to the target ECSs. There has to be EIPs, VPNs, or a private line available for the target ECSs.
     - The security groups of the VPC that the target server is in must be correctly configured. They must be configured to allow access on TCP ports **8899**, **8900**, and **22** for Windows and on ports **8900** and **22** for Linux.

       For details, see **How Do I Configure the Security Group Rules for Target ECSs?**

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- Create during migration
  - If no ECS template is selected, the VPC, NIC, and security group will be automatically created. You can change the specifications as required. The name, AZ, ECS specifications, system disk, and EIP in advanced settings are automatically configured. You can modify the configuration as needed.
  - If you select an existing template to create the target ECS, the region, VPC, NIC, security group, AZ, and disks are configured by the template.

    NOTE

    If you set **Template** to **Recommended fully automatic preset**, SMS will automatically:

    - Create a VPC and subnet.

      If the source IP address is 192.168.*X.X*, SMS creates a VPC and a subnet that both belong to network segment 192.168.0.0/16.

      If the source IP address is 172.16.*X.X*, SMS creates a VPC and a subnet that both belong to network segment 172.16.0.0/12.

      If the source IP address is 10.*X.X.X*, SMS creates a VPC and a subnet that both belong to network segment 10.0.0.0/8.
    - Create a security group and enable ports based on the service requirements: ports 8899, 8900, and 22 for Windows ECSs and ports 8900 and 22 for Linux ECSs.

7. After setting the parameters, read and select **Before migration, please read Migration Conditions**, and click **Save**.

   NOTE

   Click **Migration Conditions** to open and read the content carefully.

8. Check whether  is displayed in the **Migration Phase > Real-Time Status** column. If it is, the target ECS has been configured.

----End

9.5 Starting Replication

Scenarios

A full replication replicates all data from the source server to the target ECS. The replication speed depends on the outbound bandwidth of the source server and the inbound bandwidth of the target ECS, whichever is smaller.

Constraints

After the full replication starts, do not restart the source server and Agent, or the migration will fail.

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Prerequisites

- You have configured the target ECS. For details, see **Configuring the Target ECS**.
- The source server is the  state during **Migration Stage** > **Real-Time Status**.

Procedure

Step 1 Log in to the management console.

Step 2 Click **Service List**. Under **Migration**, click **Server Migration Service**.

The SMS console is displayed.

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

The server list is displayed.

Step 4 Locate the source server to be migrated and click **Start** in the **Operation** column. In the displayed **Start** dialog box, click **Yes** to start the full replication.

Alternatively, select the server to be migrated and click **Start** above the server list. In the displayed **Start** dialog box, click **Yes** to start full replication.

Figure 9-9 Starting replication

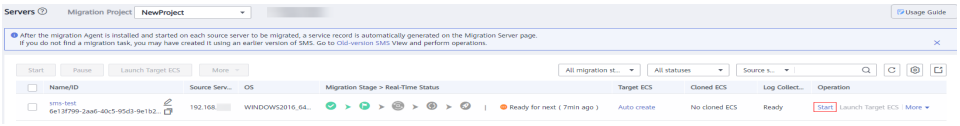
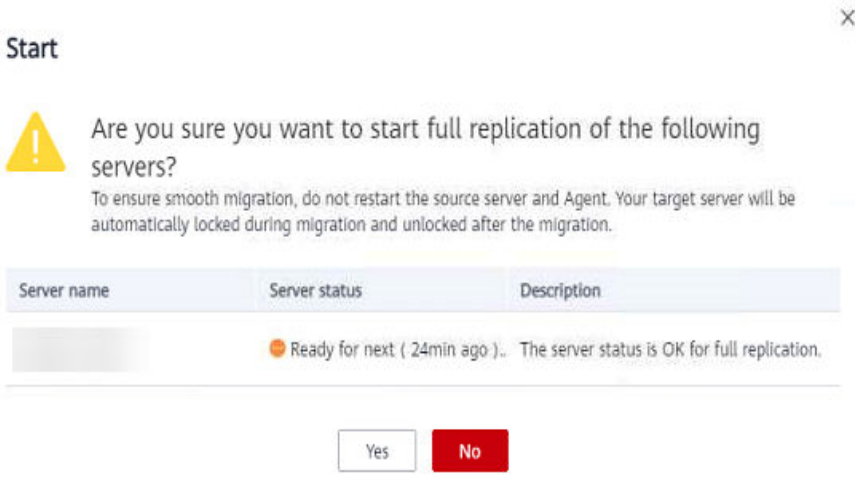


Figure 9-10 Confirmation

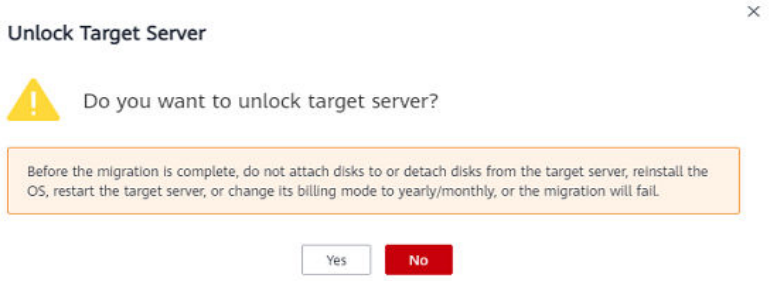


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NOTE

During the full replication, the target ECS is locked by default and you are not allowed to perform any operations on it. After the migration is complete, the system automatically unlocks the target ECS. If you need to perform operations on the target ECS during the migration, unlock the target ECS first. You can choose **More** > **Unlock Target Server** in the **Operation** column. In the displayed dialog box, click **Yes** to unlock the ECS.

Figure 9-11 Unlocking a target server



Step 5 View the migration progress in the **Migration Stage > Real-Time Status** column.

Figure 9-12 Viewing the migration progress

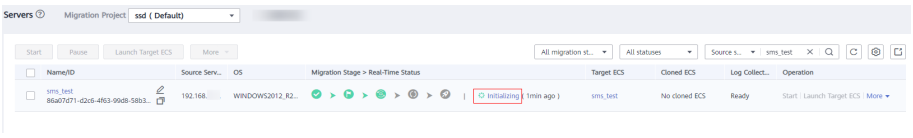
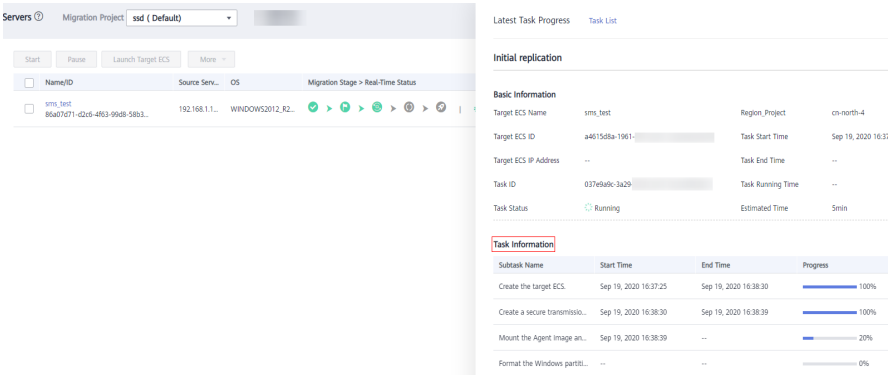
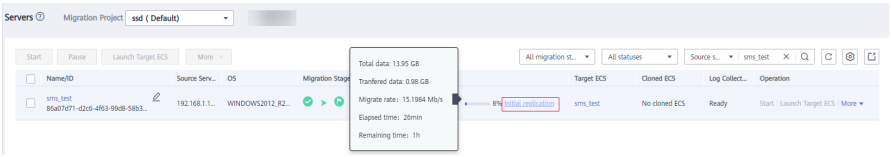


Figure 9-13 Viewing progress details



Step 6 Hover over the icon corresponding to **Full Replication** in the **Migration Stage > Real-Time Status** column to view the remaining migration time.

Figure 9-14 Viewing the remaining migration time



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NOTE

When **Real-time Status** becomes **Full Replication**, you can view the remaining migration time.

Step 7 Check whether **Real-Time Status** changes to **Continuous Sync**. If it is, full replication is complete and I/O data on the source server is automatically synchronized to the target ECS.

You can launch the target ECS by referring to **Launching the Target ECS**.

----End

9.6 Launching the Target ECS

Scenarios

You can launch an ECS that is in the continuous synchronization state. After the ECS is started, continuous synchronization is stopped. If continuous synchronization is required after the ECS is launched, click **Start** in the **Operation** column to continuously synchronize data.

Before launching the target ECS, you can clone the target ECS for service testing, and then only launch the target ECS until tests confirm there are no issues.

NOTE

The cloned ECS must be in the same AZ as the target ECS, but can be in a different VPC.

Prerequisites

Target ECSs can only be launched if the migration is in the **Continuous sync** state.

Procedure

Step 1 Log in to the management console.

Step 2 Click **Service List**. Under **Migration**, click **Server Migration Service**.

The SMS console is displayed.

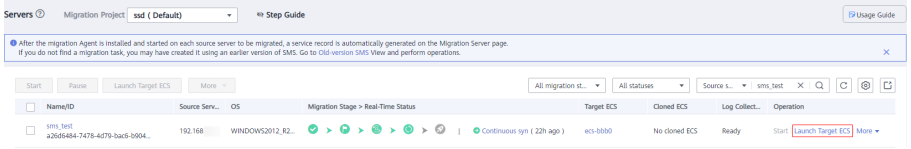
Step 3 In the navigation pane on the left, choose **Servers**.

The server list is displayed.

Step 4 Locate the target source server, click **More** in the **Operation** column, and select **Launch Target ECS**.

Alternatively, select the source server and click **Launch Target ECS** in the upper left corner of the server list.

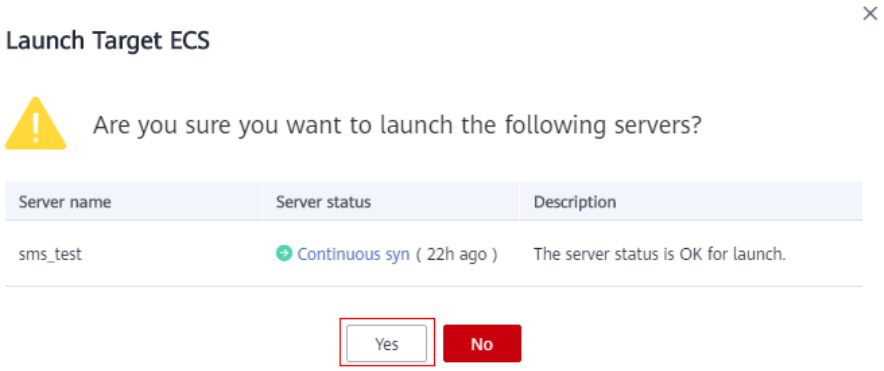
Figure 9-15 Launch Target ECS



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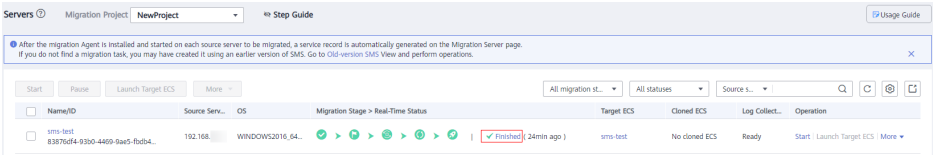
Step 5 In the displayed **Launch Target ECS** dialog box, click **Yes**.

Figure 9-16 Confirmation



Step 6 Check whether the migration status has changed to **Finished**. If it has, the target ECS has been launched and the migration is complete.

Figure 9-17 Completed migration



----End

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10 Change History

Released On	Description
2021-05-10	This issue is the twelfth official release. Released the new version of SMS.
2021-03-09	This issue is the eleventh official release. • Optimized **Preparations Before Migration**. • Optimized **Configuring the Target ECS**.
2021-01-18	This issue is the tenth official release. Added parameter **Adjust Disk Partitions** to **Configuring the Target ECS**.
2020-11-18	This issue is the ninth official release. Added parameter **Continuous Synchronization** to **Configuring the Target ECS**.
2020-07-13	This issue is the eighth official release. Added **SMS Usage Process-Launching the Target ECS**.
2018-09-30	This issue is the first official release.

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