Server Migration Service

FAQs

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1 Question Summary

Product Consultation

- Can I Migrate Physical Servers and VMs from Other Clouds to HUAWEI CLOUD Using SMS?
- Can I Ask HUAWEI CLOUD Technical Support to Help Me Migrate Services?
- How Do I Migrate an ECS from One Account to Another?
- How Do I Migrate an ECS from One Region to Another Using SMS?
- Can I Migrate Workloads to a HECS, DeH, DeC, Kunpeng ECS, or BMS Using SMS?
- Can I Migrate HUAWEI CLOUD ECSs to On-Premises Environments or Other Clouds Using SMS?
- How Do I Create an AK/SK pair for an Account?
- How Do I Create an AK/SK Pair for an IAM User?
- Does SMS Support Resumable Data Transfer?
- How Do I Display the Name of a Target ECS OS on the ECS Console?
- How Do I Create a Target Server that Meets the SMS Requirements?
- Can SMS Migrate Self-built Databases, Big Data Services, or Websites Deployed on a Source Server?

Billing

- How Is SMS Billed?
- FAQs About Account Balance

OS Compatibility and Migration Restrictions

- What OSs Can Be Migrated and What Are the Restrictions on Using SMS?
- How Do I Resolve Error "Inconsistent firmware type. Source: UEFI, Target: BIOS" When I Create a Migration Task?
- How Do I Resolve Error "Incompatible file system of the source server"?
- How Do Resolve Error "Source server lacks driver files"?
- How Do I Resolve Error "VSS not installed on the source server"?

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Migration Duration

- How Do I View the Remaining Migration Time?
- How Long Does a Migration Take?
- How Do I Speed Up Migration?
- Why Does the Migration Speed Fluctuate?
- How Do I Test the Network Between the Source and Target Servers Using iPerf?
- Why Does the Migration Stay in a Stage for a Long Time?

Migration Network

- How Do I Resolve Error "Failed to establish an SSH connection with the target ECS"?
- How Do I Fix Error "Failed to connect to the target ECS. Check whether its IP address is reachable and confirm that port XX is enabled"?
- How Do I Fix a Connection Failure Between the Source Server and API Gateway Due to a Busy Network?
- How Do I Restore the Connection Between the Agent and SMS?
- Why the Migration Progress Is Suspended or Slow?
- How Do I Set Up a Secure Migration Network for Using SMS?
- How Do I Prepare a Target Server in Advance?
- How Do I Configure Security Group Rules for Target Servers?

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- How Do I Install the Agent on Source Servers?
- What Can I Do If I Fail to Download the Agent Installation File?
- Why Is My Target Server Locked During the Migration?
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- How Do I Resolve Error "rsync not installed on the source server" When I Start the Agent Installed on a Linux Source Server?
- Why Does the Agent Not Start the First Time I Launch It?
- How Do I Fix Error "Failed to start the I/O monitoring module" When I Start the Agent?
- How Do I Resolve Error "utf-8 codec can't decode byte 0xce in position0: invalid continuation byte" When I Start the Agent?
- How Do I Resolve Error "Failed to load wmi" During the Agent Startup?
- How Do I Fix Agent Startup Failures Due to Insufficient Space in /tmp on a Linux Source Server?
- How Do I Resolve 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?
- How Do I Fix Error "INTERNAL ERROR: cannot create temporary directory!" When I Start the Agent?
- How Do I Fix the Agent Startup Failures Due to Agent Files Write or Read Failures?

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- How Do I Fix Error "Agent startup failed because the noexec permission is not allowed on /tmp for SMS Agent. Please remount /tmp without noexec" When I Start the Linux Agent?

Disks

- Why Was a 40 GB EVS Disk Added to the Target Server During the Migration?
- Why Can't I Attach a System Disk to the Target Server?
- How Do I Resolve Error "Disk info in source server has changed, task fail, please delete the task and then restart the agent"?
- How Do I Resize Partitions and Disks When I Migrate a Windows Source Server?
- How Do I Shrink the Disk Partitions on My Source Server Running Windows?
- How Do I Fix Error "Failed to create snapshot"?
- How Do I Fix Error "Failed to mount partition xxx to directory xxx"?
- How Do I Troubleshoot Failed Migration or Synchronization of a Partition?
- How Do I Fix Error "Failed to read /etc/fstab on the source server"?
- How Do I Resolve Error "Insufficient disks on the Target ECS"?

Migration or Synchronization Failures

- What Can I Do If New Data Is Generated on the Source Server During the Migration?
- How Do I Fix Error "The migration module stops abnormally and cannot synchronize data"?

Target Server Configuration and Startup

- What Are the Differences Between Target and Source Servers After the Migration?
- How Does the Authentication of a Target Server Changes?
- How Do I Activate My Windows Target Server After the Migration?
- Why Is the Used Space of C: Drive on My Windows Target Server Larger than That on the Source Server After the Migration?
- Why Is the File System Size Inconsistent Before and After the Migration?
- Why Can't I See the Data Disks on the Windows Target Server After Migration?
- Why the Start or Launch Target Button Is Unavailable?
- After the Migration Is Complete, Will the Deletion of the Target Server Configuration or This Server Affect the Source or Target Servers?

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2 Product Consultation

2.1 Can I Migrate Physical Servers and VMs from Other Clouds to HUAWEI CLOUD Using SMS?

Yes.

SMS makes it easy to migrate x86 physical or virtual servers in local data centers or on various popular private and public clouds to ECSs and HECSs on HUAWEI CLOUD. SMS can help you migrate servers from Alibaba Cloud, Tencent Cloud, AWS, and Microsoft Azure.

For details about the supported OSs, see **What OSs Can Be Migrated and What Are the Restrictions on Using SMS?**

2.2 Can I Migrate HUAWEI CLOUD ECSs to On-Premises Environments or Other Clouds Using SMS?

SMS does not support the direct migration of HUAWEI CLOUD ECSs to on-premises or other cloud environments. However, you can create images for your ECSs, export the images, and download them to your local servers or transfer them to other clouds. For details, see **Exporting Images**.

2.3 Can I Ask HUAWEI CLOUD Technical Support to Help Me Migrate Services?

We do not directly migrate your services. For how to use SMS to implement migration, see **SMS Documentation**.

If you need professional migration solutions and tools, Cloud Migration Service on HUAWEI CLOUD is available for you. It helps you smoothly migrate services, reduces the time needed for migration, and makes you stay focused on service development.

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2.4 Can I Migrate Workloads to a HECS, DeH, DeC, Kunpeng ECS, or BMS Using SMS?

HECS

Yes. Before the migration, purchase an HECS. For details, see **Buying HECSs**. When you configure the target server, select the HECS that you purchased.

DeH

Yes. Before the migration, purchase a DeH. For details, see **Buying DeHs**. When configuring the target server, select the DeH that you purchased.

Dedicated Cloud

Yes. Before the migration, purchase a DeC. For details, see **Enabling a DeC**. When configuring the target server, select the enabled DeC.

Kunpeng ECS

No. If you want to migrate to a Kunpeng ECS, Kunpeng Porting Expert Service on HUAWEI CLOUD is available for you.

BMS

No

2.5 Does SMS Support Resumable Data Transfer?

Yes. However, the Agent or source server cannot be restarted during Windows migration. This is because the address corresponding to the incremental data is stored in the memory. If the Agent is restarted, incremental synchronization cannot be performed.

2.6 How Do I Migrate an ECS from One Account to Another?

If you need to migrate an ECS under account A to account B, perform the following operations:

1. Install the Agent on the ECS under account A and enter the AK/SK pair of account B when starting the Agent. For how to install the Agent, see **Installing the Windows Agent** or **Installing the Linux Agent**.
2. Log in to the management console using account B, **configure the target server**, **start the replication**, and **launch the target server**.

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2.7 How Do I Migrate an ECS from One Region to Another Using SMS?

If you need to migrate an ECS from one region to another, for example, from **CN South-Guangzhou** to **CN North-Beijing1**, you need to install the Agent on the ECS in **CN South-Guangzhou**. When creating a migration task, select **CN North-Beijing1** as the target region.

NOTE

For details about migration between accounts, see **How Do I Migrate an ECS from One Account to Another?**

2.8 FAQs About Account Balance

Why Do I Ensure that My Account Balance Is No Less than ¥100 CNY When I Use SMS?

SMS is free, but a small amount of fees will be generated for other services used during migration. For details, see **Pricing Details**.

Are Coupons Counted into Balances?

Yes

How Do I Check My Account Balance?

You can log in to the **Billing Center** to view the balance.

What Will Happen If My Account Balance Is Less Than ¥100 CNY?

If your account balance is less than ¥100 CNY, you cannot start the migration, or the migration will fail. You will need to top up your account and try again.

Can the Restriction on Account Balance Be Canceled?

No. It is a prerequisite for migration.

Will My Account Balance Be Used Up During Migration?

Only a small amount of fees are generated for the temporary EVS disks of 40 GB used during each migration. However, if you select to create an ECS during migration or there are other pay-per-use services under your account, your account balance may be used up, and the migration will fail. Pay attention to balance notifications from HUAWEI CLOUD. Check your account balance first in the event of migration failures.

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2.9 Will My Services on the Source Server Be Interrupted During Migration?

No. The migration consumes the source bandwidth, and has little impact on other source resources such as CPU and memory.

Before the migration, you are advised to check the source bandwidth usage and properly allocate bandwidth to the migration process.

2.10 How Do I Create an AK/SK pair for an Account?

Scenarios

An access key comprises an access key ID (AK) and secret access key (SK). It is used as a long-term identity credential to sign your requests for HUAWEI CLOUD APIs. Like a user name and password, you must use both the AK and SK together to authenticate your requests. Manage your access keys as securely as you do your user name and password.

When creating a migration task, you need to enter an AK/SK pair for authentication. If you use an account for migration, you need to create an AK/SK pair for the account.

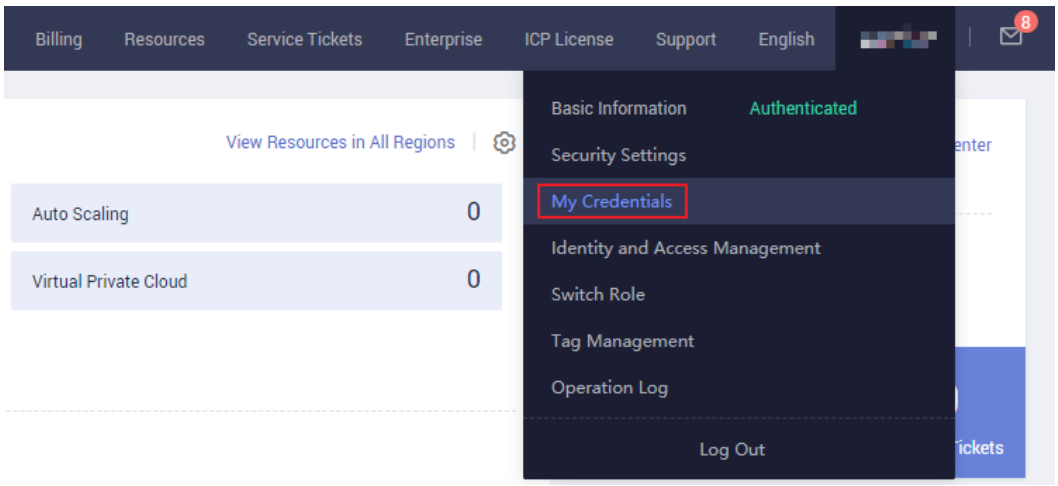
CAUTION

During the migration, do not delete the AK/SK pair, or the migration will fail.

Procedure

Step 1 Log in to the management console.

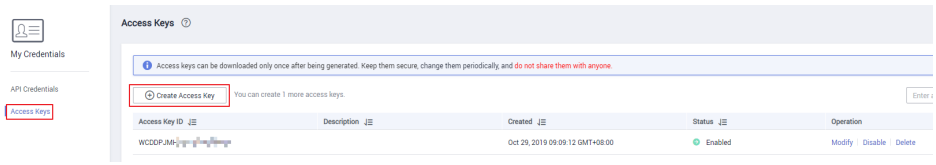
Step 2 Hover over the username in the upper right corner and choose **My Credentials** from the drop-down list.



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Step 3 Choose **Access Keys** from the navigation pane.

Step 4 Click **Create Access Key**, and enter the verification code.



Step 5 Click **OK** to generate and download the access key.

NOTE

Open the CSV file downloaded, or open this file by choosing **Downloads** in the lower left corner of the browser.

----End

2.11 How Do I Create an AK/SK Pair for an IAM User?

Scenarios

When creating a migration task, you need to enter an AK/SK pair for authentication. To safeguard the resources in your account on the cloud service platform, you are advised to create an IAM user in the account, grant permissions to the user, and create an access key for the user.

Procedure

Creating a User Group and Assigning Permissions

1. Log in to the management console.
2. In the upper right corner of the page, click the username and choose **Identify and Access Management**.
3. In the navigation pane on the left, choose **User Groups**.
4. On the **User Groups** page, click **Create User Group**.
5. (Optional) Enter the user group name and description, and click **OK**.

   The user group list is displayed, including the newly created user group.
6. Locate the newly created user group, and click **Manage Permissions** in the **Operation** column.
7. On the **Permissions Assigned** tab page, click **Assign**.
8. Select **Global service project** for **Scope**, and select **SMS FullAccess** and **OBS OperateAccess** for **Permissions**. Click **OK** and return to the **Permissions Assigned** tab page.
9. On the **Permissions Assigned** tab page, click **Assign**.
10. Select **Region-specific projects** for **Scope**, select **ECS FullAccess** and **VPC FullAccess** for **Permissions**, and click **OK**.

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NOTE

When assigning permissions to region-specific projects, you need to select the regions where the authorized projects are located. The authorization takes effect only in the authorized regions. If you want to apply the settings to all regions, select all projects.

Creating a User and Adding the User to the User Group

Create a user and add it to the user group. For details, see **Creating an IAM User**.

Subsequent Operations

If there is something wrong with an access key, for example, it is lost or stolen, or for some other reason will not be used any longer, delete the access key by referring to **Managing Access Keys for an IAM User**.

2.12 How Do I Migrate a Linux Source Server as a Non-root User?

Scenarios

If you must use a non-root user to perform migration, ensure that the user has the required permissions before creating a migration task.

Procedure

Step 1 For a hypothetical user, **test**, check whether the user is included in **/etc/passwd**. If it is not, run the following two commands to add the user and set the password:

If it is, confirm that user **test** has a **/home** directory. If the user does not has a home directory, add one.

```
useradd -m test
passwd test
```

Step 2 Modify the **/etc/sudoers** file.

1. Add the following information to the end of the **/etc/sudoers** file based on the OS version:
   - Debian and Ubuntu
     ```
     test    ALL=(ALL:ALL)    ALL
     test    ALL=(ALL:ALL)    NOPASSWD:ALL
     ```
   - Other distributions:
     ```
     test    ALL=(ALL)    ALL
     test    ALL=(ALL)    NOPASSWD:ALL
     ```
2. If **Defaults requiretty** is in the **/etc/sudoers** file, comment out it.

CAUTION

These modifications to the **sudoers** file grant the user the ability to execute administrator level command without entering a password. After the migration is completed, you need to remove the added lines, or an exception occurs.

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Step 3 After the permissions are configured, switch to a regular account and run the following command to start the Agent:

```
sudo ./startup.sh
```

----End

2.13 What Information Does SMS Collect About Source Servers?

SMS uses the Agent to collect source server details to evaluate the migration feasibility and provide data required for selecting or configuring target servers. **Table 2-1** lists the data collected from a Windows server. **Table 2-2** lists the data collected from a Linux server. All collected data is used for migration only.

Table 2-1 Collected Windows server details

Item	Sub-Item	Usage
Environment information	OS version	Used for migration feasibility check. Only source servers with OSs included in **Table 3-1** can be migrated.
	Firmware type	Used for migration feasibility check. The source server can be booted from BIOS or UEFI.
	CPU	Used for recommending the target server flavor.
	Memory	Used for recommending the target server flavor.
	System directory	Used for configuring the target server. After the migration is complete, it will be used to restore the registry.
	Disk partition style	Used for configuring the target server. Before the migration, the disks of the target server must be formatted to be the same as those of the source server.
	File system	Used for migration feasibility check. Only the NTFS partitions can be migrated.
	Available space	Used for migration feasibility check. If there is not enough space on a source server partition, the migration may fail.
	OEM System Check	Used for migration feasibility check. If the system is an OEM system, the OS needs to be reactivated after the migration.

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Item	Sub-Item	Usage
	Driver files	Used for migration feasibility check. The source server must have basic disk drivers.
	System services	Used for migration feasibility check. Volume Shadow Copy Service (VSS) must be available on the source server.
	User permissions	Used for migration feasibility check. You must have the administrator permissions to run the Agent.
Disk information	• Disk name • Disk partition style • Disk size • Used space	Used for checking whether the disk specifications of the target server meet the migration requirements.

Table 2-2 Collected Linux server details

Item	Sub-Item	Usage
Environment information	OS version	Used for migration feasibility check. Only source servers with OSs included in **Table 3-2** and **Table 3-3** can be migrated.
	CPU	Used for recommending the target server flavor.
	Memory	Used for recommending the target server flavor.
	Paravirtualization	Used for migration feasibility check. SMS does not support migration of paravirtualized source servers.
	Firmware type	Used for migration feasibility check. The source server can be booted from BIOS or UEFI.
	Boot mode	Used for migration feasibility check. The source server must be booted from BIOS.
	Rsync	Used for evaluating synchronization feasibility. The SMS synchronization function depends on the Rsync component on the source server.

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Item	Sub-Item	Usage
	Raw device	Used for migration feasibility check. The source servers to be migrated cannot contain raw devices.
	Disk partition	Used for migration feasibility check. The disk type of the source server must be Main Boot Record (MBR) or GUID Partition Table (GPT).
	Disk partition style	Used for configuring the target server. Before the migration, the disks of the target server must be formatted to be the same as those of the source server.
	File system	Used for migration feasibility check. The file systems on the source server must be Ext2, Ext3, Ext4, VFAT, XFS, or Btrfs.
Disk information	• Disk name • Disk partition style • Disk size • Used space	Used for checking whether the disk specifications of the target server meet the requirements.

2.14 How Do I Select a Target ECS?

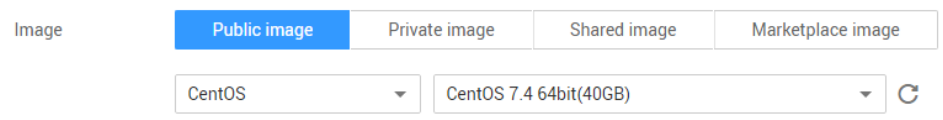
NOTE

Currently, the source servers can be migrated to pay-per-use or yearly/monthly ECSs. You can select whichever billing mode that best suits your needs.

A target ECS must meet the following requirements. If the requirements are not met, you are required to create a target ECS. For details, see "How Do I Create an ECS?" in *Elastic Cloud Server User Guide*.

- A target ECS running Windows must have at least 2 GB of memory.
- A target ECS must have at least as many disks as the source server, and the size of each disk on the target ECS must be at least as large as the corresponding source server disk.
- A target ECS must run the same type of OS as the source server.

Figure 2-1 Types of images for purchasing an ECS



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2.15 How Do I Create an ECS?

Scenarios

Source servers can be migrated to the ECSs on HUAWEI CLOUD. You need to create one or more ECSs on HUAWEI CLOUD before the migration.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Compute** > **Elastic Cloud Server**.

The **Elastic Cloud Server** page is displayed.

Step 4 Click **Buy ECS** and configure basic parameters on the displayed page.

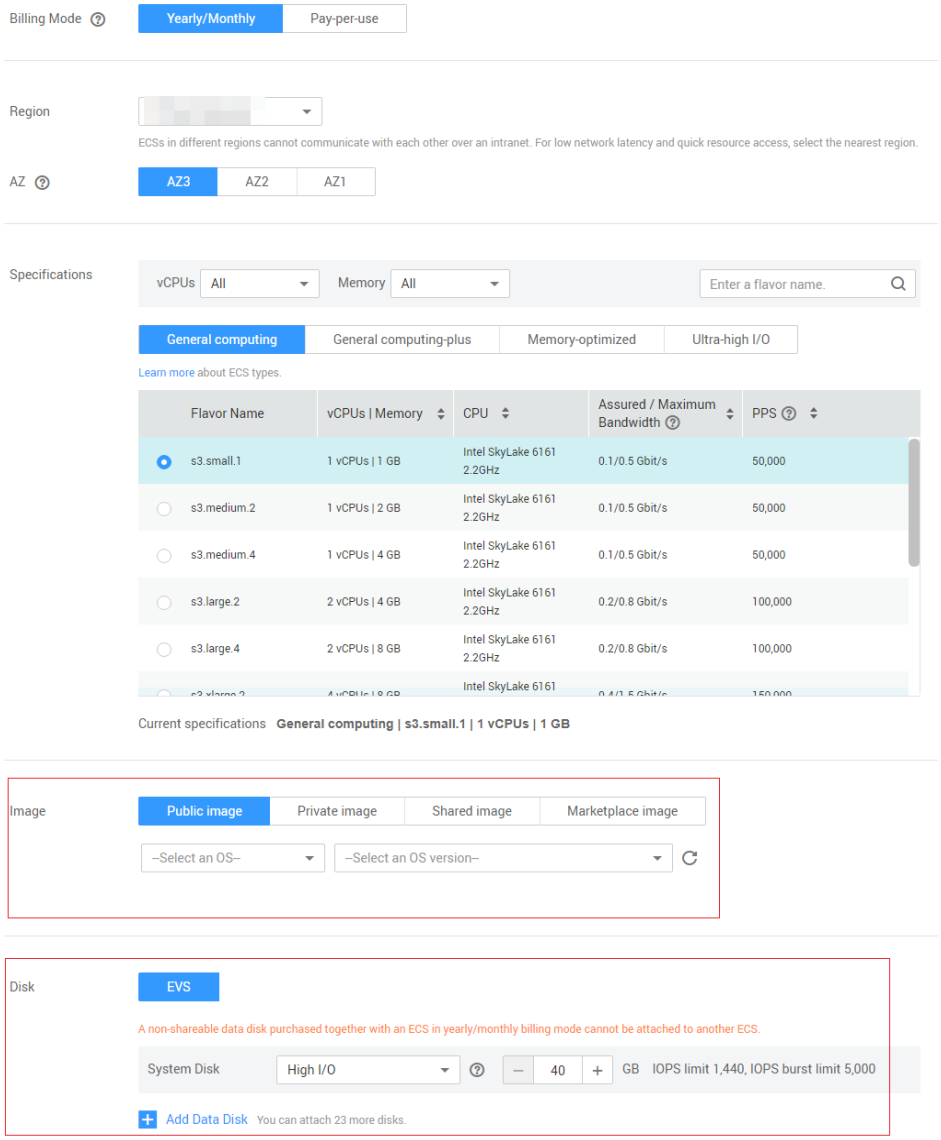
For more information, see **Purchasing an ECS with Customized Configurations**.

NOTE

- A target server running Windows must have at least 2 GB of memory.
- A target server must run the same type of OS as the source server.
- A target server must have at least as many disks as the source server, and the size of each disk must be at least as large as its paired source disk.

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Figure 2-2 Purchasing an ECS



Step 5 Click **Next**.

After the ECS is purchased, it will be displayed in the ECS list.

----End

2.16 What Is the Block-Level Migration?

What Is a Block?

In block-level migrations, a block refers to a disk block. A disk block is the minimum logical unit of the file system for managing disk partitions. Disk blocks are similar to clusters in Windows. A block is also the minimum logic unit of disks used by OSs and software. The smallest unit for disk read or write is a sector. A sector is a physical area on the disk. The read and write operations to disk blocks are performed in sectors. Generally, a file is stored in several blocks, and one block maps to several physical sectors.

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What Is the Block-Level Migration?

In block-level migrations, file systems are migrated by blocks. If the network is interrupted during the migration, only impacted blocks need to be migrated again after the network is recovered. If files are modified during the migration, only modified blocks need to be synchronized after the migration.

In file-level migrations, various tools like TAR and SSH or other transmission protocols are used for remote replication. If a file is changed during decompression or the network is interrupted during migration, the migration will fail. In addition, if a file is changed during incremental data synchronization, the file needs to be synchronized again. In this case, all the blocks of the file must be synchronized. So, the synchronization efficiency is low.

2.17 What are Valid Data Blocks?

Valid data blocks are **blocks** that are allocated or used by a file system, for example, Ext. SMS migrates only valid data blocks. For data blocks that are not allocated or used and can be allocated by the system, SMS does not migrate them during migration. Therefore, the data volume to be migrated is reduced, and migration efficiency is improved.

2.18 How Does Migration Using SMS Differ from Migration Using IMS?

Migration Using SMS

SMS helps you migrate applications and data from x86 physical or virtual servers on premises or in other private or public clouds to ECSs on HUAWEI CLOUD.

Advantages

- Ease of use

  You only need to install and configure the Agent on a source server. You can then configure the target server and start the migration on the SMS console. SMS takes care of the remaining work automatically.

- Seamless migration

  Your services do not have to go down during the migration. If the network is interrupted during migration, SMS allows you to restart the migration and continue transferring data from where it left off.

- High security

  SMS authenticates the Agent using an AK/SK pair. SMS uses a dynamically generated SSL certificate and key pair to encrypt the transmission channel for data security.

Constraints

For details, see **What OSs Can Be Migrated and What Are the Restrictions on Using SMS?**

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Migration Using IMS

If you want to migrate a server using IMS, you need to complete the initial network and driver (Xen or KVM) configurations on the server, create an image of the server, import the image to the IMS console, and use the image to create an ECS.

Advantages

- IMS enables you to import local images to the cloud platform and use the images to quickly create cloud servers for service migration to the cloud. A variety of image types can be imported, including VHD, VMDK, QCOW2, and RAW.
  - Image files in VHD, VMDK, QCOW2, RAW, VHDX, QCOW, VDI, QED, ZVHD, or ZVHD2 format can be imported to the cloud platform. Image files in other formats need to be converted before being imported. The open-source tool qemu-img is provided for you to convert image file formats.
  - Many popular OSs, such as SUSE, Oracle Linux, Red Hat, Ubuntu, openSUSE, CentOS, Debian, Fedora, and EulerOS are compatible.
- IMS allows you to share or replicate images across regions to migrate ECSs between accounts and regions.
- IMS enables you to create system and data disk images and reuse these images on the cloud platform for batch deployment.

Constraints

Local storage space is occupied and only image files no larger than 1 TB can be used.

2.19 Why Is the OS Name of the Target ECS Displayed on the ECS Console Different from That of the Source Server?

It is the name of the image used for creating the ECS rather than the ECS OS that is displayed on the ECS console.

Figure 2-3 Image name



- If you use an existing ECS as the target server, the name of the image used to create the ECS is displayed on the ECS console.
- If you choose to automatically create an ECS as the target server, the name of the public image selected by SMS for the ECS is displayed on the ECS console.

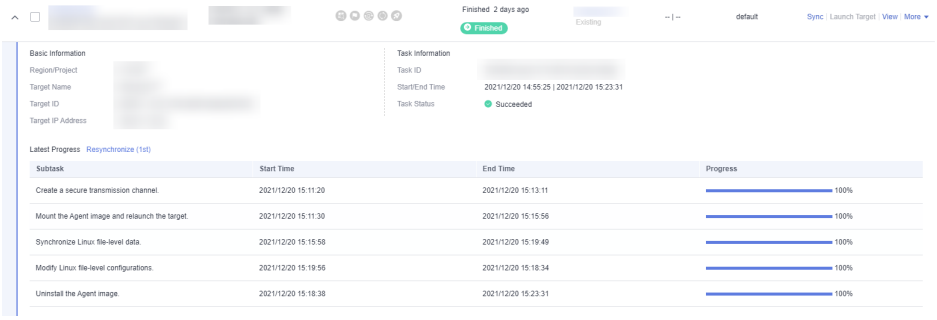
Copyright © Huawei Technologies Co., Ltd.

NOTICE

To display the same OS name as the source server on the ECS console, create an ECS using an image whose name is the same as the source server OS and use this ECS as the target server.

2.20 How Do I Determine Whether a Migration Is Complete?

A migration in the **Finished** status is complete.



2.21 Can I Migrate Only Some Services on the Source Server?

No. SMS only supports whole server migration. If you want to migrate only the databases on source servers, **Data Replication Service (DRS)** can help you.

2.22 Can the Target Server Run a Different Type of OS from the Source Server?

The OS types of target and source servers must be the same, but the OS versions can be different.

For example, if the source server runs Windows Server 2008, the target server can run Windows Server 2012; if the source server runs Ubuntu, the target server can run CentOS.

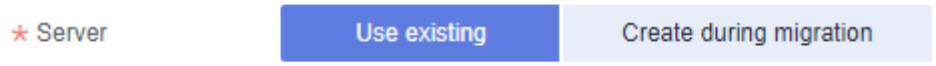
2.23 What Determines the Specifications of a Target Server?

The specifications of a target server are determined by the option you select when you preset the target server.

- Use existing

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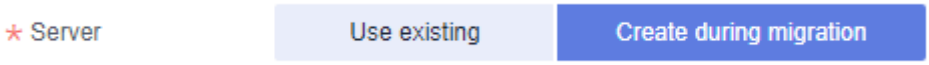
Figure 2-4 Use existing



If you select this option, the target server has the same specifications as the existing server that you choose.

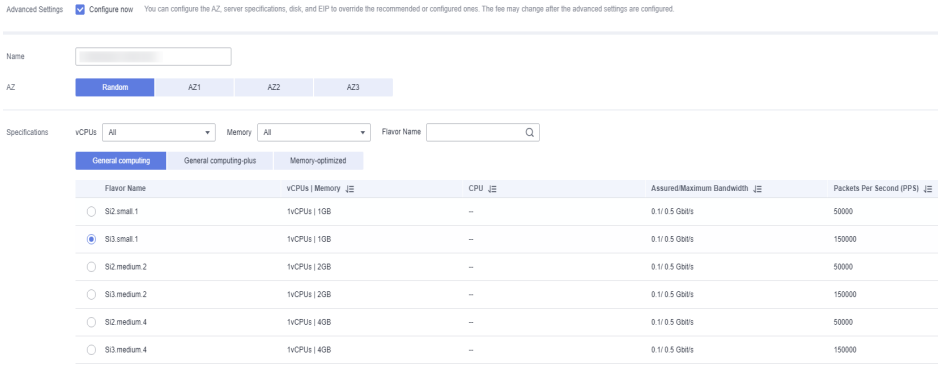
- Create new

Figure 2-5 Create new



If you select this option, the target server has the specifications that you set in the **Advanced Settings** area.

Figure 2-6 Configuring target server specifications

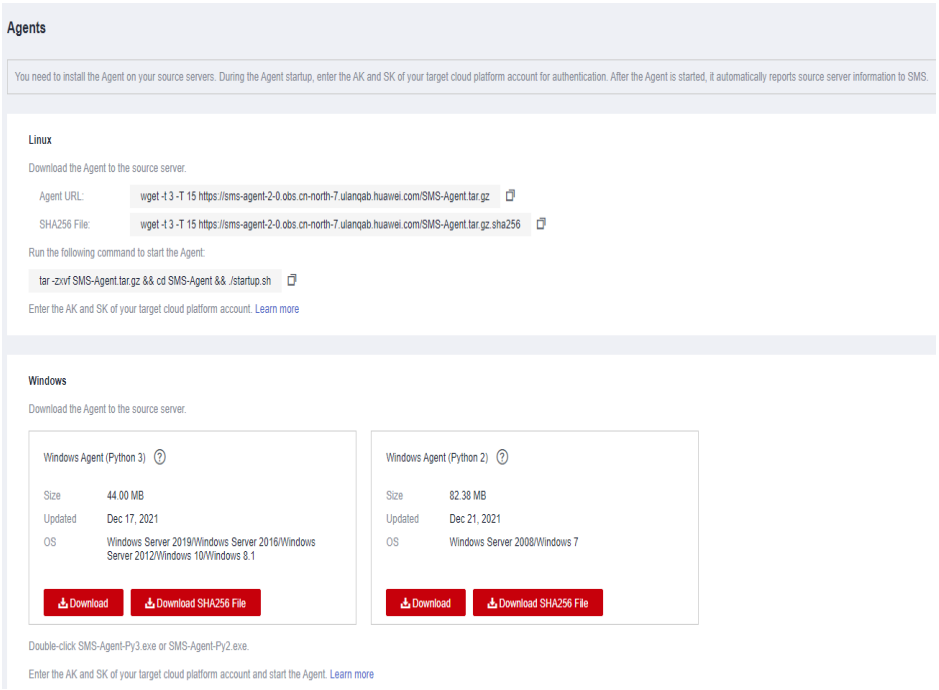


2.24 Which Download Option Should I Choose When I Download the Windows Agent?

After you log in to the SMS console, and click **Agents** on the left navigation pane, you can see two download options in each Windows Agent pane.

- **Download**: Download the Agent installation package.
- **Download SHA256**: Download the hash value of the Agent installation package, which is used to verify the integrity of the downloaded package.

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2.25 Can I Migrate a Source Server If There Is No Corresponding Image Available on HUAWEI CLOUD?

Yes. Before the migration, check whether the source server OS is supported by SMS. For details, see **What OSs Can Be Migrated and What Are the Restrictions on Using SMS?**

2.26 How Does SMS Differ from IMS in the Migration Scenario?

This following describes the differences between SMS and IMS in terms of application scenario, migration process, and service continuity.

Application Scenario

- IMS is used to migrate on-premises servers to the cloud. IMS enables you to create images for source servers and use the images for migration. The common application scenarios are: deploying a specified software environment, batch deploying software environments, and backing up server running environments. For details, see **IMS Application Scenarios**.
- SMS is used to migrate x86 physical servers or VMs on premises or in private or public clouds to HUAWEI CLOUD. For details, see **What Is SMS?**

Migration Process

- If you use IMS for migration, you need to create images for source servers and then use the images to create target servers. For details, see **Creating a Private Image**.

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- If you use SMS for migration, you need to install and start the Agent on each source server and start the migration. For details, see **How Do I Install the Migration Agent on Source Servers?**

Service Continuity

- If you use IMS for migration, your services need to be stopped for long time for image creation.
- If you use SMS for migration, your services do not have to go down during the migration. You only need to pause services briefly for service cutover before the final synchronization. After the final synchronization is complete, you can start services on the target server. SMS ensures minimal downtime.

  NOTE

  Service cutover refers to switching services from the source to the target.

2.27 How Do I Display the Name of a Target ECS OS on the ECS Console?

Symptom

You see that on the ECS console, the OS name displayed on the ECS console is in consistent with that of the OS running on your target ECS.

NOTE

This is normal due to the restriction of the ECS console mechanism.

Possible Causes

The ECS console displays the image name rather than the OS name of an ECS. The two names may be different. When you preset the target server:

- If you choose to automatically create an ECS as the target server, the image name of the new ECS will be displayed on the ECS console, such as **LinuxServer** or **WindowsServer**.
- If you choose to use an existing ECS as the target server, the image name of the existing ECS is displayed on the ECS console.

Solution

The procedure is as follows:

Step 1 Download a clean image file based on the source server OS.

- **Windows**
- **Linux**

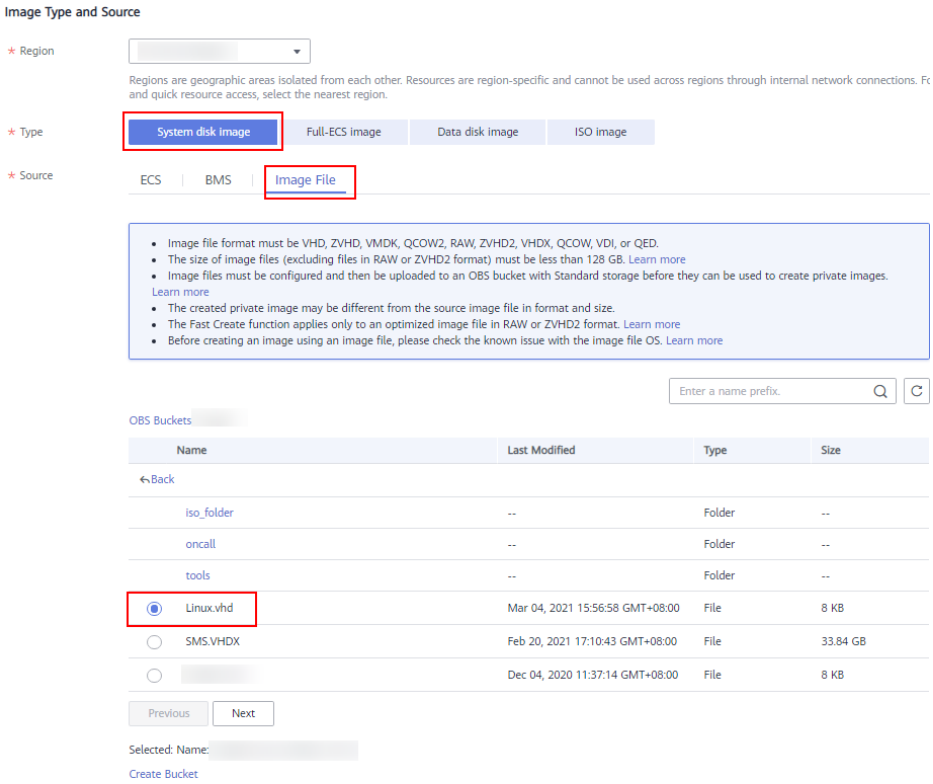
Step 2 Upload the image file to an OBS bucket.

Step 3 Use the image file to create a private image.

a. Select **Image File** for **Source** and select the uploaded image file.

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Figure 2-7 Selecting an image file



b. Select **ECS system disk image** for **Function** and **x86** for **Architecture**. Set **Boot Mode** to the actual boot mode of the source server.

You can see the boot mode of the source server on the SMS console. For more details, see **Checking the Firmware Type of a Source Server**.

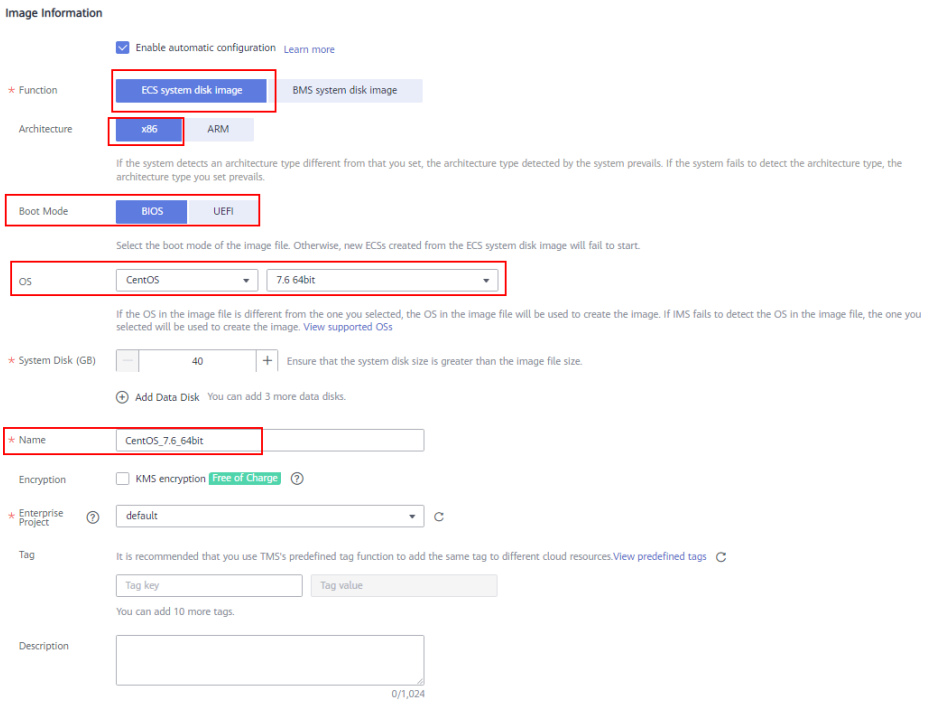
c. Set **OS** to the source server OS. If the source server OS is not an available option, select **Other** from the drop-down list.

d. The system disks of the source and target servers must have the same size. If the source system disk is smaller than 40 GB, select 40 GB for **System Disk**.

e. Set **Name** to the source server OS. The name you specified here will be displayed on the ECS console.

f. Select an enterprise project for the target ECS. If no other enterprise projects are available, select **Default**.

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Step 4 Click **Next**. On the **Details** page, confirm the configurations, read and agree to the *Statement of Commitment to Image Creation* and *Image Disclaimer*, and click **Submit**. Wait until the image is created.

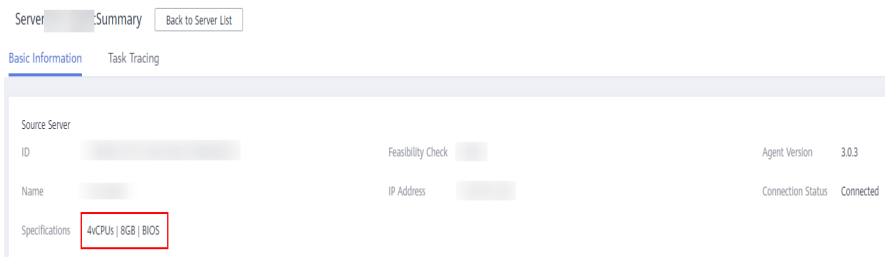
Step 5 If you have an ECS suitable as the target server, use this image to change the OS of the ECS. If you have no ECS suitable as the target server, use this image to create one.

Step 6 When configuring the target server on the SMS console, select the one you prepared above. For more details, see **Configuring the Target Server**.

----End

Checking the Firmware Type of a Source Server

After the Agent is installed and started on the source server, click the source server name on the Servers page of the SMS console. On the **Basic Information** tab page, in the **Source Server** area, you can view the firmware type of the source server.



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2.28 What Are the Snapshots of a Target Server Used for?

SMS creates the following types of snapshots for each target server disk:

- Cutover snapshots: After a migration is complete, SMS creates a snapshot for each target server disk before the service cutover. These snapshots are used for rollback if any service faults happen. Old snapshots are deleted and new snapshots are created automatically whenever the target server is launched again.

  NOTE

  It is recommended that these snapshots are deleted after your services are stable on the target server.

- Synchronization snapshots: For a Windows server migration or Linux block-level migration, after the source data is migrated and synchronized and before the target server is launched, SMS creates a snapshot for each target server disk to ensure data consistency between the source and target.
- Clone snapshots: When you clone the target server, SMS creates a snapshot for each target server disk. These snapshots are used to clone the target server and put the migration status back to continuous synchronization after the clone is complete.

2.29 How Do I Exclude Specific Directories from a Linux File-Level Migration?

You can go to the directory where the Agent is installed on the source server, open the **/SMS-Agent/agent/config/g-property.cfg** file, and append the absolute paths that you do not want to migrate to the end of the values of **rsync.exclude.dir** and **tar.exclude.dir**.

```
[root@a-sms-test config]# pwd
/root/SMS-Agent/agent/config
[root@a-sms-test config]# ls
auth.cfg                commands.xml  ErrorCode.ini   init.cfg         srcAgent.ini
blocktransferlayer.cfg  disk.cfg      g-property.cfg  sms_ssh_rsa      taskInfo
cloud-region.json       error.cfg     huaweiapi.pem   sms_ssh_rsa.pub
```

```
20 [linux.config]
21 linux.support.filesystem = ext2,ext3,ext4,xfs,vfat,reiserfs,btrfs
22 linux.unsupport.filesystem =
23 tar.exclude.dir = /proc/*,/sys/*,/lost+found/*,/var/lib/ntp/proc/*
24 tar.interval = 30
25 rsync.exclude.dir = /proc/*,/sys/*,/lost+found/*,/var/lib/ntp/proc/*,/boot/*,/boot/efi/*,/etc/fstab,/etc/*,/etc/X11/*,/root/initrd_bak/*,lib/modules/*,/boot/grub2/x86_64-efi/*,/boot/grub2/i386-pc/*
26 rsync.interval = 30
```

CAUTION

Do not delete the original values of **rsync.exclude.dir** and **tar.exclude.dir**.

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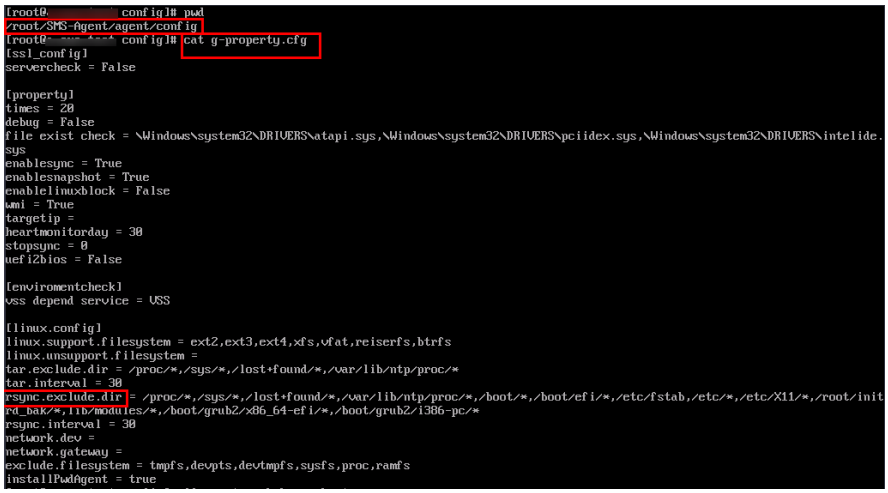
2.30 Will an Incremental Synchronization Overwrite the Existing Data on a Launched Target Server?

After a target server is launched when the migration is complete, new data will be written to target server disks as the services run. If you perform an incremental synchronization, the existing data on the target server disks will be overwritten by the data in corresponding directories on the source server, except for directories excluded by the **rsync.exclude.dir** parameter in the **/SMS-Agent/agent/config/g-property.cfg** file and the partitions that are not migrated.

Back up data on the target server before performing incremental synchronizations.

CAUTION

You are not advised to delete the original value of **rsync.exclude.dir**.



2.31 How Do I Create a Target Server that Meets the SMS Requirements?

When you use SMS to migrate a server, you need to prepare a target server on HUAWEI CLOUD to receive data from your source server.

SMS supports migration to ECSs, HECSs, DeHs, and DeCs.

Target Server Environment Requirements

1. A target server must run the same type of OS as the source server. For details, see **Can the Target Server Run a Different Type of OS from the Source Server?** Otherwise, there will be a server name conflict or other problems.
2. A target server running Windows must have at least 2 GB of memory.
3. A target server must use the same type of firmware as the source server. Otherwise, the system will prompt that the firmware type of the target server

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is different from that of the source server, or the firmware type of the source server is unknown. For details about how to check the firmware type, see **How to Check the Firmware Type of a Source Server**.

4. **Target Server Disk Requirements**
   - A target server must have at least as many disks as the source server. Otherwise, error "Insufficient disks on the Target Server" will be reported. In such a case, see **How Do I Resolve Error "Insufficient disks on the Target ECS"?**
   - The size of each target server disk must be at least as large as the corresponding source server disk, or the migration cannot continue.

     In such a case, see **How Do I Resolve Error "Some disks on the target server are smaller than those on the source server. Select another target server" When I Configure the Target Server?**
5. The required ports are enabled in a security group to which the target server belongs.
   - Windows: TCP ports 8899, 8900, and 22
   - Linux: TCP port 22 for file-level migration, and ports 8900 and 22 for block-level migration

> **CAUTION**
>
> - It is recommended that the required ports be opened only to the source server.
> - Open the required ports on the target server firewall.

How to Create a Target Server

Method 1: Create a target server before the migration

Create an **ECS**, **HECS**, **DeH**, or **DeC** that meets the requirements in advance.

When you configure the target server on the SMS console, set **Server** to **Use existing** and select the server you created.

Method 2: Create a target server during the migration

When you configure the target server on the SMS console, set **Server** to **Create during migration**.

For details, see step 7 in **Configuring the Target Server**.

2.32 Can SMS Migrate Self-built Databases, Big Data Services, or Websites Deployed on a Source Server?

SMS migrates entire servers. All self-built services deployed on source servers, such as databases, big data services, and websites, can be migrated.

After the migration is complete, you need to pause these services but do not stop the source server before performing the final service cutover. Otherwise, the target

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server may take a long time to launch, data is inconsistent between the source and target servers, or the services cannot be started on the target server.

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3 OS Compatibility and Migration Restrictions

3.1 What OSs Can Be Migrated and What Are the Restrictions on Using SMS?

For details about the source server OSs supported by SMS, see **Supported Windows OSs**, **Table 3-2** and **Table 3-3**.

If you need to migrate a source server that runs an OS not supported by SMS, use any of the following methods:

- Use IMS to create an image for the source system disk from an external image file and use the image to create a server on HUAWEI CLOUD. For details, see **Creating a Windows System Disk Image from an External Image File** or **Creating a Linux System Disk Image from an External Image File**.
- Use a public image on IMS to create a target server and deploy your applications on the target server.
- Use the Cloud Migration Service on HUAWEI CLOUD.

The following tables list the OSs supported by SMS.

Table 3-1 Supported Windows OSs

OS	Bit	UEFI	Remarks
Windows Server 2008	64	No	Windows Server 2008 and Windows Server 2008 R2 fail to boot in UEFI mode.
Windows Server 2008 R2	64	No	
Windows Server 2012	64	Yes	N/A

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OS	Bit	UEFI	Remarks
Windows Server 2012 R2	64	Yes	
Windows Server 2016	64	Yes	
Windows Server 2019	64	Yes	
Windows 7	64	No	
Windows 8.1	64	No	
Windows 10	64	Yes	

Table 3-2 Linux OSs supported by file-level migration

OS	Version	Bit	UEFI	Remarks
Red Hat	Red Hat Enterprise Linux 6.0 (Only KVM servers are supported.)	64	No	None
	Red Hat Enterprise Linux 6.1	64	No	
	Red Hat Enterprise Linux 6.2	64	No	
	Red Hat Enterprise Linux 6.3	64	No	
	Red Hat Enterprise Linux 6.4	64	No	
	Red Hat Enterprise Linux 6.5	64	No	
	Red Hat Enterprise Linux 6.6	64	No	
	Red Hat Enterprise Linux 6.7	64	No	
	Red Hat Enterprise Linux 6.8	64	No	
	Red Hat Enterprise Linux 6.9	64	No	
	Red Hat Enterprise Linux 6.10	64	No	
	Red Hat Enterprise Linux 7.0	64	No	
	Red Hat Enterprise Linux 7.1	64	Yes	
	Red Hat Enterprise Linux 7.2	64	Yes	
	Red Hat Enterprise Linux 7.3	64	Yes	
	Red Hat Enterprise Linux 7.4	64	Yes	
	Red Hat Enterprise Linux 7.5	64	Yes	

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OS	Version	Bit	UEFI	Remarks
	Red Hat Enterprise Linux 7.6	64	Yes	
	Red Hat Enterprise Linux 7.7	64	Yes	
	Red Hat Enterprise Linux 7.8	64	Yes	
	Red Hat Enterprise Linux 7.9	64	Yes	
	Red Hat Enterprise Linux 8.0	64	Yes	
	Red Hat Enterprise Linux 8.1	64	Yes	
	Red Hat Enterprise Linux 8.2	64	Yes	
	Red Hat Enterprise Linux 8.3	64	Yes	
	Red Hat Enterprise Linux 8.4	64	Yes	
	Red Hat Enterprise Linux 8.5	64	Yes	
CentOS	CentOS 6.0 (Only KVM servers are supported.)	64	No	None
	CentOS 6.1	64	No	
	CentOS 6.2	64	No	
	CentOS 6.3	64	No	
	CentOS 6.4	64	No	
	CentOS 6.5	64	No	
	CentOS 6.6	64	No	
	CentOS 6.7	64	No	
	CentOS 6.8	64	No	
	CentOS 6.9	64	No	
	CentOS 6.10	64	No	
	CentOS 7.0	64	No	
	CentOS 7.1	64	Yes	
	CentOS 7.2	64	Yes	
	CentOS 7.3	64	Yes	
	CentOS 7.4	64	Yes	
	CentOS 7.5	64	Yes	
	CentOS 7.6	64	Yes	
	CentOS 7.7	64	Yes	

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OS	Version	Bit	UEFI	Remarks
	CentOS 7.8	64	Yes	
	CentOS 7.9	64	Yes	
	CentOS 8.0	64	Yes	
	CentOS 8.1	64	Yes	
	CentOS 8.2	64	Yes	
	CentOS 8.3	64	Yes	
	CentOS 8.4	64	Yes	
	CentOS 8.5	64	Yes	
	CentOS Stream 8	64	Yes	This release will be identified as CentOS 8.0, which does not affect the migration.
	CentOS Stream 9	64	Yes	This release will be identified as CentOS 9.0, which does not affect the migration.
Oracle	Oracle Linux 6.0	64	No	None
	Oracle Linux 6.1	64	No	
	Oracle Linux 6.2	64	No	
	Oracle Linux 6.3	64	No	
	Oracle Linux 6.4	64	No	
	Oracle Linux 6.5	64	No	
	Oracle Linux 6.6	64	No	
	Oracle Linux 6.7	64	No	
	Oracle Linux 6.8	64	No	
	Oracle Linux 6.9	64	No	
	Oracle Linux 6.10	64	No	
	Oracle Linux 7.0	64	No	
	Oracle Linux 7.1	64	Yes	

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OS	Version	Bit	UEFI	Remarks
	Oracle Linux 7.2	64	Yes	
	Oracle Linux 7.3	64	Yes	
	Oracle Linux 7.4	64	Yes	
	Oracle Linux 7.5	64	Yes	
	Oracle Linux 7.6	64	Yes	
	Oracle Linux 7.7	64	Yes	
	Oracle Linux 7.8	64	Yes	
	Oracle Linux 7.9	64	Yes	
	Oracle Linux 8.0	64	Yes	
	Oracle Linux 8.1	64	Yes	
	Oracle Linux 8.2	64	Yes	
	Oracle Linux 8.3	64	Yes	
	Oracle Linux 8.4	64	Yes	
	Oracle Linux 8.5	64	Yes	
SUSE	SUSE Linux Enterprise Server 11 SP3	64	No	None
	SUSE Linux Enterprise Server 11 SP4	64	Yes	
	SUSE Linux Enterprise Server 12 SP0	64	Yes	Btrfs file systems on servers running this release cannot be migrated.
	SUSE Linux Enterprise Server 12 SP1	64	Yes	None
	SUSE Linux Enterprise Server 12 SP2	64	Yes	
	SUSE Linux Enterprise Server 12 SP3	64	Yes	
	SUSE Linux Enterprise Server 12 SP4	64	Yes	
	SUSE Linux Enterprise Server 12 SP5	64	Yes	

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OS	Version	Bit	UEFI	Remarks
	SUSE Linux Enterprise Server 15 SP0	64	Yes	
	SUSE Linux Enterprise Server 15 SP1	64	Yes	
	SUSE Linux Enterprise Server 15 SP2	64	Yes	
	SUSE Linux Enterprise Server 15 SP3	64	Yes	
Ubuntu	Ubuntu Server 12.04	64	No	None
	Ubuntu Server 14.04	64	Yes	
	Ubuntu Server 16.04	64	Yes	
	Ubuntu Server 18.04	64	Yes	
	Ubuntu Server 19.04	64	Yes	
	Ubuntu Server 20.04	64	Yes	
Debian	Debian GNU/Linux 6.0.10	64	No	None
	Debian GNU/Linux 7.11.0	64	No	
	Debian GNU/Linux 8.0.0	64	NO	
	Debian GNU/Linux 8.1.0	64	No	
	Debian GNU/Linux 8.2.0	64	No	
	Debian GNU/Linux 8.3.0	64	No	
	Debian GNU/Linux 8.4.0	64	No	
	Debian GNU/Linux 8.5.0	64	No	
	Debian GNU/Linux 8.6.0	64	No	
	Debian GNU/Linux 8.7.0	64	No	
	Debian GNU/Linux 8.8.0	64	No	
	Debian GNU/Linux 8.9.0	64	NO	
	Debian GNU/Linux 8.10.0	64	NO	
	Debian GNU/Linux 8.11.0	64	No	
	Debian GNU/Linux 9.0.0	64	No	
	Debian GNU/Linux 9.1.0	64	NO	
	Debian GNU/Linux 9.2.0	64	No	
	Debian GNU/Linux 9.3.0	64	No	

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OS	Version	Bit	UEFI	Remarks
	Debian GNU/Linux 9.4.0	64	No	
	Debian GNU/Linux 9.5.0	64	No	
	Debian GNU/Linux 9.6.0	64	No	
	Debian GNU/Linux 9.7.0	64	No	
	Debian GNU/Linux 9.8.0	64	No	
	Debian GNU/Linux 9.9.0	64	No	
	Debian GNU/Linux 9.10.0	64	NO	
	Debian GNU/Linux 9.11.0	64	NO	
	Debian GNU/Linux 9.12.0	64	NO	
	Debian GNU/Linux 9.13.0	64	NO	
	Debian GNU/Linux 10.0.0	64	Yes	
	Debian GNU/Linux 10.1.0	64	Yes	
	Debian GNU/Linux 10.2.0	64	Yes	
	Debian GNU/Linux 10.3.0	64	Yes	
	Debian GNU/Linux 10.4.0	64	Yes	
	Debian GNU/Linux 10.5.0	64	Yes	
	Debian GNU/Linux 10.6.0	64	Yes	
	Debian GNU/Linux 10.7.0	64	Yes	
	Debian GNU/Linux 10.8.0	64	Yes	
	Debian GNU/Linux 10.9.0	64	Yes	
	Debian GNU/Linux 10.10.0	64	Yes	
	Debian GNU/Linux 10.11.0	64	Yes	
	Debian GNU/Linux 10.12.0	64	Yes	
	Debian GNU/Linux 11.0.0	64	Yes	
	Debian GNU/Linux 11.1.0	64	Yes	
	Debian GNU/Linux 11.2.0	64	Yes	
EulerOS	EulerOS 2.2.0	64	No	None
	EulerOS 2.3.0	64	No	
	EulerOS 2.5.0	64	No	
Amazon Linux	Amazon Linux 2.0	64	No	None

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OS	Version	Bit	UEFI	Remarks
	Amazon Linux 2018.3	64	No	
Alibaba Cloud Linux	Alibaba Cloud Linux 3.2104	64	N/A	None
	Alibaba Cloud Linux 3.2104 (Quick Start)	64	N/A	
	Alibaba Cloud Linux 2.1903 LTS	64	N/A	
	Alibaba Cloud Linux 2.1903 LTS (Quick Start)	64	N/A	
	Alibaba Cloud Linux 2.1903 LTS (CCSP 2.0 Level 3)	64	N/A	
TencentOS	TencentOS Server 2.4	64	N/A	None
	TencentOS Server 2.4 (TK4)	64	N/A	
	TencentOS Server 3.1 (TK4)	64	N/A	

Table 3-3 Linux OS kernel versions supported by block-level migration

OS	Kernel Version
CentOS	2.6.32-131.0.15.el6.x86_64 2.6.32-220.13.1.el6.x86_64 2.6.32-220.17.1.el6.x86_64 2.6.32-220.2.1.el6.x86_64 2.6.32-220.23.1.el6.x86_64 2.6.32-220.4.1.el6.x86_64 2.6.32-220.4.2.el6.x86_64 2.6.32-220.7.1.el6.x86_64 2.6.32-220.el6.x86_64
	2.6.32-279.11.1.el6.x86_64 2.6.32-279.1.1.el6.x86_64 2.6.32-279.14.1.el6.x86_64 2.6.32-279.19.1.el6.x86_64 2.6.32-279.2.1.el6.x86_64 2.6.32-279.22.1.el6.x86_64 2.6.32-279.5.1.el6.x86_64 2.6.32-279.5.2.el6.x86_64 2.6.32-279.9.1.el6.x86_64 2.6.32-279.el6.x86_64

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OS	Kernel Version
	2.6.32-358.0.1.el6.x86_64 2.6.32-358.11.1.el6.x86_64 2.6.32-358.14.1.el6.x86_64 2.6.32-358.18.1.el6.x86_64 2.6.32-358.2.1.el6.x86_64 2.6.32-358.23.2.el6.x86_64 2.6.32-358.6.1.el6.x86_64 2.6.32-358.6.2.el6.x86_64 2.6.32-358.el6.x86_64
	2.6.32-431.11.2.el6.x86_64 2.6.32-431.1.2.0.1.el6.x86_64 2.6.32-431.17.1.el6.x86_64 2.6.32-431.20.3.el6.x86_64 2.6.32-431.20.5.el6.x86_64 2.6.32-431.23.3.el6.x86_64 2.6.32-431.29.2.el6.x86_64 2.6.32-431.3.1.el6.x86_64 2.6.32-431.5.1.el6.x86_64 2.6.32-431.el6.x86_64
	2.6.32-504.12.2.el6.x86_64 2.6.32-504.1.3.el6.x86_64 2.6.32-504.16.2.el6.x86_64 2.6.32-504.23.4.el6.x86_64 2.6.32-504.30.3.el6.x86_64 2.6.32-504.3.3.el6.x86_64 2.6.32-504.8.1.el6.x86_64 2.6.32-504.el6.x86_64
	2.6.32-573.1.1.el6.x86_64 2.6.32-573.12.1.el6.x86_64 2.6.32-573.18.1.el6.x86_64 2.6.32-573.22.1.el6.x86_64 2.6.32-573.26.1.el6.x86_64 2.6.32-573.3.1.el6.x86_64 2.6.32-573.7.1.el6.x86_64 2.6.32-573.8.1.el6.x86_64 2.6.32-573.el6.x86_64

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OS	Kernel Version
	2.6.32-642.11.1.el6.x86_64 2.6.32-642.1.1.el6.x86_64 2.6.32-642.13.1.el6.x86_64 2.6.32-642.13.2.el6.x86_64 2.6.32-642.15.1.el6.x86_64 2.6.32-642.3.1.el6.x86_64 2.6.32-642.4.2.el6.x86_64 2.6.32-642.6.1.el6.x86_64 2.6.32-642.6.2.el6.x86_64 2.6.32-642.el6.x86_64
	2.6.32-696.10.1.el6.x86_64 2.6.32-696.10.2.el6.x86_64 2.6.32-696.10.3.el6.x86_64 2.6.32-696.1.1.el6.x86_64 2.6.32-696.13.2.el6.x86_64 2.6.32-696.16.1.el6.x86_64 2.6.32-696.18.7.el6.x86_64 2.6.32-696.20.1.el6.x86_64 2.6.32-696.23.1.el6.x86_64 2.6.32-696.28.1.el6.x86_64 2.6.32-696.30.1.el6.x86_64 2.6.32-696.3.1.el6.x86_64 2.6.32-696.3.2.el6.x86_64 2.6.32-696.6.3.el6.x86_64 2.6.32-696.el6.x86_64
	2.6.32-71.14.1.el6.x86_64 2.6.32-71.18.1.el6.x86_64 2.6.32-71.18.2.el6.x86_64 2.6.32-71.24.1.el6.x86_64 2.6.32-71.29.1.el6.x86_64 2.6.32-71.7.1.el6.x86_64 2.6.32-71.el6.x86_64

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OS	Kernel Version
	2.6.32-754.10.1.el6.x86_64 2.6.32-754.11.1.el6.x86_64 2.6.32-754.12.1.el6.x86_64 2.6.32-754.14.2.el6.x86_64 2.6.32-754.15.3.el6.x86_64 2.6.32-754.17.1.el6.x86_64 2.6.32-754.18.2.el6.x86_64 2.6.32-754.2.1.el6.x86_64 2.6.32-754.22.1.el6.x86_64 2.6.32-754.23.1.el6.x86_64 2.6.32-754.24.2.el6.x86_64 2.6.32-754.24.3.el6.x86_64 2.6.32-754.25.1.el6.x86_64 2.6.32-754.27.1.el6.x86_64 2.6.32-754.28.1.el6.x86_64 2.6.32-754.29.1.el6.x86_64 2.6.32-754.29.2.el6.x86_64 2.6.32-754.30.2.el6.x86_64 2.6.32-754.31.1.el6.x86_64 2.6.32-754.33.1.el6.x86_64 2.6.32-754.35.1.el6.x86_64 2.6.32-754.3.5.el6.x86_64 2.6.32-754.6.3.el6.x86_64 2.6.32-754.9.1.el6.x86_64 2.6.32-754.el6.x86_64
	3.10.0-1062.1.1.el7.x86_64 3.10.0-1062.12.1.el7.x86_64 3.10.0-1062.1.2.el7.x86_64 3.10.0-1062.18.1.el7.x86_64 3.10.0-1062.4.1.el7.x86_64 3.10.0-1062.4.2.el7.x86_64 3.10.0-1062.4.3.el7.x86_64 3.10.0-1062.7.1.el7.x86_64 3.10.0-1062.9.1.el7.x86_64 3.10.0-1062.el7.x86_64

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OS	Kernel Version
	3.10.0-1127.10.1.el7.x86_64 3.10.0-1127.13.1.el7.x86_64 3.10.0-1127.18.2.el7.x86_64 3.10.0-1127.19.1.el7.x86_64 3.10.0-1127.8.2.el7.x86_64 3.10.0-1127.el7.x86_64
	3.10.0-1160.2.1.el7.x86_64 3.10.0-1160.2.2.el7.x86_64 3.10.0-1160.el7.x86_64
	3.10.0-123.1.2.el7.x86_64 3.10.0-123.13.1.el7.x86_64 3.10.0-123.13.2.el7.x86_64 3.10.0-123.20.1.el7.x86_64 3.10.0-123.4.2.el7.x86_64 3.10.0-123.4.4.el7.x86_64 3.10.0-123.6.3.el7.x86_64 3.10.0-123.8.1.el7.x86_64 3.10.0-123.9.2.el7.x86_64 3.10.0-123.9.3.el7.x86_64 3.10.0-123.el7.x86_64
	3.10.0-229.11.1.el7.x86_64 3.10.0-229.1.2.el7.x86_64 3.10.0-229.14.1.el7.x86_64 3.10.0-229.20.1.el7.x86_64 3.10.0-229.4.2.el7.x86_64 3.10.0-229.7.2.el7.x86_64 3.10.0-229.el7.x86_64

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OS	Kernel Version
	3.10.0-327.10.1.el7.x86_64 3.10.0-327.13.1.el7.x86_64 3.10.0-327.18.2.el7.x86_64 3.10.0-327.22.2.el7.x86_64 3.10.0-327.28.2.el7.x86_64 3.10.0-327.28.3.el7.x86_64 3.10.0-327.3.1.el7.x86_64 3.10.0-327.36.1.el7.x86_64 3.10.0-327.36.2.el7.x86_64 3.10.0-327.36.3.el7.x86_64 3.10.0-327.4.4.el7.x86_64 3.10.0-327.4.5.el7.x86_64 3.10.0-327.el7.x86_64
	3.10.0-514.10.2.el7.x86_64 3.10.0-514.16.1.el7.x86_64 3.10.0-514.21.1.el7.x86_64 3.10.0-514.21.2.el7.x86_64 3.10.0-514.2.2.el7.x86_64 3.10.0-514.26.1.el7.x86_64 3.10.0-514.26.2.el7.x86_64 3.10.0-514.6.1.el7.x86_64 3.10.0-514.6.2.el7.x86_64 3.10.0-514.el7.x86_64
	3.10.0-693.11.1.el7.x86_64 3.10.0-693.11.6.el7.x86_64 3.10.0-693.1.1.el7.x86_64 3.10.0-693.17.1.el7.x86_64 3.10.0-693.21.1.el7.x86_64 3.10.0-693.2.1.el7.x86_64 3.10.0-693.2.2.el7.x86_64 3.10.0-693.5.2.el7.x86_64 3.10.0-693.el7.x86_64

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OS	Kernel Version
	3.10.0-862.11.6.el7.x86_64 3.10.0-862.14.4.el7.x86_64 3.10.0-862.2.3.el7.x86_64 3.10.0-862.3.2.el7.x86_64 3.10.0-862.3.3.el7.x86_64 3.10.0-862.6.3.el7.x86_64 3.10.0-862.9.1.el7.x86_64 3.10.0-862.el7.x86_64

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OS	Kernel Version
Ubuntu	4.4.0-21-generic 4.4.0-22-generic 4.4.0-24-generic 4.4.0-28-generic 4.4.0-31-generic 4.4.0-34-generic 4.4.0-36-generic 4.4.0-38-generic 4.4.0-42-generic 4.4.0-43-generic 4.4.0-45-generic 4.4.0-47-generic 4.4.0-51-generic 4.4.0-53-generic 4.4.0-57-generic 4.4.0-59-generic 4.4.0-62-generic 4.4.0-63-generic 4.4.0-64-generic 4.4.0-66-generic 4.4.0-67-generic 4.4.0-70-generic 4.4.0-71-generic 4.4.0-72-generic 4.4.0-75-generic 4.4.0-77-generic 4.4.0-78-generic 4.4.0-79-generic 4.4.0-81-generic 4.4.0-83-generic 4.4.0-87-generic 4.4.0-89-generic 4.4.0-91-generic 4.4.0-92-generic 4.4.0-93-generic 4.4.0-96-generic 4.4.0-97-generic 4.4.0-98-generic

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OS	Kernel Version
	4.4.0-101-generic 4.4.0-103-generic 4.4.0-104-generic 4.4.0-116-generic 4.4.0-119-generic 4.4.0-121-generic 4.4.0-122-generic 4.4.0-124-generic 4.4.0-127-generic 4.4.0-128-generic 4.4.0-130-generic 4.4.0-131-generic 4.4.0-133-generic 4.4.0-134-generic 4.4.0-135-generic 4.4.0-137-generic 4.4.0-138-generic 4.4.0-139-generic 4.4.0-140-generic 4.4.0-141-generic 4.4.0-142-generic 4.4.0-143-generic 4.4.0-145-generic 4.4.0-146-generic 4.4.0-148-generic 4.4.0-150-generic 4.4.0-151-generic 4.4.0-154-generic 4.4.0-157-generic 4.4.0-159-generic 4.4.0-161-generic 4.4.0-164-generic 4.4.0-165-generic 4.4.0-166-generic 4.4.0-168-generic 4.4.0-169-generic 4.4.0-170-generic 4.4.0-171-generic

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OS	Kernel Version
	4.4.0-173-generic 4.4.0-174-generic 4.4.0-176-generic 4.4.0-177-generic 4.4.0-178-generic 4.4.0-179-generic 4.4.0-184-generic 4.4.0-185-generic 4.4.0-186-generic 4.4.0-187-generic 4.4.0-189-generic 4.4.0-190-generic 4.4.0-193-generic 4.4.0-194-generic 4.4.0-197-generic 4.4.0-198-generic 4.4.0-200-generic 4.4.0-201-generic 4.4.0-203-generic 4.4.0-204-generic

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OS	Kernel Version
	4.15.0-20-generic 4.15.0-22-generic 4.15.0-23-generic 4.15.0-24-generic 4.15.0-29-generic 4.15.0-30-generic 4.15.0-32-generic 4.15.0-33-generic 4.15.0-34-generic 4.15.0-36-generic 4.15.0-38-generic 4.15.0-39-generic 4.15.0-42-generic 4.15.0-43-generic 4.15.0-44-generic 4.15.0-45-generic 4.15.0-46-generic 4.15.0-47-generic 4.15.0-48-generic 4.15.0-50-generic 4.15.0-51-generic 4.15.0-52-generic 4.15.0-54-generic 4.15.0-55-generic 4.15.0-58-generic 4.15.0-60-generic 4.15.0-62-generic 4.15.0-64-generic 4.15.0-65-generic 4.15.0-66-generic 4.15.0-69-generic 4.15.0-70-generic 4.15.0-72-generic 4.15.0-74-generic 4.15.0-76-generic 4.15.0-101-generic 4.15.0-106-generic 4.15.0-108-generic

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OS	Kernel Version
	4.15.0-109-generic 4.15.0-111-generic 4.15.0-112-generic 4.15.0-115-generic 4.15.0-117-generic 4.15.0-118-generic 4.15.0-121-generic 4.15.0-122-generic 4.15.0-123-generic 4.15.0-124-generic 4.15.0-128-generic 4.15.0-129-generic 4.15.0-130-generic 4.15.0-132-generic 4.15.0-134-generic 4.15.0-135-generic 4.15.0-136-generic 4.15.0-137-generic
SUSE	4.4.21-69-default 4.12.14-94.41-default 4.12.14-95.29-default 4.12.14-122.46-default 4.12.14-197.64-default

- Migration constraints and limitations

  Table 3-4 Constraints and limitations on source servers

Item	Description
OSs	• **Supported Windows OSs** • **Supported Linux OSs** • A server running multiple OSs cannot be migrated.

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Item	Description
Available disk 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
File systems	• Windows: Only NTFS partitions are supported. • Linux: Only ext2, ext3, ext4, VFAT, XFS, and Btrfs file systems are supported.
Shared file systems	SMS does not support the migration of files from shared file systems such as NFS or CIFS, or from NAS devices.
External storage of servers	External storage attached to the source servers cannot be migrated.
Encrypted files	OSs that contain protected folders and encrypted volumes cannot be migrated.
Btrfs file systems on LVM volumes	Btrfs file systems on LVM volumes cannot be migrated.
Database and Active Directory Domain (AD DS) applications	SMS does not support migration of active directories and multi-node databases.
Applications bound to hardware	SMS does not support the migration of OSs that contain applications bound to hardware.
Dynamic disks	In Windows, dynamic disks are migrated as basic disks. After the migration is complete, the target ECS will not have dynamic disks.
Servers added to a domain	If you want to migrate a server added to a domain, after the migration is complete, the target ECS must be added to that domain.
Servers with system volumes not on the first disks	SMS does not support the migration of servers whose system volumes are not on the first disks.
Thin-provisioning volumes tagged with pool in LVM	SMS does not support migration of thin volumes tagged with pool.

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3.2 What Are the Important Statements of SMS?

- Source server data collection statement

  After the Agent is installed and configured on the source server, it automatically reports the source server information to SMS only for a migration feasibility check. For details about the source server information that is collected, see **What Kind of Information About Source Servers Does SMS Collect?**

- License invalidity statement

  After OSs, applications, and files on source servers are migrated to target servers, the SIDs and MAC addresses of the servers will be different. This means that some OS or application licenses may be invalidated. SMS is not responsible for this type of issue. For Windows OS licenses, you can use the license server on HUAWEI CLOUD to obtain a new license. For application licenses, you will need to update or obtain them at your own expense.

- Target server disk formatting

  During a migration, disks on the target server are formatted and re-partitioned based on the source disk settings. Any existing data on the target server will be lost. Before the migration, make sure you back up any data on the target server that you need to save and ensure that the disk can be formatted. SMS is not responsible for any data loss incurred.

- If your target servers on HUAWEI CLOUD cannot be started after the migration, HUAWEI CLOUD can provide technical support to help you solve the problem, but does not promise that the all possible problems can be resolved. There are many possible reasons that a target server may be unable to start, for example:
  - The source server could not be restarted.
  - The source server has a non-standard OS configuration.
  - The source server has drivers or software that is incompatible with HUAWEI CLOUD.

- To adapt source servers to HUAWEI CLOUD, SMS modifies the system configuration of the target servers. For details about the modifications, see **What Are the Differences Between Target and Source Servers After the Migration?** SMS can ensure data consistency before and after the migration but cannot ensure that your services can run properly after the migration. You need to modify related service configurations.

- After the service cutover, if new data is generated on both your source and target servers, then if you want to perform an incremental synchronization, the data on the source server will overwrite that on the target server. You are advised not to add data to the target server before the service cutover or to the source server after the service cutover. If you want to combine the new data on the source and target servers, you need to design a solution by yourself.

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3.3 How Many Servers Can I Migrate Concurrently Using SMS?

You can migrate a maximum of 1,000 servers concurrently. If you need to migrate more than 1000 servers, delete the migrated servers from the server list timely so that other servers can continue to be migrated.

3.4 How Do I Resolve Error "Inconsistent firmware type. Source: UEFI, Target: BIOS" When I Create a Migration Task?

Symptom

If you select a target server booted with BIOS when you create a migration task for a source server booted with UEFI, you will receive this message.

Possible Causes

The target server uses a different boot mode from the source server. In this case, the target server cannot be launched after the migration. You must select a target server created from the image with the UEFI boot mode.

NOTE

SMS requires that the target server OS uses the same type of firmware as the source server OS.

- If the source server uses BIOS, HUAWEI CLOUD will automatically provide a public image with the BIOS boot mode for you to create the target server. You can also use a private image with the BIOS boot mode to create the target server.
- If the source server uses UEFI, you need to use an image with the UEFI boot mode to create the target server.

Solution Using the Management Console

Step 1 Download an image file as needed. If such an image file has been stored in your OBS bucket, go to **Step 3**.

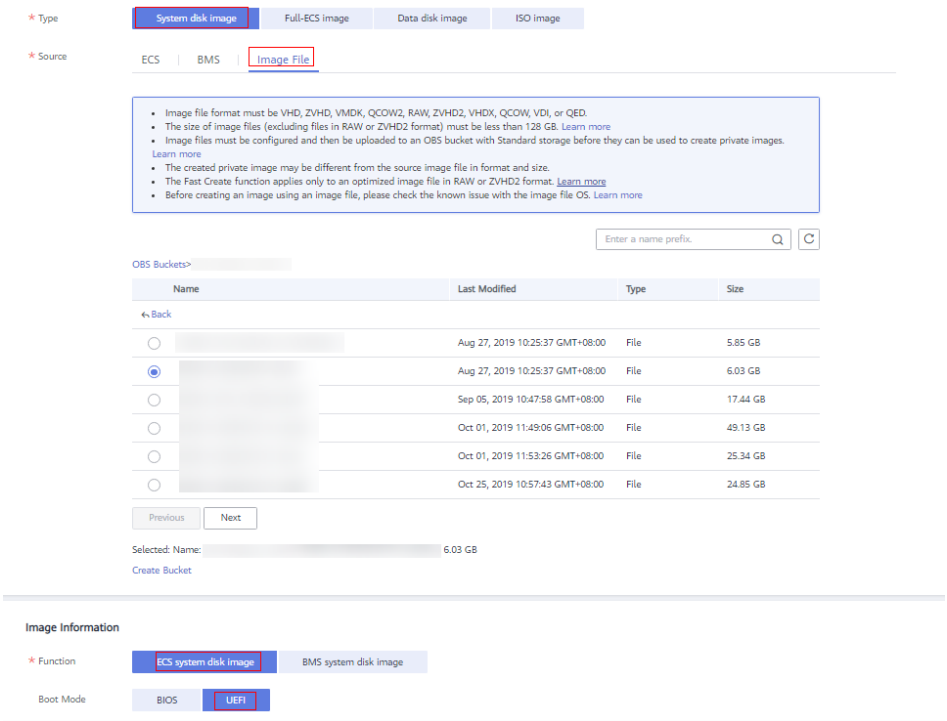
- **Windows image file**
- **Linux image file**

Step 2 Upload the image file to your OBS bucket.

Step 3 Use the image file to create a private image on the IMS console.

1. Select **Image File** for **Source** and select the uploaded image file.
2. Set **Boot Mode** to **UEFI**.

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Step 4 Use the private image to create an ECS as the target server.

For details, see **Creating a Windows System Disk Image from an External Image File** or **Creating a Linux System Disk Image from an External Image File**.

----End

Solution Using APIs

If changing the boot mode specified in an image through the management console is not supported in the current region, perform the following operations:

Call the following API to change the value of **hw_firmware_type** to **uefi**.

Step 1 API URI: PATCH /v2/cloudimages/{*image_id*}

For details about how to call the API, see **Updating Image Information**.

```
[
  {
    "op": "add",
    "path": "/hw_firmware_type",
    "value": "uefi"
  }
]
```

Step 2 Use the updated image to create an ECS as the target server.

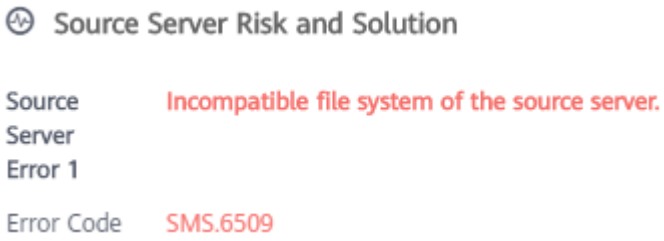
----End

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3.5 How Do I Resolve Error "Incompatible file system of the source server"?

Symptom

After the migration feasibility check is complete, you receive error message "SMS.6509 Incompatible file system of the source server."



Possible Causes

There are unsupported file systems on the source server.

Solution

Currently, SMS supports Ext2, Ext3, Ext4, XFS, VFAT, and Btrfs files systems for Linux.

For unsupported file systems such as ReiserFS, you can copy files to other file systems, uninstall the unsupported file systems, and then perform the migration.

If this is not allowed on the source server, you can:

- Use IMS to create an image for the source system disk from an external image file and use the image to create a target server. For details, see **Creating a Windows System Disk Image from an External Image File** or **Creating a Linux System Disk Image from an External Image File**.
- Use a public image on IMS to create a target server and deploy your applications on the target server.
- Use the Cloud Migration Service on HUAWEI CLOUD.

3.6 How Do I Resolve Error "Insufficient permissions. Add corresponding fine-grained permissions"?

Symptom

During the migration, you received error message "SMS.0204 Insufficient permissions. Cause: xxx. Add corresponding fine-grained permissions.

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Possible Causes

1. Using SMS requires that you have the permissions on ECS, VPC, IMS and EVS, or the migration will fail.
2. The balance of your target cloud account may be less than ¥100 CNY (either top-up or cash coupon).

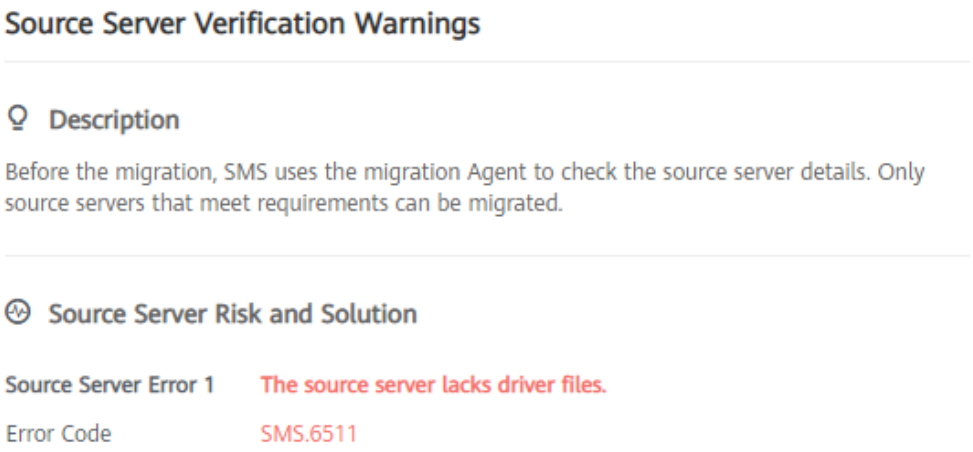
Solutions

1. Add the required fine-grained permissions and try again. For details, see **Creating a User and Granting Permissions**.
2. Top up your account and try again. Ensure that the account balance is no less than ¥100 CNY before the migration is complete.

3.7 How Do Resolve Error "Source server lacks driver files"?

Symptom

After you started the Agent, the source server did not pass the migration feasibility check, and you received error message SMS.6511 "Source server lacks driver files" on the SMS console.



Possible Causes

After the Agent is started, it will verify the drivers on the source server. If any of the following files are missing, the preceding error is reported:

* C:\Windows\system32\DRIVERS\atapi.sys

* C:\Windows\system32\DRIVERS\pciidex.sys

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* C:\Windows\system32\DRIVERS\intelide.sys

Solution

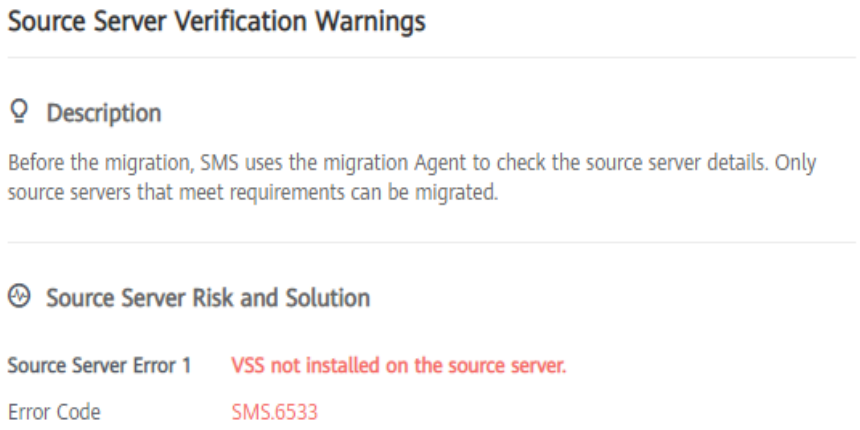
Check whether the preceding files are there on the source server. If any of them are missing, use the driver repair tool to repair the files or copy the files from another server.

3.8 How Do I Resolve Error "VSS not installed on the source server"?

Symptom

After the Agent was started, your source server running Windows did not pass the migration feasibility check, and error message SMS.6533 "VSS not installed on the source server" was displayed on the SMS console.

Figure 3-1 Error message



Possible Causes

The possible causes are as follows:

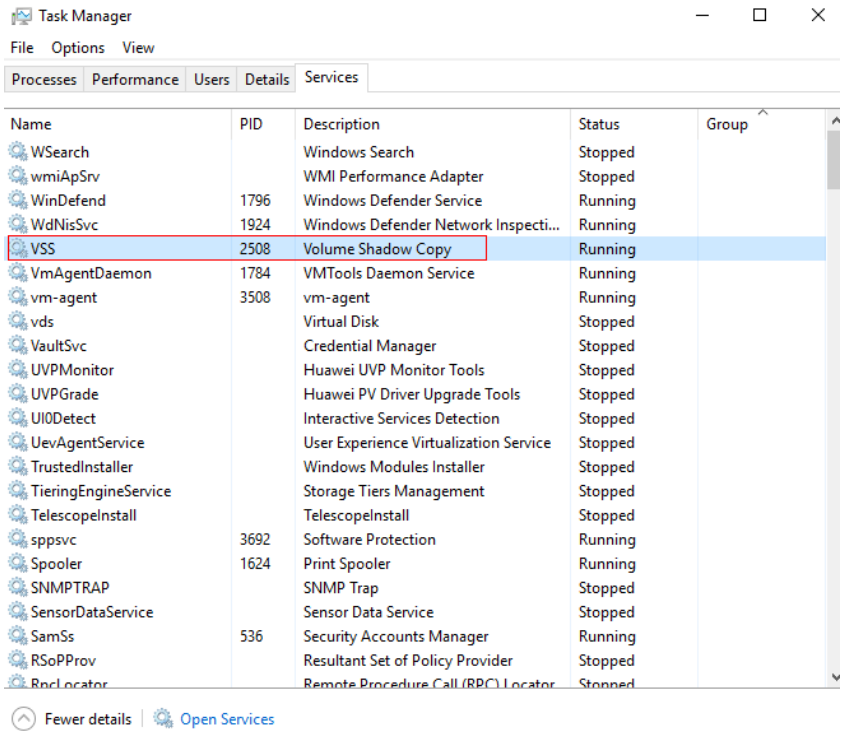
1. The VSS service is not installed on the source server.
2. The VSS service is disabled on the source server.

Solution

1. Open the **Task Manager** and check whether the VSS service exists.
   If it is, go to 2.
   If it is not, go to 3.

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Figure 3-2 Checking whether VSS exists



2. Modify the configuration file to disable I/O monitoring.

   If you do not need to synchronize data, you can modify the configuration file to disable I/O monitoring.

   In the Agent installation directory **config**, change the value of **enablesync** to **False** in the **g-property.cfg** file, and then restart the Agent.

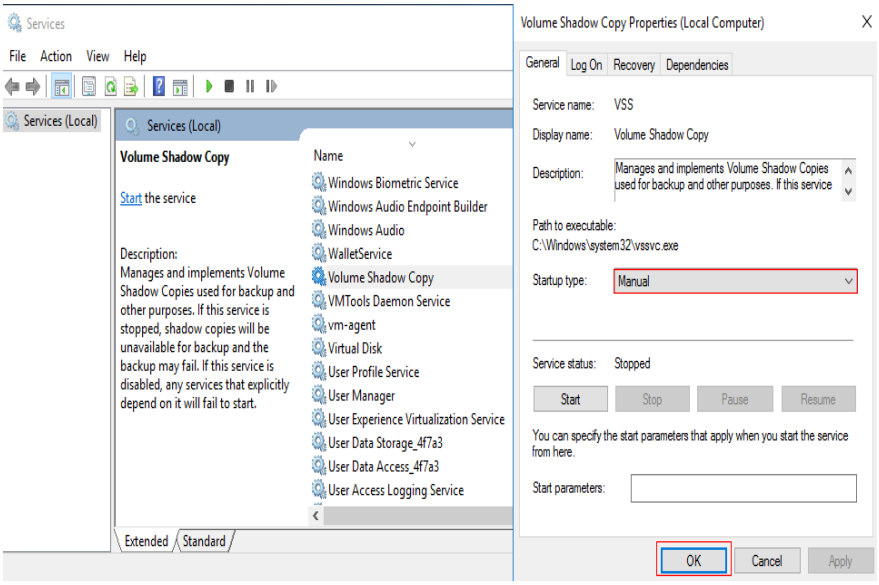
Figure 3-3 Modifying the **g-property.cfg** file



3. Check VSS status. If its status is **Stopped**, right-click the service and choose **Open Services** from the shortcut menu. Locate and right-click **Volume Shadow Copy**, and choose **Properties** from the shortcut menu. On the displayed **Volume Shadow Copy Properties** window, change the **Startup type** to **Manual**. Click **OK**.

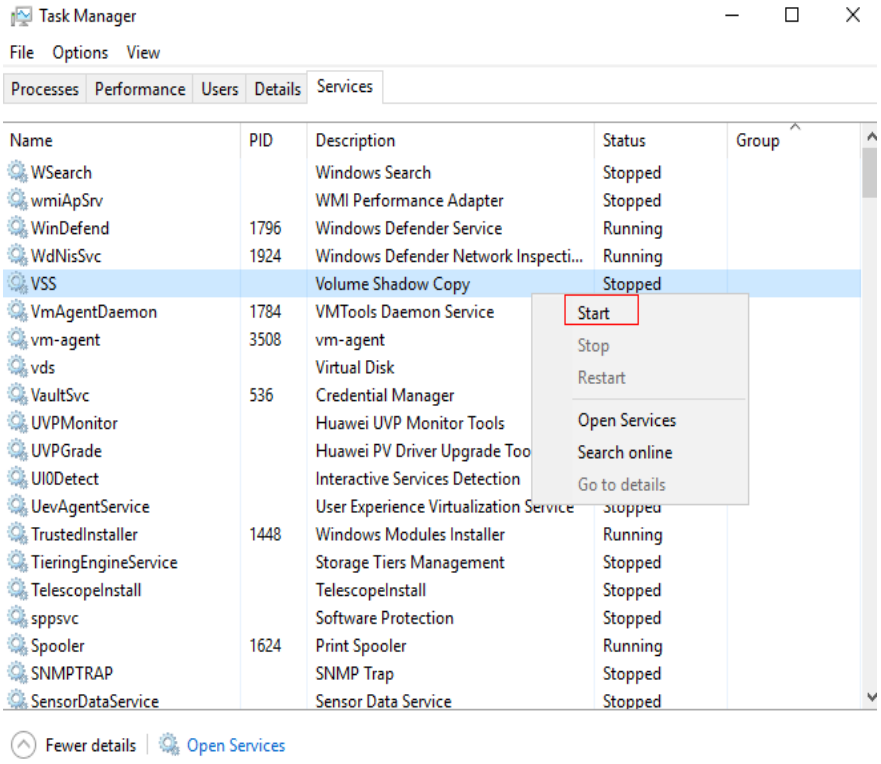
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Figure 3-4 Changing the startup mode of VSS



4. Go back to the **Task Manager** window, locate and right-click **VSS**, and choose **Start** from the shortcut menu.

Figure 3-5 Starting VSS

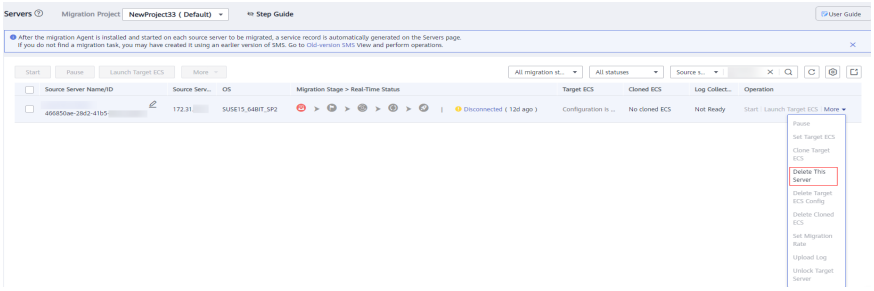


5. Log in to the SMS console, locate the server record, and in the **Operation** column, choose **More** > **Delete**.

   After the deletion is complete, restart the Agent.

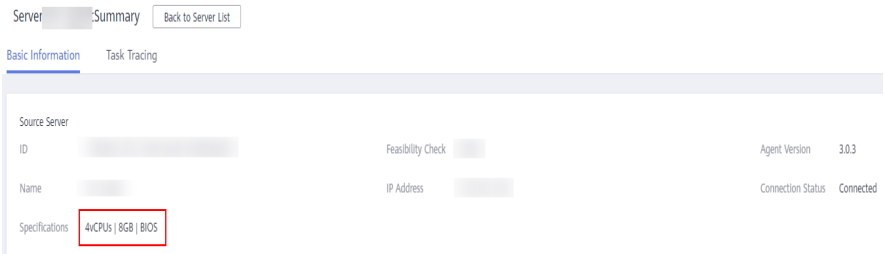
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Figure 3-6 Deleting the record



3.9 How Do I Check the Firmware Type of a Source Server?

After the Agent is installed and started on the source server, click the source server name on the Servers page of the SMS console. On the **Basic Information** tab page, in the **Source Server** area, you can view the firmware type of the source server.



3.10 Why Can't I Save the Migration Configuration as a Template?

Symptom

After you completed the migration configuration, you clicked **Save as Template** to save the configuration as a template for future use, but message "Failed to save the configuration" was displayed.

Possible Causes

The image used to create the target server is a private image and has been deleted. SMS cannot identify the information about this private image. As a result, the migration configuration fails to be saved as a template.

Solution

Go to the ECS console and reinstall or change the OS of the target server.

If you want to change the firmware type of the target server from BIOS to UEFI, create a private image by following the instructions provided in **How Do I Resolve**

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Error "Inconsistent firmware type. Source: UEFI, Target: BIOS" When I Create a Migration Task?

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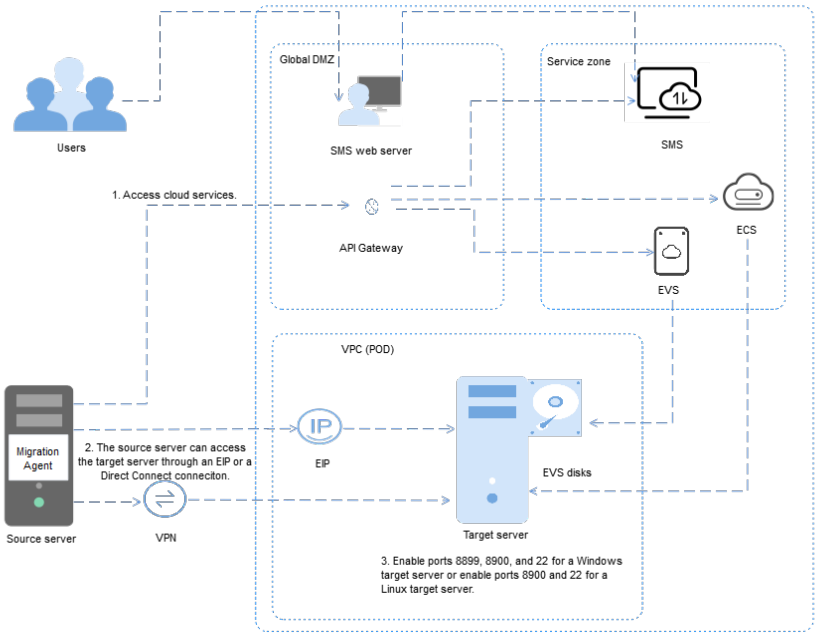
4 Migration Network

4.1 How Do I Set Up a Secure Migration Network for Using SMS?

Scenarios

You need to install the Agent on the source server to be migrated. During the migration, the source server needs to communicate with SMS and the target server.

Figure 4-1 SMS networking



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Connecting Source Servers to HUAWEI CLOUD API Gateway

- The SMS-Agent depends on the following HUAWEI CLOUD services: IAM, ECS, EVS, IMS, VPC, SMS, OBS, and DNS. During the migration, ensure that the Agent on the source server can call the APIs of these services of the region where you migrate to.
  - IAM and SMS are global-level services. The Agent should have access to their URLs **iam.myhuaweicloud.com** and **sms.ap-southeast-1.myhuaweicloud.com**.
  - ECS, EVS, IMS, VPC, and DNS are region-level services. The Agent should have access to their URLs of the region where you migrate to. For more information, see **Endpoints**.
  - The Agent should have access to OBS URLs **obs.cn-north-1.myhuaweicloud.com** and **obs.***target region*.**myhuaweicloud.com**.

    Table 4-1 lists the endpoints of dependent services when you migrate to region CN South-Guangzhou.

    Table 4-1 Addresses of dependent services and buckets

Service/Bucket Address	Endpoint	Remarks
IAM	iam.myhuaweicloud.com	Global-level services
SMS	sms.ap-southeast-1.myhuaweicloud.com	
OBS	obs.cn-north-1.myhuaweicloud.com	
ECS	ecs.cn-south-1.myhuaweicloud.com	Region-level services
EVS	evs.cn-south-1.myhuaweicloud.com	
VPC	vpc.cn-south-1.myhuaweicloud.com	
IMS	ims.cn-south-1.myhuaweicloud.com	
OBS	obs.cn-south-1.myhuaweicloud.com	
DNS	dns.cn-south-1.myhuaweicloud.com	
agent.bucket.endpoint	sms-agent-2-0.obs.ap-southeast-1.myhuaweicloud.com	Bucket addresses
agent.conf.bucket.endpoint	sms-agent-config-inter.obs.ap-southeast-1.myhuaweicloud.com	

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NOTE

The addresses of dependent OBS buckets are **sms-agent-2-0.obs.ap-southeast-1.myhuaweicloud.com** and **sms-agent-config-inter.obs.ap-southeast-1.myhuaweicloud.com** by default. The URLs of other dependent services depend on the region where you migrate to.

SMS uses domain names such as **bbs.huaweicloud.com**, **support.huaweicloud.com**, and **console.huaweicloud.com** to provide migration and consulting services.

- If the DNS server addresses are not configured on the source server, you need to configure mapping between each endpoint and their IP address in the local hosts file (**C:\Windows\System32\drivers\etc\hosts** for Windows and **/etc/hosts** for Linux).

  The IP addresses can be obtained using **ping** *endpoint*, as shown in **Figure 4-2**.

  Figure 4-2 Pinging an IP address

  ```
  C:\Users\Administrator>ping iam.myhuaweicloud.com

  Pinging iam.myhuaweicloud.com [100.125.1.237] with 32 bytes of data:
  ```

Connecting Source Servers to Target Servers

- If you want to migrate over the Internet, you need to purchase and configure an EIP for a target server in advance.
- If you want to migrate over Direct Connect or VPN, you need to purchase and configure Direct Connect or VPN connections in advance.

Required Ports to Open on Target Servers

- Open the required inbound ports in the security group of target servers.
  - Windows: ports **8899**, **8900**, and **22**
  - Linux: ports **8900** and **22**

  For details, see **How Do I Configure Security Group Rules for Target Servers?**
- If a network ACL is configured for a target server and is associated with the subnet where the target server is located, open the required inbound ports in the network ACL.

4.2 How Do I Prepare a Target Server in Advance?

If you want to use an existing server as the target server, make the following preparations:

Step 1 Prepare an ECS that meets the requirements described in **How Do I Select a Target ECS?** on HUAWEI CLOUD.

Step 2 Connect your source server to the ECS using an EIP or VPN or Direct Connect connection.

Step 3 Configure the security group of the VPC that the ECS is located correctly.

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If the ECS runs Windows, enable TCP ports 8899, 8900, and 22. If the target ECS runs Linux, enable TCP port 22 for file-level migration, and ports 8900 and 22 for block-level migration.

For details about how to configure the security group rules for a VPC, see **How Do I Configure Security Group Rules for Target Servers?**

CAUTION

During the migration, do not perform any operations on the target ECS, such as stopping or restarting the ECS, attaching or detaching a disk, or changing the password, or the migration will fail.

----End

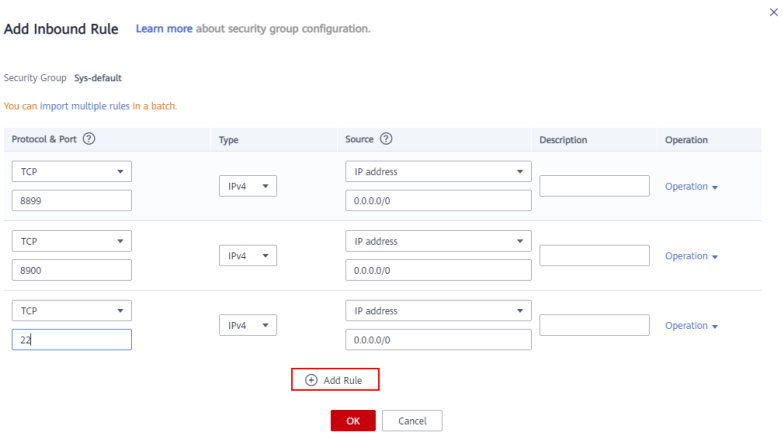
4.3 How Do I Configure Security Group Rules for Target Servers?

1. Log in to the management console.
2. Click in the upper left corner and select the desired region and project.
3. Under **Compute**, click **Elastic Cloud Server**.
4. In the ECS list, click the name of the target ECS.

   The page providing details about the ECS is displayed.
5. Click the **Security Groups** tab and view security group rules.
6. Click **Modify Security Group Rule**.

   The **Summary** page of the security group is displayed.
7. Select the **Inbound Rules** tab, click **Add Rule** to configure an access rule for the inbound direction.
   - For an ECS running Windows, set **Protocol & Port** to **TCP** and **8899**. Click **Add Rule** to configure inbound rules for ports **8900** and **22** respectively.

     Figure 4-3 Adding inbound rules



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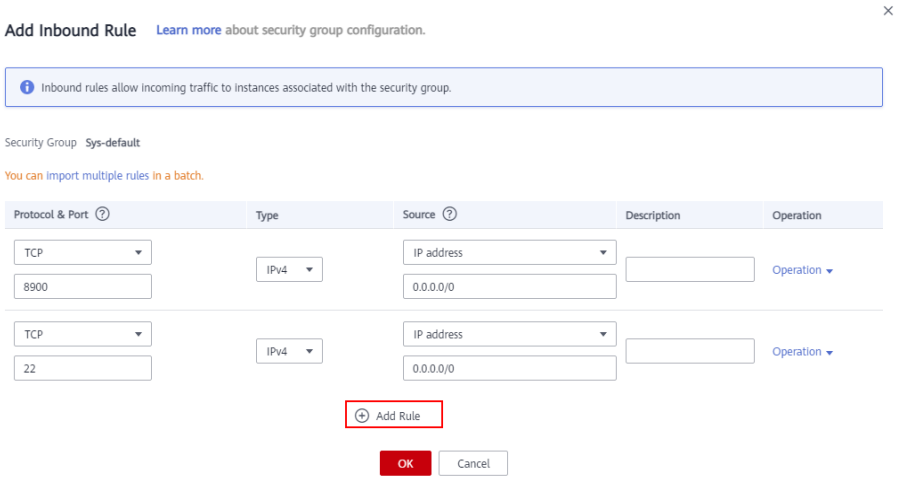
- For an ECS running Linux, set **Protocol & Port** to **TCP** and **8900**. Click **Add Rule** to configure an inbound rule for port **22**.

  NOTE

  Port 22 is required for Linux file-level migration.

  Ports 8900 and 22 are required for Linux block-level migration.

  Figure 4-4 Adding inbound rules

- Set **Source IP address** to the IP address segment containing the IP addresses that you want to allow to access the target ECS over the Internet.

  CAUTION

  - You are advised to open the required ports only to the source server.

    Default source IP address **0.0.0.0/0** indicates that all IP addresses can access the ECSs in the security group.
  - Open the same ports on the firewall of the target server.

8. Click **OK**.

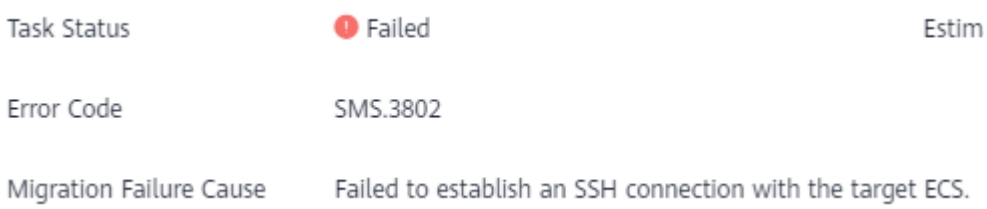
4.4 How Do I Resolve Error "Failed to establish an SSH connection with the target ECS"?

Symptom

The migration task failed to be executed, and you received error message "sms.3802 Failed to establish an SSH connection with the target ECS."

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Figure 4-5 SSH connection failure



Problem Analysis

During a Linux file-level migration, an SSH connection is established between the source server and target ECS for data transmission. If the SSH connection is not set up, the preceding error message is displayed. You are advised to perform the following operations to locate the cause of the SSH connection failure.

- **Checking Whether the Target ECS Is Stopped**
- **Checking Whether Port 22 Is Allowed in the Security Group of the Target ECS and Whether the Source IP Address Is Configured Correctly**
- **Checking Whether the VPC or IP Address of the Target Server Is Changed During the Migration**
- **Checking the Firewall Settings of the Source Server**
- **Checking Whether Security Alarms Are Generated on the Source or Target Server or the EIP of the Source or Target Server Is Frozen**
- **Checking Whether the Public Key on the Source and Target Server Are the Same?**
- **Checking Whether the SSH Client Is Installed on the Source Server**
- **Checking Whether the sshd Service on the Target Server Is Running Properly or Whether Its Listening Port Is 22**
- **Checking Whether the Migration Is Performed Over a Private Network that Is Not Connected to the Target ECS**

Checking Whether the Target ECS Is Stopped

Step 1 Log in to the management console.

Step 2 Under **Compute**, click **Elastic Cloud Server**. Locate the target ECS and view its status. If the ECS is stopped, choose **More** > **Start** in the **Operation** column.

----End

Checking Whether Port 22 Is Allowed in the Security Group of the Target ECS and Whether the Source IP Address Is Configured Correctly

Step 1 Log in to the management console.

Step 2 Under **Compute**, click **Elastic Cloud Server**. In the ECS list, click the name of the target ECS.

Step 3 On the ECS details page, click the **Security Groups** tab. Check whether port 22 is allowed and whether the source IP address is specified correctly.

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If port 22 is not allowed in the inbound direction, add an inbound rule for port 22. If such inbound rule exists but the source IP address is not 0.0.0.0/0 or the IP address of the source server, change the source IP address to 0.0.0.0/0.

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

----End

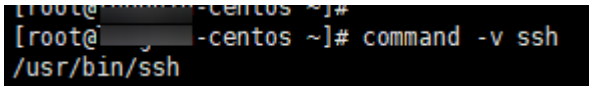
Checking Whether the SSH Client Is Installed on the Source Server

Step 1 Log in to the source server as user **root**.

Step 2 Run the following command to check whether the SSH client is installed.

If the SSH path shown in the following figure is not returned, install the SSH client.

Running command -v ssh



----End

Checking Whether the VPC or IP Address of the Target Server Is Changed During the Migration

If the VPC or IP address of the target server is changed during the migration, change it back to the original VPC or IP address. Otherwise, you need to perform the migration again.

Checking the Firewall Settings of the Source Server

Check whether the outbound traffic is blocked by the source server firewall. If yes, permit the traffic and continue the migration.

Checking Whether Security Alarms Are Generated on the Source or Target Server or the EIP of the Source or Target Server Is Frozen

Check whether security alarms are generated on the source or target servers or the EIP of the source or target server is frozen.

- If this problem is happened on the source server, contact the source cloud service provider for troubleshooting.
- If this problem is happened on the target server, contact HUAWEI CLOUD for troubleshooting.

Checking Whether the Public Key on the Source and Target Server Are the Same?

Compare the target server IP address, key pair algorithm, and public key recorded in the **/root/.ssh/known_hosts** file on the source server with that recorded in the public key file in the **/etc/ssh** directory on the target server. If the information is inconsistent, delete the corresponding lines from the **/root/.ssh/known_hosts** file on the source server, delete the migration task, and perform the migration again.

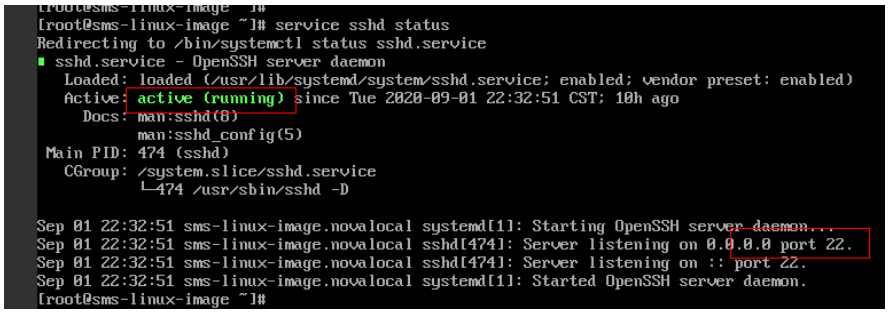
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Checking Whether the sshd Service on the Target Server Is Running Properly or Whether Its Listening Port Is 22

Log in to the target server and run the **service sshd status** command. If the service status is not **active (running)**, restart the **sshd** service. If the listening port is not 22, change the listening port to 22.

NOTE

If the original password cannot be used to log in to the target server, try to use 1*the first eight characters of target SK*! to log in.



Checking Whether the Migration Is Performed Over a Private Network that Is Not Connected to the Target ECS

Check whether a private network is used for the migration and whether the source and target servers are in different private networks. If yes, select the public network or connect the two private networks.

4.5 How Do I Fix Error "Failed to connect to the target ECS. Check whether its IP address is reachable and confirm that port XX is enabled"?

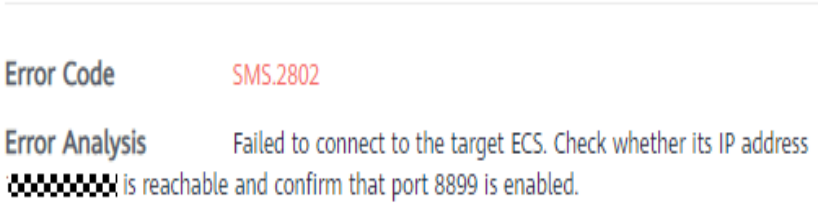
Symptom

The target ECS could not be accessed, and either of the following messages was displayed:

- SMS 1807 Failed to connect to the target ECS. Check whether its IP address is reachable and confirm that port 8900 is enabled.
- SMS 2802 Failed to connect to the target ECS. Check whether its IP address is reachable and confirm that port 8899 is enabled.



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Problem Analysis

For a Windows migration, ports 8899 and 8900 must be enabled on the target server for communicating with SMS and the source server respectively. If communication cannot be established, this error occurs. You can locate the fault by following the solutions:

- **Checking Whether the Peagent on the Target Server Is Running Properly**
- **Checking Whether the Source Server Can Connect to the Target Server**
- **Checking Whether Ports 8899 and 8900 Are Enabled in the Security Group of the Target Server**
- **Checking Whether Ports 8899 and 8900 Are Allowed in the Network ACL of the Target Server**

Checking Whether the Peagent on the Target Server Is Running Properly

After confirming the network is normal, forcibly restart the target Server. Wait for about 3 minutes and start the migration again.

Checking Whether the Source Server Can Connect to the Target Server

Step 1 Log in to the source server.

Step 2 Run the **telnet** *Target server IP address Error port* command. If the port is not reachable, check the configurations of the DNSs, firewalls, security groups, and local networks of the source and target servers.

----End

Checking Whether Ports 8899 and 8900 Are Enabled in the Security Group of the Target Server

Step 1 Log in to the management console.

Step 2 Under **Compute**, click **Elastic Cloud Server**. In the ECS list, click the name of the target ECS.

Step 3 On the ECS details page, click the **Security Groups** tab. Check whether ports 8899 and 8900 are allowed and whether the source IP address is specified correctly.

If port 8899 or 8900 is not allowed, add an inbound rule for port 8899 or 8900. If such rules exist but the **IP address** in the **Source** column is not **0.0.0.0/0** or the IP address of the source server, change **IP address** to **0.0.0.0/0**.

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For detailed instructions, see **How Do I Configure Security Group Rules for Target Servers?**

----End

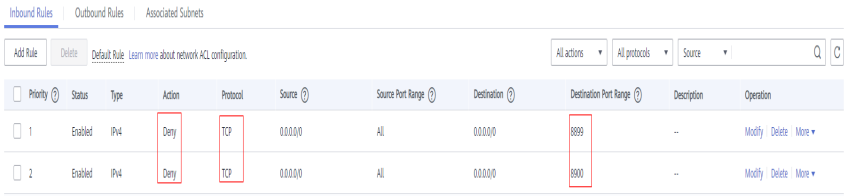
Checking Whether Ports 8899 and 8900 Are Allowed in the Network ACL of the Target Server

Step 1 Log in to the management console.

Step 2 Check whether the subnet of the target server is associated with a network ACL.

If a network ACL has been associated, and the inbound rules of the network ACL allow ports 8899 and 8900, change the action to **Allow**.

For details, see **Modifying a Network ACL Rule**.



----End

4.6 How Do I Fix a Connection Failure Between the Source Server and API Gateway Due to a Busy Network?

Symptom

The Agent cannot be started, and either of the following messaged is displayed:

Linux: Failed to start sms agent! Please check the network connection with below commands!

Windows: SMS.0201 Network busy. The source server failed to connect to API Gateway.

Possible Causes

The source server cannot communicate with SMS, IAM, ECS, EVS, IMS, VPC, or OBS over the Internet. In this case, check the source network.

Solution

Step 1 Log in to the source server.

Step 2 Run the following commands on the source server:

curl -v https://iam.myhuaweicloud.com:443

curl -v https://sms.ap-southeast-1.myhuaweicloud.com:443

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If curl fails to be executed, for example due to a network timeout, the source server cannot access the IAM or SMS management console.

Based on the region where you migrate to, check whether the source server can access ECS, EVS, IMS, VPC, and OBS using the commands listed in the following table.

Region	Command
CN North-Beijing1	• curl -v **https://ecs.cn-north-1.myhuaweicloud.com:443** • curl -v **https://evs.cn-north-1.myhuaweicloud.com:443** • curl -v **https://ims.cn-north-1.myhuaweicloud.com:443** • curl -v **https://vpc.cn-north-1.myhuaweicloud.com:443** • curl -v **https://obs.cn-north-1.myhuaweicloud.com:443**
CN North-Beijing4	• curl -v **https://ecs.cn-north-4.myhuaweicloud.com:443** • curl -v **https://evs.cn-north-4.myhuaweicloud.com:443** • curl -v **https://ims.cn-north-4.myhuaweicloud.com:443** • curl -v **https://vpc.cn-north-4.myhuaweicloud.com:443** • curl -v **https://obs.cn-north-4.myhuaweicloud.com:443**
Ulanqab1	• curl -v **https://ecs.cn-north-9.myhuaweicloud.com:443** • curl -v **https://evs.cn-north-9.myhuaweicloud.com:443** • curl -v **https://ims.cn-north-9.myhuaweicloud.com:443** • curl -v **https://vpc.cn-north-9.myhuaweicloud.com:443** • curl -v **https://obs.cn-north-9.myhuaweicloud.com:443**

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Region	Command
CN South-Guangzhou	• curl -v **https://ecs.cn-south-1.myhuaweicloud.com:443** • curl -v **https://evs.cn-south-1.myhuaweicloud.com:443** • curl -v **https://ims.cn-south-1.myhuaweicloud.com:443** • curl -v **https://vpc.cn-south-1.myhuaweicloud.com:443** • curl -v **https://obs.cn-south-1.myhuaweicloud.com:443**
CN South-Shenzhen	• curl -v **https://ecs.cn-south-2.myhuaweicloud.com:443** • curl -v **https://evs.cn-south-2.myhuaweicloud.com:443** • curl -v **https://ims.cn-south-2.myhuaweicloud.com:443** • curl -v **https://vpc.cn-south-2.myhuaweicloud.com:443** • curl -v **https://obs.cn-south-2.myhuaweicloud.com:443**
CN East-Shanghai1	• curl -v **https://ecs.cn-east-3.myhuaweicloud.com:443** • curl -v **https://evs.cn-east-3.myhuaweicloud.com:443** • curl -v **https://ims.cn-east-3.myhuaweicloud.com:443** • curl -v **https://vpc.cn-east-3.myhuaweicloud.com:443** • curl -v **https://obs.cn-east-3.myhuaweicloud.com:443**
CN East-Shanghai2	• curl -v **https://ecs.cn-east-2.myhuaweicloud.com:443** • curl -v **https://evs.cn-east-2.myhuaweicloud.com:443** • curl -v **https://ims.cn-east-2.myhuaweicloud.com:443** • curl -v **https://vpc.cn-east-2.myhuaweicloud.com:443** • curl -v **https://obs.cn-east-2.myhuaweicloud.com:443**

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Region	Command
CN Southwest-Guiyang1	• curl -v **https://ecs.cn-southwest-2.myhuaweicloud.com:443** • curl -v **https://evs.cn-southwest-2.myhuaweicloud.com:443** • curl -v **https://ims.cn-southwest-2.myhuaweicloud.com:443** • curl -v **https://vpc.cn-southwest-2.myhuaweicloud.com:443** • curl -v **https://obs.cn-southwest-2.myhuaweicloud.com:443**
CN-Hong Kong	• curl -v **https://ecs.ap-southeast-1.myhuaweicloud.com:443** • curl -v **https://evs.ap-southeast-1.myhuaweicloud.com:443** • curl -v **https://ims.ap-southeast-1.myhuaweicloud.com:443** • curl -v **https://vpc.ap-southeast-1.myhuaweicloud.com:443** • curl -v **https://obs.ap-southeast-1.myhuaweicloud.com:443**
AP-Bangkok	• curl -v **https://ecs.ap-southeast-2.myhuaweicloud.com:443** • curl -v **https://evs.ap-southeast-2.myhuaweicloud.com:443** • curl -v **https://ims.ap-southeast-2.myhuaweicloud.com:443** • curl -v **https://vpc.ap-southeast-2.myhuaweicloud.com:443** • curl -v **https://obs.ap-southeast-2.myhuaweicloud.com:443**
AP-Singapore	• curl -v **https://ecs.ap-southeast-3.myhuaweicloud.com:443** • curl -v **https://evs.ap-southeast-3.myhuaweicloud.com:443** • curl -v **https://ims.ap-southeast-3.myhuaweicloud.com:443** • curl -v **https://vpc.ap-southeast-3.myhuaweicloud.com:443** • curl -v **https://obs.ap-southeast-3.myhuaweicloud.com:443**

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Region	Command
LA-Santiago	• curl -v **https://ecs.la-south-2.myhuaweicloud.com:443** • curl -v **https://evs.la-south-2.myhuaweicloud.com:443** • curl -v **https://ims.la-south-2.myhuaweicloud.com:443** • curl -v **https://vpc.la-south-2.myhuaweicloud.com:443** • curl -v **https://obs.la-south-2.myhuaweicloud.com:443**
LA-Mexico City1	• curl -v **https://ecs.na-mexico-1.myhuaweicloud.com:443** • curl -v **https://evs.na-mexico-1.myhuaweicloud.com:443** • curl -v **https://ims.na-mexico-1.myhuaweicloud.com:443** • curl -v **https://vpc.na-mexico-1.myhuaweicloud.com:443** • curl -v **https://obs.na-mexico-1.myhuaweicloud.com:443**
LA-Mexico City2	• curl -v **https://ecs.la-north-2.myhuaweicloud.com:443** • curl -v **https://evs.la-north-2.myhuaweicloud.com:443** • curl -v **https://ims.la-north-2.myhuaweicloud.com:443** • curl -v **https://vpc.la-north-2.myhuaweicloud.com:443** • curl -v **https://obs.la-north-2.myhuaweicloud.com:443**
LA-Sao Paulo1	• curl -v **https://ecs.sa-brazil-1.myhuaweicloud.com:443** • curl -v **https://evs.sa-brazil-1.myhuaweicloud.com:443** • curl -v **https://ims.sa-brazil-1.myhuaweicloud.com:443** • curl -v **https://vpc.sa-brazil-1.myhuaweicloud.com:443** • curl -v **https://obs.sa-brazil-1.myhuaweicloud.com:443**

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Region	Command
LA-Lima1	• curl -v **https://ecs.sa-peru-1.myhuaweicloud.com:443** • curl -v **https://evs.sa-peru-1.myhuaweicloud.com:443** • curl -v **https://ims.sa-peru-1.myhuaweicloud.com:443** • curl -v **https://vpc.sa-peru-1.myhuaweicloud.com:443** • curl -v **https://obs.sa-peru-1.myhuaweicloud.com:443**
LA-Buenos Aires1	• curl -v **https://ecs.sa-argentina-1.myhuaweicloud.com:443** • curl -v **https://evs.sa-argentina-1.myhuaweicloud.com:443** • curl -v **https://ims.sa-argentina-1.myhuaweicloud.com:443** • curl -v **https://vpc.sa-argentina-1.myhuaweicloud.com:443** • curl -v **https://obs.sa-argentina-1.myhuaweicloud.com:443**
AF-Johannesburg	• curl -v **https://ecs.af-south-1.myhuaweicloud.com:443** • curl -v **https://evs.af-south-1.myhuaweicloud.com:443** • curl -v **https://ims.af-south-1.myhuaweicloud.com:443** • curl -v **https://vpc.af-south-1.myhuaweicloud.com:443** • curl -v **https://obs.af-south-1.myhuaweicloud.com:443**

Step 3 Check whether the source server can access the Internet. If it cannot, rectify the fault and restart the Agent. Check the configurations of DNSs, firewalls, security groups, and local networks of the source and target servers. For details, see **Why Cannot an EIP Be Pinged?**

Step 4 If a proxy server is used, check whether the proxy server is running properly.

Common proxy problems are incorrect login credentials, network disconnections, and firewall or various software restrictions.

----End

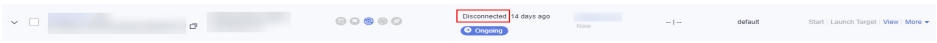
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4.7 How Do I Restore the Connection Between the Agent and SMS?

Symptom

The server migration is in the Disconnected status, so most operations cannot be performed.

Figure 4-6 Disconnection



Possible Causes

- The Agent on the source server is not running.
- If no operations have been performed on the Agent for a long time (30 days by default, but this can be changed using the **heartmonitorday** parameter in the **config/g-property.cfg** file), the Agent proactively disconnects from SMS.
- The network connection between the source server and the Agent is abnormal.
- The SMS-Agent-Py3 or SMS-Agent-Py2 process exits because you have been logged out or exited from the source server automatically.
- If the difference between the system time in the source server and the local standard time exceeds 15 minutes, the AK/SK authentication fails. For example, the NTP server on the source server is incorrectly configured.

Windows Server 2019/2016/2012 and Windows 10/8.1

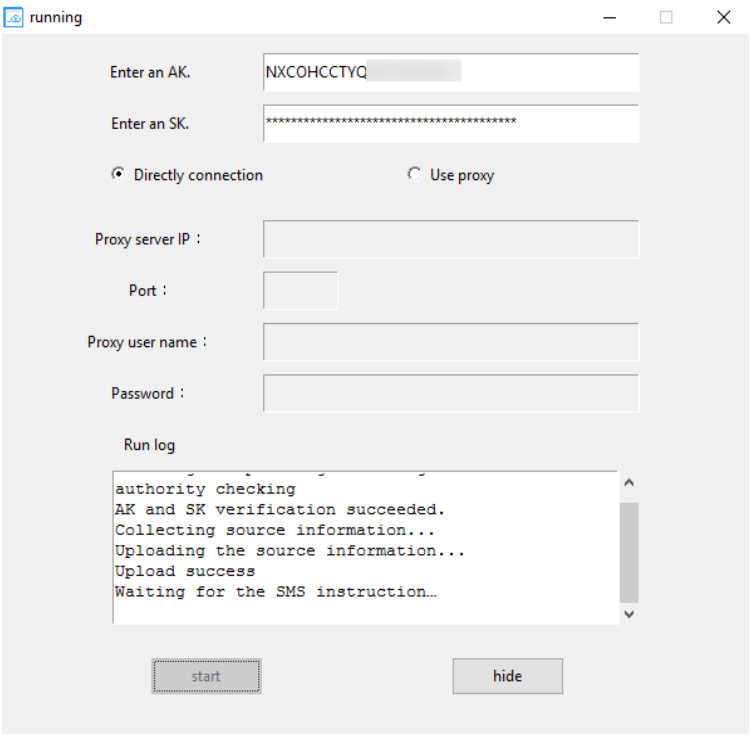
Step 1 Log in to the source server, search for the Agent icon in the lower right corner, and check whether the Agent is running properly.

- If the Agent has exited, restart the Agent.
- If the Agent is running properly, go to **Step 2**.

Step 2 On the **Agent** operation page, check whether the **Start** button can be clicked.

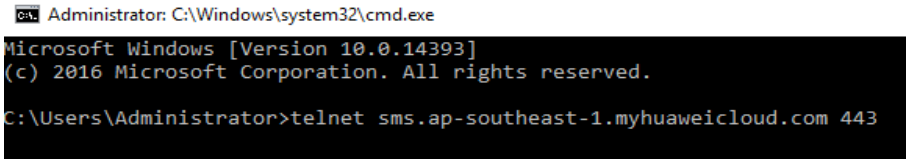
- If it can, the Agent has proactively disconnected from SMS. Click **Start** to reconnect to it.
- If it cannot, go to **Step 3**.

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Step 3 In the cmd window, run **telnet sms.ap-southeast-1.myhuaweicloud.com 443** to check the connection between the source server and the SMS.

- If the connection is unavailable, check whether the DNS and firewall of the source server are correctly configured.
- If the connection is available and data is being transmitted, check whether the outbound bandwidth of the source server is lower than 10 Mbit/s. If it is, the data transmission may be using up all the bandwidth, which can cause the connection between the Agent and SMS to time out. In this case, increase the outbound bandwidth of the source server to more than 10 Mbit/s, and then continue the migration.



Step 4 Wait for about a minute and log in to the management console.

Step 5 Click **Service List**. Under **Migration**, click **Server Migration Service**.

The SMS console is displayed.

Step 6 In the navigation pane on the left, click **Servers**.

In the **Status** column, view the connection status of the source server.

----End

Windows Server 2008 and Windows 7

Step 1 Log in to the source server and check whether the **SMSAgentDeploy.exe** process is running properly.

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- If the process does not exist, restart the Agent and go to **Step 2**.

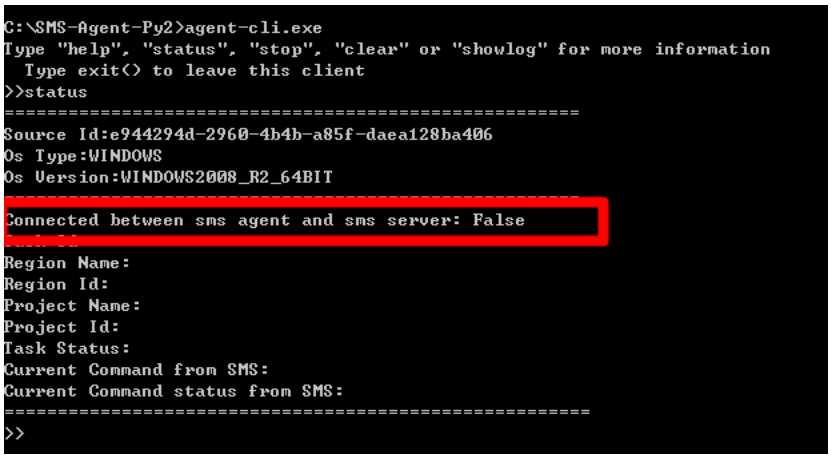
  WARNING

  If you restart the Agent, you need to perform the migration again.

- If the process exists, go to **Step 2**.

Step 2 Go to the SMS-Agent installation directory, run the **agent-cli.exe** command, and run the **status** command to check the Agent connection status.

- If the status is **True**, go to **4**.
- If the status is **False**, the Agent has proactively disconnected from SMS. In this case, go to **Step 3**.

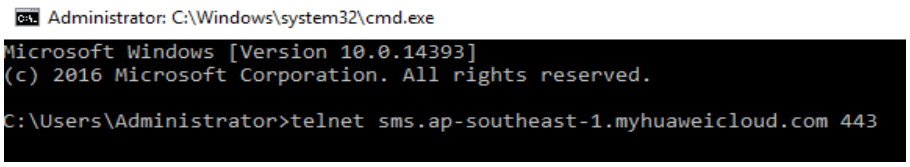


Step 3 Enter **connect** to reconnect the source server to SMS.

If in the command output, the value of **Connected between sms agent and sms server** is **True**, the connection between the source server and SMS has been restored.

Step 4 In the cmd window, run **telnet sms.ap-southeast-1.myhuaweicloud.com 443** to check the connection between the source server and the SMS.

- If the connection is unavailable, check whether the DNS and firewall of the source server are correctly configured.
- If the connection is available and data is being transmitted, check whether the outbound bandwidth of the source server is lower than 10 Mbit/s. If it is, the data transmission may be using up all the bandwidth, which can cause the connection between the Agent and SMS to time out. In this case, increase the outbound bandwidth of the source server to more than 10 Mbit/s, and then continue the migration.



Step 5 Wait for about a minute and log in to the management console.

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Step 6 Click **Service List**. Under **Migration**, click **Server Migration Service**.

The SMS console is displayed.

Step 7 In the navigation pane on the left, click **Servers**.

In the **Status** column, view the connection status of the source server.

----End

Linux

Step 1 Use PuTTY or another SSH client to log in to the source server.

Step 2 Run the **ps -ef | grep -v grep | grep linuxmain** command to check whether the Agent is running properly.

- If the **linuxmain** process is not running, restart the Agent.
- If the **linuxmain** process is running, go to **Step 3**.

```
[root@          ~]# ps -ef | grep -v grep | grep linuxmain
root     30634     1  0 Aug28 ?        00:00:00 ./linuxmain 1
root     30636 30634  0 Aug28 ?        00:00:14 ./linuxmain 1
```

Step 3 Run the **./agent-cli.sh** command in the SMS-Agent directory to go to the **agent-cli** page, and run the **status** command to check the Agent connection status.

- If the status is **True**, go to **Step 5**.
- If the status is **False**, the Agent has proactively disconnected from SMS. In this case, go to **Step 4**.

Step 4 Enter **connect** to reconnect the source server to SMS.

If in the command output, the value of **Connected between sms agent and sms server** is **True**, the connection between the source server and SMS has been restored.

Figure 4-7 Reconnecting the source server to SMS

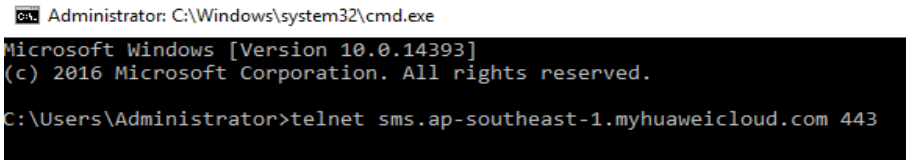
```
>>connect
==========================================================
Source Id:
Os Type:LINUX
Os Version:CENTOS_7_4_64BIT
==========================================================
Connected between sms agent and sms server: True
Task Id:
Region Name:
Region Id:
Project Name:
Project Id:
Task Status:NA
Current Command from SMS:
Current Command status from SMS:
```

Step 5 In the cmd window, run **telnet sms.ap-southeast-1.myhuaweicloud.com 443** to check the connection between the source server and the SMS.

- If the connection is unavailable, check whether the DNS and firewall of the source server are correctly configured.

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- If the connection is available and data is being transmitted, check whether the outbound bandwidth of the source server is lower than 10 Mbit/s. If it is, the data transmission may be using up all the bandwidth, which can cause the connection between the Agent and SMS to time out. In this case, increase the outbound bandwidth of the source server to more than 10 Mbit/s, and then continue the migration.



Step 6 Wait for about a minute and log in to the management console.

Step 7 Click **Service List**. Under **Migration**, click **Server Migration Service**.

The SMS console is displayed.

Step 8 In the navigation pane on the left, click **Servers**.

In the **Status** column, view the connection status of the source server.

----End

4.8 Why the Migration Progress Is Suspended or Slow?

Symptom

During the migration, the progress bar changes slowly or does not change.

Possible Causes

This problem may be caused by multiple factors, such as the network bandwidth, a large number of small files on the source server, and difference comparison during the data synchronization of a Linux file-level migration.

Procedure

- Check the bandwidths of the source and target servers. Allocate sufficient bandwidth for the migration process on the premises of not affecting services.
- Check whether there are a large number of small files on the source server. If there are, delete as many unnecessary files as possible.
- During a Linux file-level migration, if the synchronization progress stays at 6% for a long time, please wait patiently. The migration process is comparing and synchronizing the differences between the source and target servers.
- Check the migration status on the SMS console. If it is **Connected**, wait patiently. If it is **Disconnected**, see **How Do I Restore the Connection Between the Agent and SMS?**

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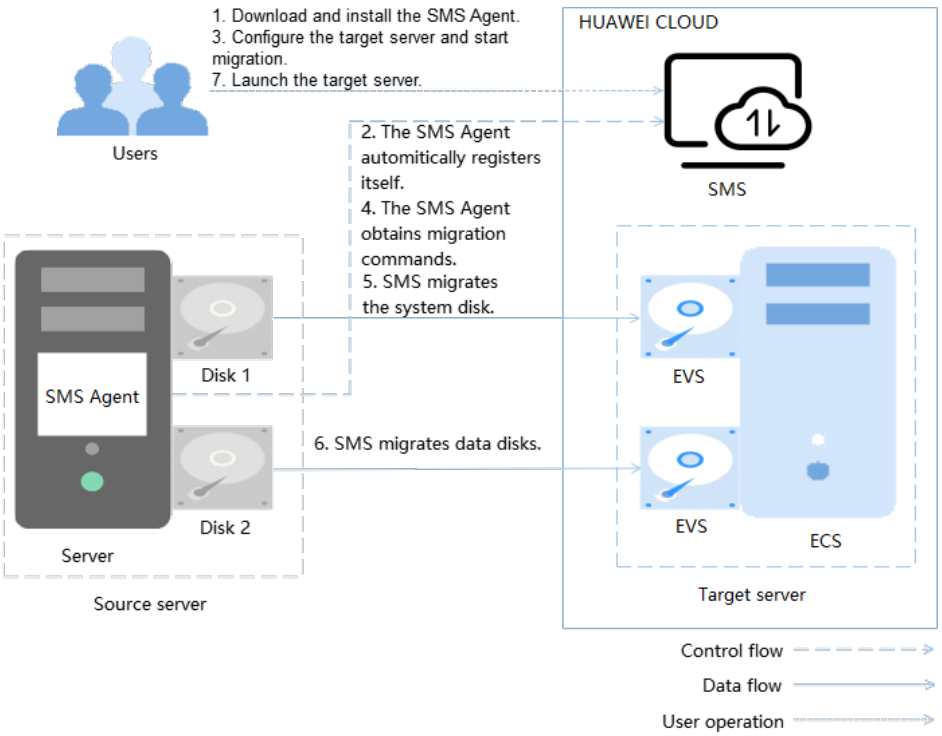
4.9 Does My Source Server Have to Connect to the Internet?

A source server must connect to the Internet no matter the source server connects to the target server through a Direct Connect connection, VPN connection, or VPC peering connection. As shown in the following figure, the Direct Connect connection, VPN connection, or VPC peering connection between the source and target servers is used only for data flow transmission. The control flow between the source server and SMS needs to be transmitted over the Internet.

NOTE

If the source server cannot access the Internet, you can configure a proxy server for the source server.

The following figure shows how SMS works:



- Control flow: the interaction process between the source server and SMS

  The interactions include:

  Step 2: The Agent registers its connection status with SMS and reports the information about the source server to SMS. Then, SMS evaluates migration feasibility of the source server.

  Step 4: The Agent receives and executes the migration commands sent by SMS.
- Data flow: the process of migrating data on the source server

  The data migration includes:

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Step 5: SMS migrates the system disk of the source server.

Step 6: SMS migrates the data disks of the source server.

4.10 How Do I Configure a Source Server to Access HUAWEI CLOUD Through a Proxy?

Scenarios

Each source server must continuously communicate with SMS over the Internet. If a source server cannot access HUAWEI CLOUD over the Internet, you can configure a proxy for the source server.

NOTICE

The IP address and port number in this section are used as examples only.

Preparations

- Prepare a CentOS server that will serve as a proxy server. In this section, CentOS 7.2 64-bit is used as an example.

  NOTE

  The proxy server must be able to communicate with the source server through the intranet.

- Obtain the Squid installation package.

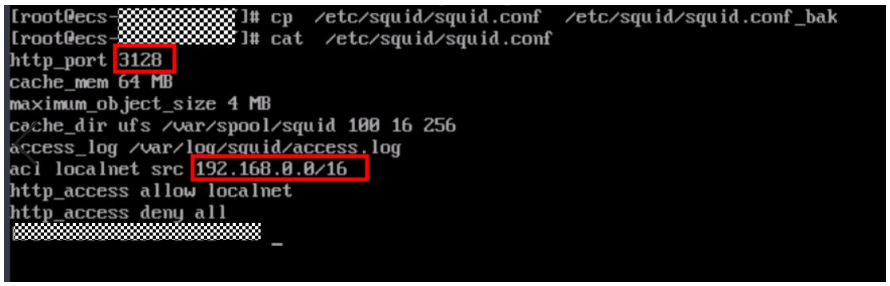
Procedure

Step 1 Install and configure Squid on the CentOS server.

1. Install Squid.

2. Edit the **squid.conf** file as follows:

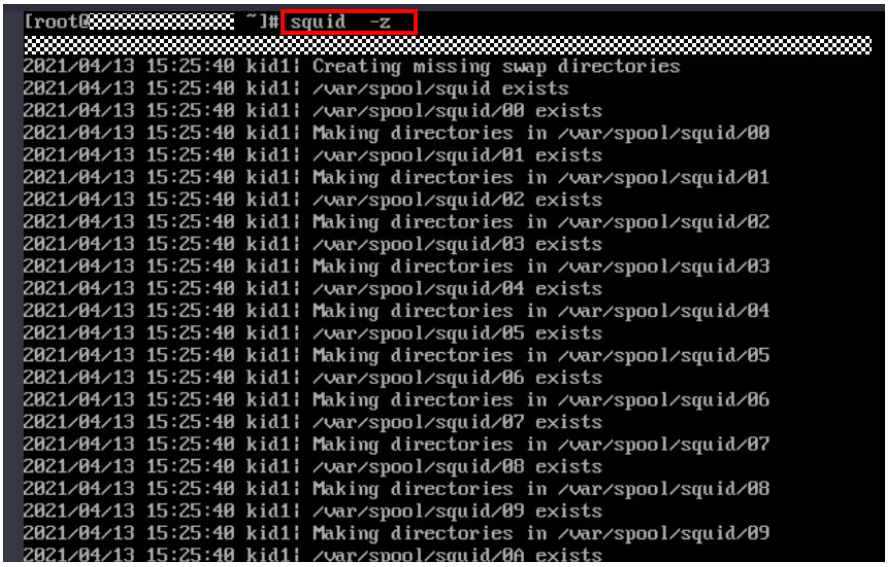

   ```
   http_port 3128
   cache_mem 64 MB
   maximum_object_size 4 MB
   cache_dir ufs /var/spool/squid 100 16 256
   access_log /var/log/squid/access.log
   acl localnet src 192.168.0.0/16
   http_access allow localnet
   http_access deny all
   ```

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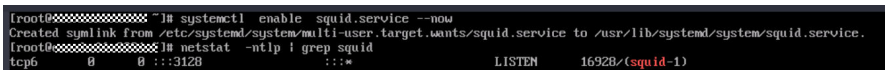
NOTE

http_port indicates the port specified for Squid. **acl localnet src** indicates the intranet IP address of the source server that needs to access the Internet using the proxy server. You can also set **acl localnet src** to **0.0.0.0/0** to allow access from all servers.

3. Initialize Squid.



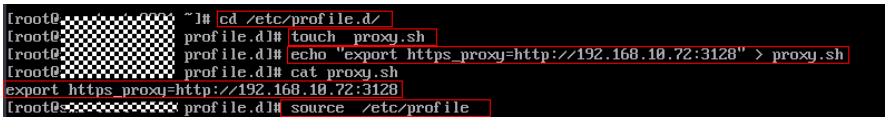
4. Start Squid and set it to automatically start upon system boot.



Step 2 Configure the source server to access the Internet through the proxy server.

- Linux

  Create a **/etc/profile.d/proxy.sh** file, edit the file, and then run the **source /etc/profile command** according to the following figure:



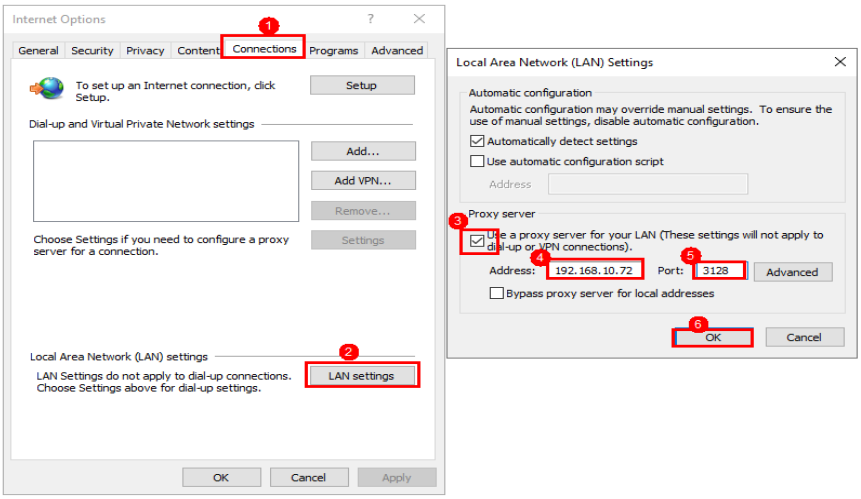
NOTE

Set **export https_proxy** to the intranet IP address and port of your proxy server. **192.168.10.72:3128** indicates that the source server will access the Internet over port 3128 of the proxy server with IP address of 192.168.10.72.

- Windows

  Open a browser, for example, Internet Explorer. Choose **Tools** > **Internet Options** > **Connections** > **LAN Settings**. In the **Proxy Server** area, set the parameters as follows:

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NOTE

Address and **Port** indicate the intranet IP address and port of the proxy server, respectively. In this example, the source server will access the Internet over port 3128 of the proxy server with intranet IP address of 192.168.10.72.

Step 3 Perform the following operations on the source server to register it with SMS using the SMS Agent through the proxy.

- Linux

  a. Run the **curl -O https://sms-agent-2-0-cn-north-1.obs.cn-north-1.myhuaweicloud.com/SMS-Agent.tar.gz** command to download the SMS Agent installation package.

  Decompress the installation package.

```
[root@xxxxxxxx ~]# curl -O https://sms-agent-2-0-cn-north-1.obs.cn-north-1.myhuaweicloud.com/SMS-Agent.tar.gz
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100  100M  100  100M    0     0  9913k      0  0:00:10  0:00:10 --:--:-- 11.4M
[root@ecxxxxxxx ~]# ll
total 103236
-rw-r--r-- 1 root root 105711407 Apr 27 11:28 SMS-Agent.tar.gz
[root@ecxxxxxxx ~]# tar -zxvf SMS-Agent.tar.gz   &&   yum -y install rsync _
```

  b. Go to the **SMS-Agent/agent/config** directory and modify the **auth.cfg** file.

```
[root@xxxx ~]# cd SMS-Agent/agent/config/
```

```
[root@xxxx config]# cat auth.cfg
[proxy-config]
enable = true
proxy_addr = 192.168.10.72
proxy_port = 3128
proxy_user =
use_password = false
```

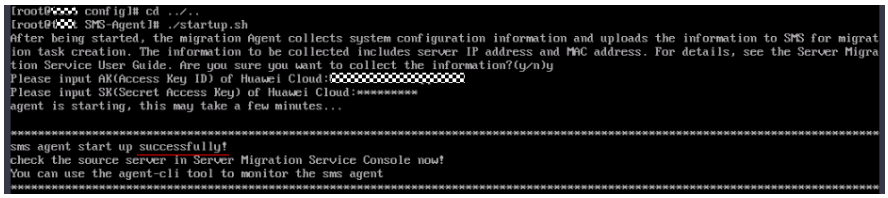
NOTE

proxy_addr indicates the intranet IP address of the proxy server that the source server uses to access SMS. **proxy_port** indicates the proxy port over which the source server accesses SMS.

  c. Enter the AK and SK of the HUAWEI CLOUD account you will use for migration as prompted.

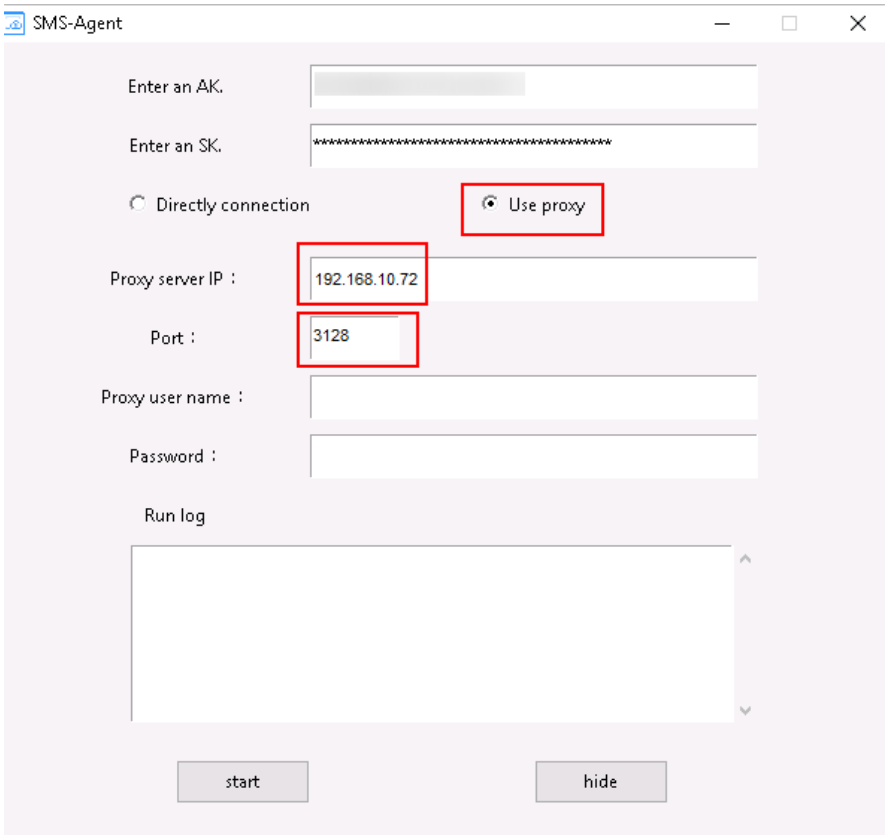
  When the message **successfully!** is displayed, the SMS-Agent is started successfully and starts reporting source server information to SMS.

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- Windows
  a. Download and install the Agent on the source server.
     - For Windows Server 2019/2016/2012 or Windows 10/8.1, install **SMS-Agent-Py3.exe**.
     - For Windows Server 2008 or Windows 7, install **SMS-Agent-Py2.exe**.

     For details, see **Installing the Windows Agent**.
  b. After the installation is complete, in the displayed SMS-Agent GUI, enter the AK and SK of the HUAWEI CLOUD account you will use for migration, and click **Start**.
     - If you do not need to use an HTTPS proxy, select **Direct connection**.
     - If you need to use an HTTPS proxy, select **Use proxy** and enter the IP address, port number, username, and password of the proxy server. Ignore **Proxy user name** and **Password** because no username or password is configured for the proxy server in this example.



NOTE

proxy_addr indicates the intranet IP address of the proxy server that the source server uses to access SMS.

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When the 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.

CAUTION

After the Windows source server is migrated, you are advised to reset the browser proxy settings to avoid its effects on the source server.

----End

4.11 Can I Release or Modify the Target Server EIP During the Migration?

No.

If you choose to migrate over the Internet, the Agent on the source server records the target server EIP when the migration starts, and uses the EIP for data transmission during the migration. Releasing or modifying the EIP during the migration will cause the migration to fail.

You can release or modify the EIP only after the migration is complete and no data synchronization is required.

4.12 How Do I Resolve Error "SMS.0302 Failed to resolve domain name xxx"?

Symptom

When you started your migration task, you got error message "SMS.0302 Failed to resolve domain name %s."

Possible Causes

The source server can communicate with SMS for migration only after all dependent domain names are resolved successfully. If any domain name resolution fails, this error message is displayed.

The possible causes are as follows:

1. The local network is abnormal.
2. The record set is abnormal.
3. The record set has been modified or cached by a local DNS server.

Solutions

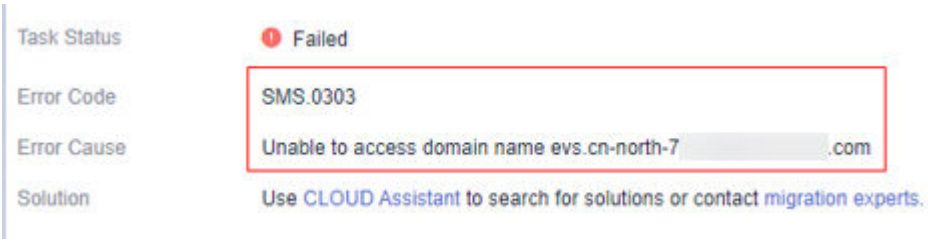
For details about the cause analysis method and solution, see **Why Did My Record Set Not Take Effect?**

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4.13 How Do I Troubleshoot Error "SMS.0303 Unable to access domain name xxx"?

Symptom

When you started your migration task, you got error message "SMS.0303 Unable to access domain name xxx."



Possible Causes

For a successful migration, the source server must access all dependent domain names. If any domain name fails to be connected, this error message is displayed.

The possible causes are as follows:

1. The network is abnormal, for example, the connection times out or the network is disconnected or inaccessible.
2. The access is blocked by the firewall.
3. Security alarms are generated on the source server, or the source server EIP is unbound or frozen.
4. The access is blocked by the security groups that the source server belongs to.

Solutions

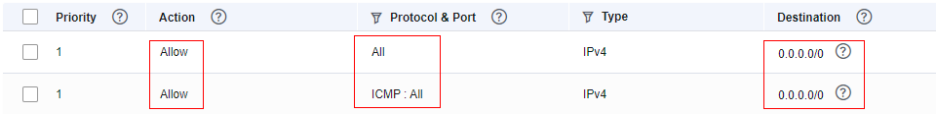
1. Ping another domain name.
   - If the ping operation succeeds, the network is normal.
   - If the ping operation fails, the network is abnormal. Check the local network status.
2. Check the firewall settings of the source server.

   If the access is blocked, allow the access and continue the migration.
3. Check whether security alarms are generated on the source server, or the source server EIP is unbound or frozen.
   - If the EIP has been unbound, you can bind it back or use a private network for migration.
   - If the EIP is frozen, contact ECS or EIP technical support.
4. Check whether the required outbound port is opened in the security group that the source server belongs to.
   - If there are no outbound rules for the protocols and ports shown in **Figure 4-8**, add rules for them.

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- If there are outbound rules for the ports with **Action** set to **Deny**, change the actions to **Allow**.
- If there are outbound rules for allowing the ports but the destination IP addresses are not **0.0.0/0**, change them to **0.0.0.0/0**.

Figure 4-8 Outbound rules



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5 Migration Duration

5.1 How Long Does a Migration Take?

1. Pre-migration evaluation

   Test the TCP speed from a source server to the target server. For details, see **How Do I Test the Network Between the Source and Target Servers Using iPerf?**

   $$T = \frac{C \times 1000 \times 8}{S \times 3600 \times U}$$

   where

   - *T*: the migration time, in hour
   - *C*: the total data volume of the source server, in GB
   - *S*: the TCP speed (in Mbit/s) from the source server to the target ECS, that is, the TCP speed obtained in **Step 4.2**
   - *U*: the network usage, which is related to network quality (jitter, delay, and packet loss). The value is usually between 50% and 80%.

   For example, if the total data volume of the source server is 100 GB, the TCP speed tested by iPerf is 100 Mbit/s, and the network usage is 70%, the migration time is calculated as follows:

   Migration time *T* = 100 GB x 1000 x 8 / 100 Mbit/s / 3600 / 70% ≈ 3.17 hours

   You can refer to **Table 5-1** to view the migration time of source servers of different data volumes and TCP speeds assuming that the network usage *U* is 70%.

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Table 5-1 Migration time

Total Data Volume on Source Server C (GB)	TCP Speed S (Mbit/s)	Migration Time T (Hour) **NOTE** **For migration time T, if the unit is hour, two digits are retained after the decimal point. If the unit is min, the value is an integer.**
10 GB	0.5 Mbit/s	SMS is not recommended. **NOTE** If a small bandwidth is used to migrate a large amount of data, the migration may be interrupted due to a long network delay.
	1 Mbit/s	SMS is not recommended.
	5 Mbit/s	6.35 hours
	10 Mbit/s	3.17 hours
	100 Mbit/s	0.32 hours (about 19 minutes)
	500 Mbit/s	0.06 hours (about 4 minutes)
	1,000 Mbit/s	0.03 hours (about 2 minutes)
30 GB	0.5 Mbit/s	SMS is not recommended.
	1 Mbit/s	SMS is not recommended.
	5 Mbit/s	19.04 hours
	10 Mbit/s	9.52 hours
	100 Mbit/s	0.95 hours (about 57 minutes)
	500 Mbit/s	0.19 hours (about 11 minutes)
	1,000 Mbit/s	0.10 hours (about 6 minutes)
50 GB	0.5 Mbit/s	SMS is not recommended.
	1 Mbit/s	SMS is not recommended.
	5 Mbit/s	SMS is not recommended.
	10 Mbit/s	15.87 hours
	100 Mbit/s	1.59 hours
	500 Mbit/s	0.32 hours (about 19 minutes)
	1,000 Mbit/s	0.16 hours (about 10 minutes)
100 GB	0.5 Mbit/s	SMS is not recommended.
	1 Mbit/s	
	5 Mbit/s	

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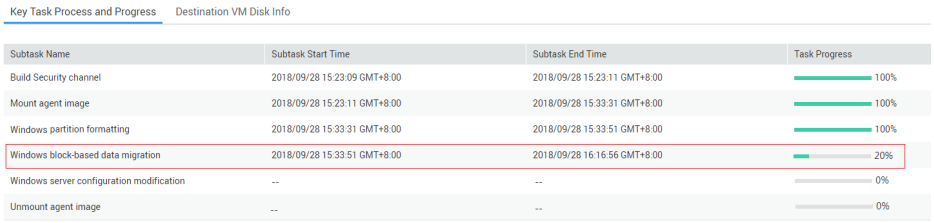
Total Data Volume on Source Server C (GB)	TCP Speed S (Mbit/s)	Migration Time T (Hour) NOTE For migration time T, if the unit is hour, two digits are retained after the decimal point. If the unit is min, the value is an integer.
	10 Mbit/s	
	100 Mbit/s	3.17 hours
	500 Mbit/s	0.63 hours (about 38 minutes)
	1,000 Mbit/s	0.32 hours (about 19 minutes)
500 GB	0.5 Mbit/s	SMS is not recommended.
	1 Mbit/s	
	5 Mbit/s	
	10 Mbit/s	
	100 Mbit/s	15.87 hours
	500 Mbit/s	3.17 hours
	1,000 Mbit/s	1.59 hours
1 TB	0.5 Mbit/s	SMS is not recommended.
	1 Mbit/s	
	5 Mbit/s	
	10 Mbit/s	
	100 Mbit/s	
	500 Mbit/s	6.50 hours
	1,000 Mbit/s	3.25 hours
Greater than 1 TB	N/A	SMS is not recommended.

2. Evaluation during migration (remaining time)

   $T = C \times 1000 \times 8 \times (80\% - P) / 60\% / S / 3600$

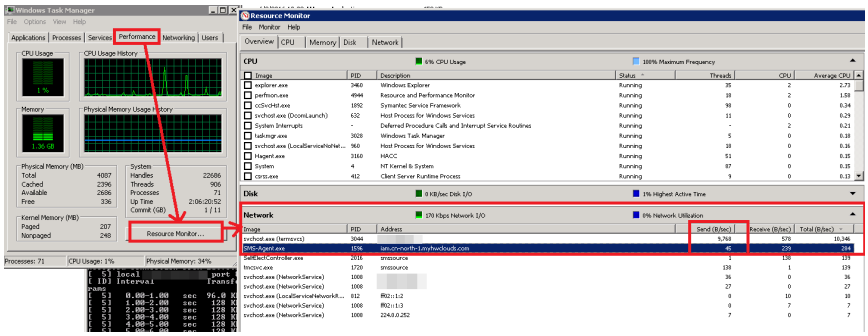
   - *T*: the time required, in hour
   - *C*: the total data volume of the source server
   - *P*: the transmission progress. *P* can be viewed on the SMS console. If *P* is larger than 80%, the data transmission is complete and you do not need to evaluate the remaining time.

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– *S*: the migration speed in Mbit/s. *S* cannot be tested accurately with iPerf. To obtain the accurate migration speed:

  - Windows: Choose **Windows Task Manager** > **Performance** > **Resource Monitor** to view the migration speed *S* for Windows OSs.



  - Linux: You are advised to use the sar tool or use **/proc/net/dev** to monitor the NIC speed.

Take an example where there is 100 GB to be migrated (*C*), the progress (*P*) is 70%, and the migration speed (*S*) is 100 Mbit/s. If we plug in the numbers in our formula, we get:

Migration time *T* = 100 GB x 1000 x 8 x (80% - 70%) / 60% / 100 Mbit/s / 3600 = 0.37 hours

5.2 How Do I View the Remaining Migration Time?

The remaining migration time depends on how much data is left to migrate and on how fast it is being migrated. Because the migration rate changes over time, the remaining time shown on the SMS management console is only an estimate. You can perform the following operations to view the remaining migration time:

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, click **Servers**.

The server list is displayed.

Step 4 Locate the target source server, hover over the icon corresponding to **Full Replication** in the **Migration Stage** > **Real-Time Status**, and view the remaining migration time.

----End

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5.3 How Is the Migration Rate Displayed on the SMS Console Calculated?

Metrics

Table 5-2 Related metrics

Metric	Windows Block-Level	Linux File-Level	Linux Block-Level
Total data	Total used space of all partitions to be migrated. You can right-click a partition and choose **Properties** from the shortcut menu. On the **General** tab, you see details about partition usage.	Total used space of all partitions to be migrated. You can run the **df -TH** command to view the used and available space on each partition.	Total size of all partitions to be migrated. You can run the **fdisk -lu** command to view the size of all the partitions.
Migrated data	Total size of all migrated data blocks that are located in the used partition space.	Total size of all migrated files.	Total size of all migrated data blocks in the partition.
Elapsed time	Time elapsed after a migration starts.		
Remaining time	Remaining time = (Total data – Migrated data) / Migration rate		

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Metric	Windows Block-Level	Linux File-Level	Linux Block-Level
Migration rate	**Calculated using the amount of data migrated over the last 5 seconds**. For example, if 200 MB data was migrated over the last 5 seconds, the migration rate is calculated as 320 Mbit/s (200 MB x 8/5s). The migration rate is not the same as the NIC rate because the data is compressed before being transmitted through the NIC. For details, see **Windows Block-Level Migration**.	Actual migration speed, which is the NIC rate of the target server.	**Calculated using the amount of data migrated over the last 5 seconds**. For example, if 200 MB data was migrated over the last 5 seconds, the migration rate is calculated as 320 Mbit/s (200 MB x 8/5s). The migration rate is not the same as the NIC rate because the data is compressed before being transmitted through the NIC. For details, see **Linux Block-Level Migration**.

Windows Block-Level Migration

Windows block-level migration rates are classified into two types. One is the rate displayed on the SMS console, which is the average migration rate over the last 5 seconds. The other is the actual NIC throughput for the migration process, which is less than what is displayed on the console because the data is compressed before being transmitted through the NIC

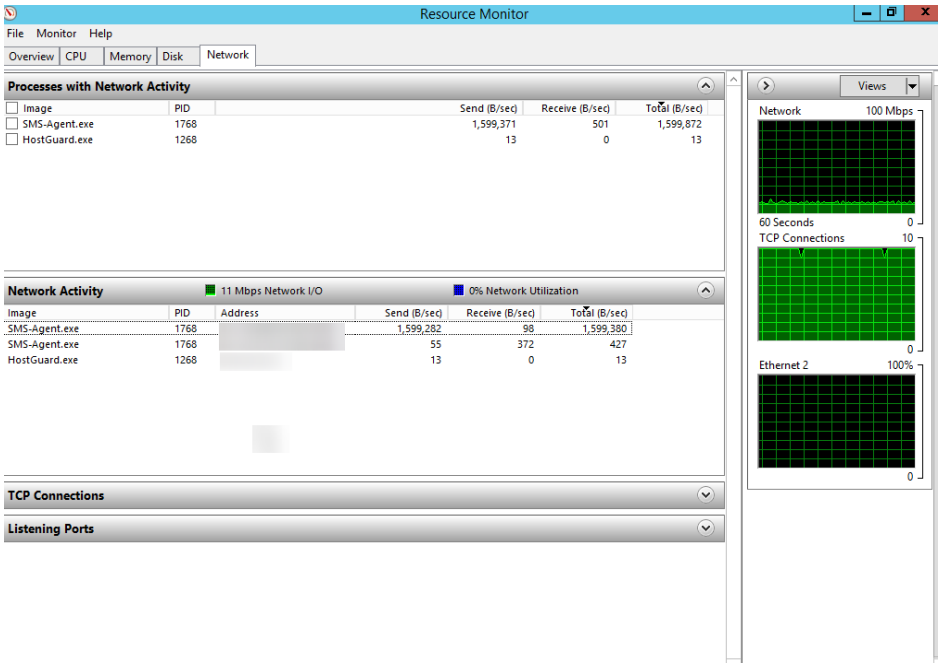
- **Migration rate displayed on the SMS console (before compression)**

  The migration rate displayed on the console is the actual amount of data migrated per second, which is the data transmission rate before compression. This rate shown is based on the average amount of data migrated over the last 5 seconds. For example, if 200 MB of data was transmitted over the last 5 seconds, and the amount of data after compression is 50 MB, the rate displayed on the console is 320 Mbit/s (200 MB*8/5s), but the NIC throughput for the migration process is 80 Mbit/s (50 MB*8/5s).

- **Actual NIC throughput (after compression)**

  During a Windows block-level migration, the Agent compresses data before transmitting it to the target ECS. The agent on the target ECS decompresses the data and writes the data to disks. The actual NIC throughput is the network bandwidth occupied by the migration process. You can view this rate in the task managers on the source server and target ECS. However, you can view this rate only after the target ECS is unlocked. The following uses Windows Server 2012 as an example.

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CAUTION

- You can view the network bandwidth occupied by the migration process in the task manager. Use the migration rate displayed on the SMS console to estimate the migration duration.
- The NIC rate of the source server also includes the bandwidth occupied by applications running on the source server. Therefore, you need to check the migration rate of the migration process. The rate displayed in the task manager is the compressed data transmission rate.
- A Windows block-level migration rate is stable because it is not affected by the number or size of files to be migrated.

Linux File-Level Migration

During a Linux file-level migration, data is not compressed, so the migration rate displayed on the console and the NIC throughput should match.

However, there is an exception. A Linux file-level migration is inefficient in transferring small files. When migrating a large number of small files, the network bandwidth cannot be fully utilized. In such a scenario, the migration rate is far lower than the available network bandwidth.

Linux Block-Level Migration

During a Linux file-level migration, data is not compressed, so the migration rate displayed on the console and the NIC throughput should match.

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5.4 How Do I Speed Up Migration?

- Improve your network speed. You can test the network performance from the source server to the target ECS on HUAWEI CLOUD. For details, see **How Do I Test the Network Between the Source and Target Servers Using iPerf?** If the network speed is less than 500 Kbit/s, check the following items:
  - If the source server is in a data center, check the bandwidth, switching devices, routing devices, security devices (such as firewalls), network lines, and network protocols between the source server and the Internet for issues. If there are any issues, contact network engineers to rectify the fault. It is recommended that the speed of the network from the source server to HUAWEI CLOUD be at least 10 Mbit/s.
  - Check the outbound bandwidth of the source server and the **inbound bandwidth** of the target server. Increase the smaller bandwidth or both as needed. For the influence of bandwidth on migration duration, see **Table 5-1**.
  - Check that the OS settings of the source servers and target ECSs. In Windows, you can run **perfmon** to invoke Performance Monitor to monitor the network. In Linux, you are advised to use the sar tool to monitor the network and use **/proc/net/dev** to monitor the NIC speed. If the network speed is slow, the OS configuration may be incorrect. Note that your OS services and processes cannot limit the NIC speed.
- Delete any files you no longer need from the source server before migration.
- Check the I/O read and write performance and CPU performance of the source server. In Windows, you can run **perfmon** to invoke Performance Monitor to monitor the CPU and I/O read and write performance. In Linux, you can use **top** or **ps** to monitor the CPU, and use **iostat** or **iotop** to monitor the I/O performance. If the I/O and CPU performance of your source server is poor, you are advised to increase the I/O and CPU resources or reduce the workloads on the source server.

5.5 Why Does the Migration Speed Fluctuate?

During the migration, operations such as module initialization, backup, and clearing are performed. It is difficult to accurately estimate the duration of these operations. Speed fluctuation is a normal phenomenon.

5.6 How Do I Test the Network Between the Source and Target Servers Using iPerf?

Prerequisites

Ensure that the network between the source and target server is connected, and the port used for the iPerf test is allowed by a security group rule configured for the target server. For how to configure a security group rule, see **How Do I Configure Security Group Rules for Target Servers?**

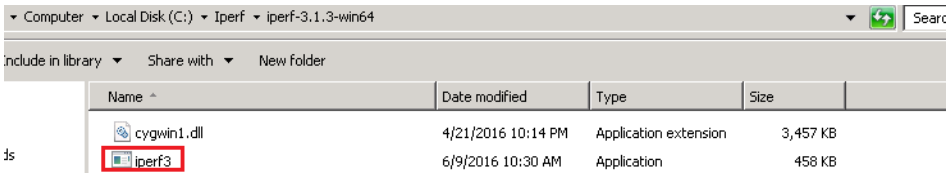
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This test must be performed before the migration, and the services running on the source server have little impact on the network, or the test results will be inaccurate.

Procedure

Step 1 Download **iPerf** based on the OS of the source server.

Step 2 Decompress the iPerf software package in a directory on the source server and target server (or another server in the same region as the target server). On a Windows server, the iPerf installation package looks like this:



Step 3 On the target server, run iPerf in server mode using the CLI. The following uses Windows as an example.

1. Run the following command to switch to the directory with the iPerf executable:

   cd /d *path*

   In the preceding command, *path* indicates where on the target server you decompressed iPerf to.

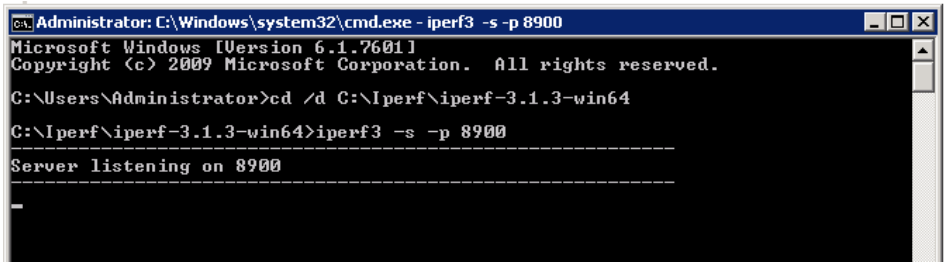
2. Run the following command to run iPerf in server mode:

   iperf3 -p *port* **-s**

   In the preceding command, *port* indicates the port on which the iperf server listens. It is recommended that port 8900 be used for Windows and port 22 for Linux since the two ports are configured as data transmission ports. You can also use another port for testing, but ensure that the TCP or UDP port is allowed in security group rules configured for the target server.

   For details about more parameters, run the **iperf -h** command.

   Assume that port 8900 is used for Windows. If **Server listening on 8900** is displayed in the command output, the iPerf server is running.



Step 4 On the source server, run iPerf in client mode using the CLI. Test the TCP bandwidth, UDP jitter, packet loss rate, and bandwidth. The following uses Windows as an example.

1. Run the following command to switch to the directory with the iPerf executable:

   cd /d *path*

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In the preceding command, *path* indicates where on the source server you decompressed iPerf to.

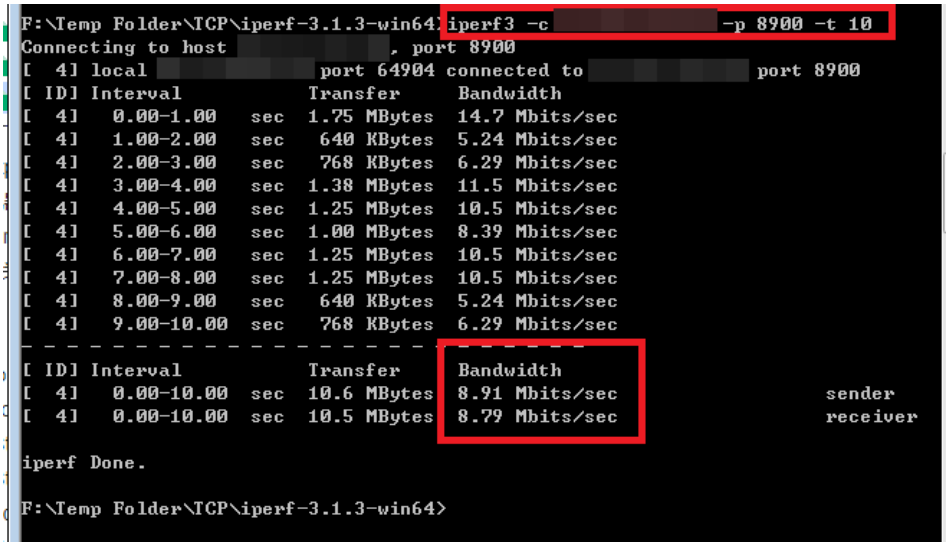
2. Run the following command to test the TCP bandwidth using iPerf:

   iperf3 -c *target_IP* **-p** *port* **-t** *time*

   In the preceding command, **-c** is used to run iPerf in client mode.

   - *target_IP* is the IP address of the target server (iPerf server).
   - *port* is the port for connecting to the target server, that is, the iPerf listening port 8900 in **Step 3.2**.
   - *time* is the total test time. The default unit is second.

   Wait for the iPerf client is connected to the iPerf server and the bandwidth test is complete, and check the result.



3. Run the following command to test the UDP jitter, packet loss rate, and bandwidth.

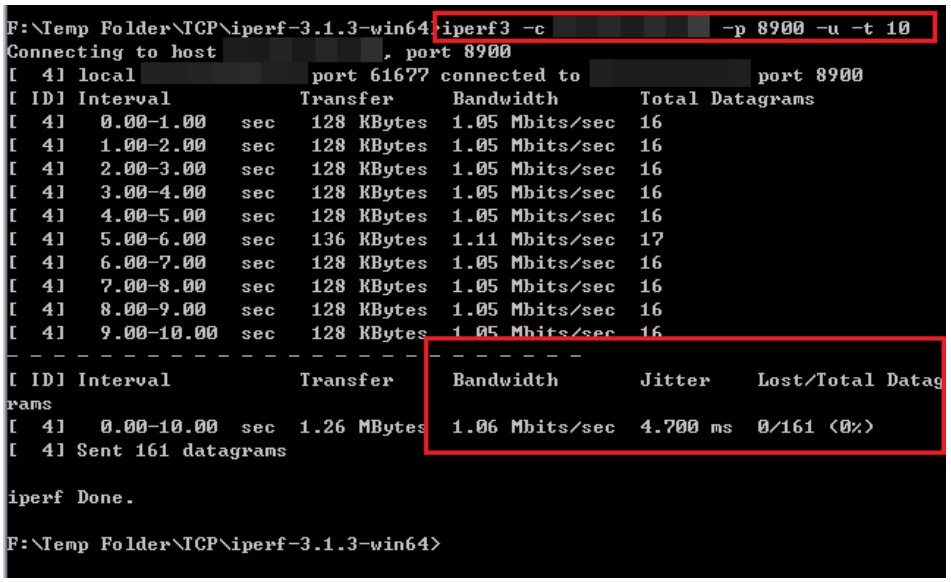
   iperf3 -c *target_IP* **-p** *port* **-u -t** *time*

   -u is used to measure the UDP jitter, packet loss rate, and bandwidth.

   - *target_IP* is the IP address of the target server (iPerf server).
   - *port* is the port for connecting to the target server, that is, the iPerf listening port 8900 in **Step 3.2**.
   - *time* is the total test time. The default unit is second.

   Wait for the iPerf client is connected to the iPerf server and the test is complete, and check the result.

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4. Run the following ping command to measure the network delay:

   ping *target_iP*

   target_IP is the IP address of the target server (iPerf server).

   Ensure the ICMP packets are allowed to pass through by the security group rules of the VPC to which the target server belongs.

Step 5 Run the following command to view all testing options. Alternatively, you can obtain the help information about **iPerf** on its official website.

iperf3 -h

----End

5.7 Why Doesn't the Increased Bandwidth Take Effect During Migration?

The minimum one of the following bandwidths will be used during the migration:

- Increased bandwidth of the source server
- Inbound bandwidth of the target server. For details, see **What Are Inbound Bandwidth and Outbound Bandwidth?**
- Migration rate limit set on the SMS console. For details, see **Setting the Migration Rate**.

CAUTION

If the increased bandwidth of the source server is the largest one of the preceding three values, it takes 5 to 10 minutes for the increased bandwidth to take effect.

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5.8 Is the Migration Speed Determined by the Source Bandwidth or the Target Bandwidth?

The migration speed depends on the smaller value between the outbound bandwidth of the source server and the **inbound bandwidth** of the destination server.

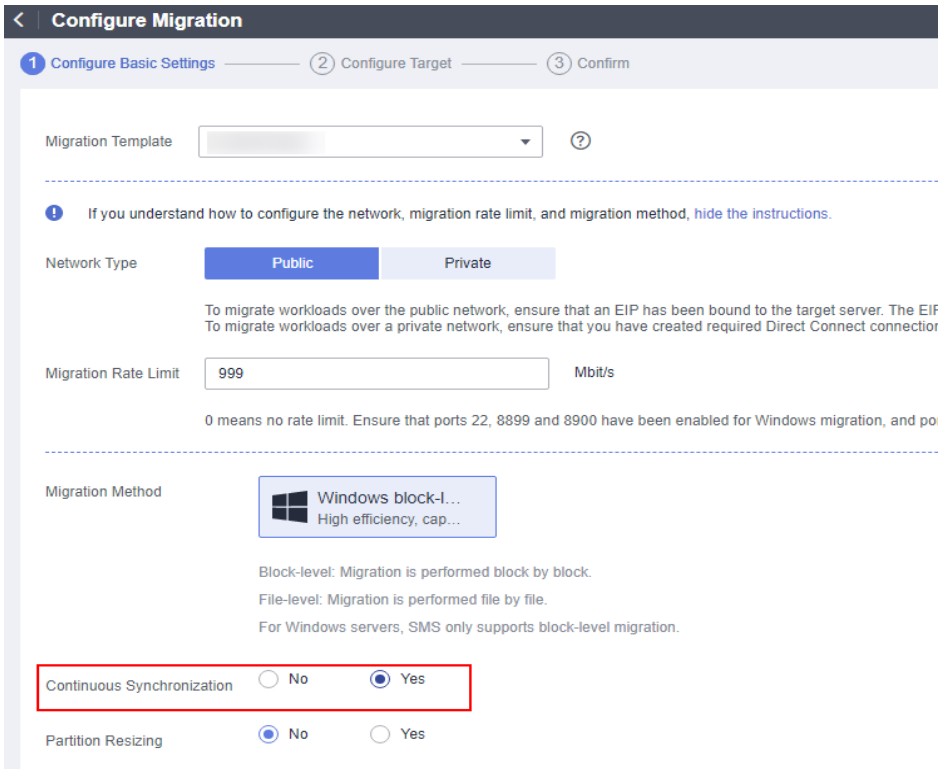
5.9 Why Does the Migration Stay in a Stage for a Long Time?

A migration may stay in the **Continuous Synchronization**, **Full Replication**, or **Target Launch** for a long time. For details about the stage your migration is in, see **Where Can I Find the Agent Run Logs?**

- Scenario 1: Continuous Synchronization

As a new feature of SMS, continuous synchronization automatically synchronizes incremental data from the source server. If you set **Continuous Synchronization** to **Yes** when you configure the migration settings, after the full replication is complete, the migration enters the **Continuous Synchronization** stage.

To complete the migration, you need to manually launch the target server, or the migration remains in the **Continuous Synchronization** stage.



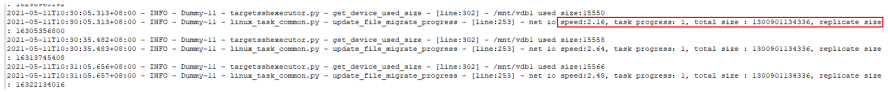
- Scenario 2: Full Replication

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During the full replication, the migration progress is suspended for a long time if the data volume is large but the migration speed is too slow. You can verify the causes by viewing the Agent run logs.



If information similar to the following is displayed, the migration is normal.



Parameter	Description
speed	Migration rate
task progress	Migration progress
total size	Amount of data to be migrated
replicate size	Amount of data migrated

NOTE

If the migration rate is not 0 and the amount of migrated data keeps increasing, the migration runs normally.

- Scenario 3: Target Launch
  - After you launch the target server, the task progress bar stays at 0% for a long time.

    After you launch the target server, the system performs an incremental data synchronization. The incremental data volume determines how much time is required by the synchronization. The synchronization progress may remain unchanged for a long time if there is too much incremental data on the source server.

    To check whether data is being synchronized, view the latest **sms_Info.log** file. If no error logs are generated during the target server launch, the migration runs normally.
  - After you launch the target server, the task progress bar remains unchanged for a long time.

    You can pause the task and start it again. Wait for about 10 minutes and check whether the progress bar changes.

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6 Agent Installation and Startup

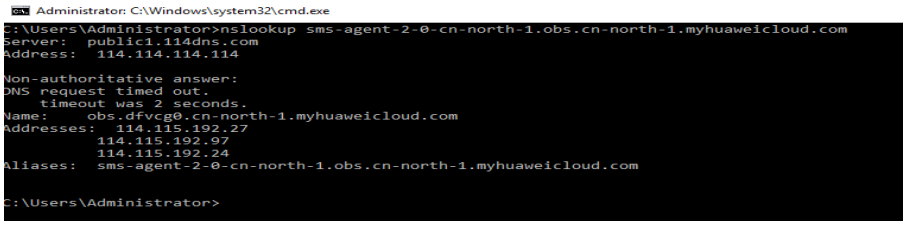
6.1 How Do I Install the Agent on Source Servers?

- To install the Agent on a Windows source server, see **Installing the Windows Agent**.
- To install the Agent on a Linux source server, see **Installing the Linux Agent**.

6.2 What Can I Do If I Fail to Download the Agent Installation File?

Step 1 Check that your computer can access the Internet. Then, run the following command in the cmd window to check whether **Address** is followed by the IP address shown in the following figure:

```
nslookup sms-agent-2-0-cn-north-1.obs.cn-north-1.myhuaweicloud.com
```



Step 2 If the IP address is not displayed, add the following record to the hosts file, and download the package again:

114.115.192.97 sms-agent-2-0-cn-north-1.obs.cn-north-1.myhuaweicloud.com

NOTE

In Windows, the hosts file is stored in the **C:\Windows\System32\drivers\etc** directory and can only be edited by the super administrator. In Linux, the hosts file is stored in the **/etc** directory.

Step 3 If the IP address is displayed, check whether the domain name corresponding to the IP address is contained in the hosts file. If it is, delete the record and download the package again.

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Step 4 If the download still fails after you have performed the preceding steps, you are advised to use another computer to download the package and upload it to the source server.

----End

6.3 How Do I Verify the Integrity of the Agent Installation File?

Step 1 Log in to the SMS console.

Step 2 In the navigation pane on the left, choose **Agents**. Click **Download SHA256 File** in the pane of the Agent you need to save the file containing the hash value to a local directory.

Step 3 Run the following command to obtain the hash value of the Agent installation file you have downloaded:

- Windows Agent

  certutil -hashfile *SMS-Agent-PyN.exe* **SHA256**

  SMS-Agent-PyN.exe is the Agent installation file name.

- Linux Agent

  sha256sum SMS-Agent.tar.gz **SHA256**

Step 4 Compare the hash values obtained in **Step 2** and **Step 3**.

- If they are consistent, the Agent installation file is complete.
- If they are inconsistent, download the Agent you need again and repeat **Step 3** and **Step 4** for verification.

----End

6.4 Why My Source Server Is Not Added to the SMS Console After I Configure the Agent?

After the Agent is installed and configured on the source server, the source server information is not added to the SMS console. In this case, you need to perform the following operations:

Step 1 Check whether the source server has been registered with SMS. If the source server is registered with SMS successfully, message "Upload success. Waiting for the SMS instruction" will be displayed on the CLIs of Windows Agent Python 2 and Linux Agent, and message "sms agent start up successfully" will be displayed in the GUI of Windows Agent Python 3.

Step 2 Check whether you use the correct account to log in to the SMS console and whether the AK/SK pair of the account is entered when you start the Agent.

Step 3 If the source server has been successfully registered with SMS, and the console version matches the Agent version, but no records are displayed, wait for about a minute and refresh the page.

----End

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6.5 How Do I Find and Modify the Agent Configuration Files?

The configuration files of the Agent are stored in the installation directory of the Agent. For details, see **SMS-Agent configuration files**.

Table 6-1 Agent configuration files

Configuration File	Location	Description
auth.cfg	Windows: **C:\SMS-Agent-Py3\config** or **C:\SMS-Agent-Py2\config** Linux: **../SMS-Agent/agent/config** **NOTE** **../** indicates the directory where the Agent is stored.	Modify this configuration file when an HTTPS proxy server is used for migration. You do not need to modify this file when a public network is used for migration.
cloud-region.json		You do not need to modify this file.
disk.cfg		Modify this configuration file when you want to migrate a partition on the source server running Windows to a specified disk on the target server.
g-property.cfg		It is recommended that you do not modify this main configuration file. If you need to modify this file, modify it under the guidance of professional personnel.

6.6 Where Can I Find the Agent Run Logs?

The run logs of the Agent are stored in the **Logs** folder under the installation directory of the Agent. For details, see **Agent log files**.

Table 6-2 Agent log files

File	Location	Description
check_version.log	• Windows **C:\SMS-Agent-Py3\Logs** or **C:\SMS-Agent-Py2\Logs** • Linux	Records the time when the Agent version was updated.
SmsAgent_Info.log		Records the logs about the Agent running.

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File	Location	Description
SmsAgent_Error.log	**../SMS-Agent/agent/Logs** **NOTE** In the preceding directory, **../** indicates the directory where the Agent is stored.	Records the running errors of the Agent.
update_conf.log		Records the updates of the Agent configuration files.

6.7 Why Is My Target Server Locked During the Migration?

During the migration, operations on the target server may cause migration failures. To ensure a smooth migration, the target server will be automatically locked during the migration and unlocked after the migration. For details about how to unlock the target serer manually, see **How Do I Unlock a Target Server Manually?**

6.8 How Do I Unlock a Target Server Manually?

Symptom

After the migration is complete, the target server should be automatically unlocked. However, the target server may fail to be unlocked for some reasons. For instance, there may be insufficient permissions or network issues. In this case, you can unlock the target server manually by performing the operations described in this section.

Possible Causes

The most typical reasons are as follows:

- The token is invalid or the network is faulty.
- Account permissions are insufficient.

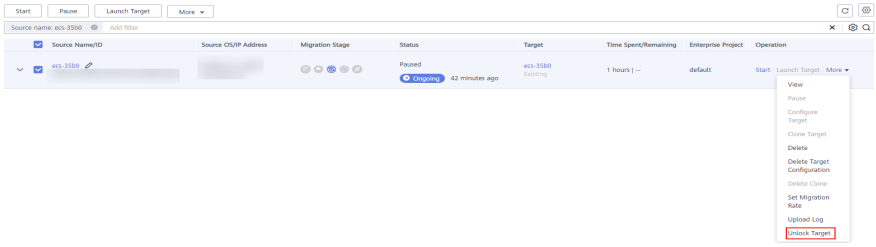
Solution

1. Check whether the corresponding migration record still exists. If the record has not been deleted, in the **Operation** column, choose **More** > **Unlock Target Server** to unlock the target server.

   If the system displays a message indicating that you do not have the permission to unlock the target server, use an account with the required permission and try again.

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Figure 6-1 Unlock Target



6.9 How Do I Resolve Error "rsync not installed on the source server" When I Start the Agent Installed on a Linux Source Server?

Symptom

When you started the Agent installed on a Linux source server, the "rsync not installed on the source server" message was reported, as shown in **Figure 6-2**. You need to install rsync and restart the Agent.

Figure 6-2 Error message



Possible Causes

Linux migration depends on rsync. If rsync is not installed on the source server, the Agent cannot be started.

Solutions

The operations for different OSs are as follows:

CentOS and Red Hat

1. Use PuTTY or another SSH client to log in to the source server as user **root**.
2. Run the following command to check whether rsync exists in the yum repository:

   yum search rsync

   - If rsync exists, go to step **3**.
   - If rsync does not exist and the source server runs CentOS 8, run the following commands to update the yum repository:

     mv /etc/yum.repos.d /etc/yum.repos.d.huawei.bak

     mkdir /etc/yum.repos.d

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vi /etc/yum.repos.d/CentOS-Base.repo (Enter the following information, and save the changes and exit.)

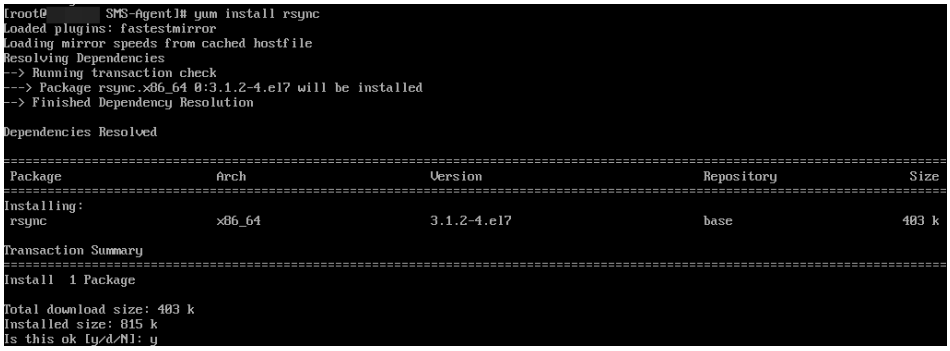
```
[BaseOS]
name=CentOS-$releasever - Base
baseurl=https://repo.huaweicloud.com/centos-vault/$contentdir/$releasever/BaseOS/$basearch/os/
gpgcheck=1
enabled=1
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-centosofficial
```

yum clean all

yum makecache

3. Run the following command to install rsync:

   yum install rsync



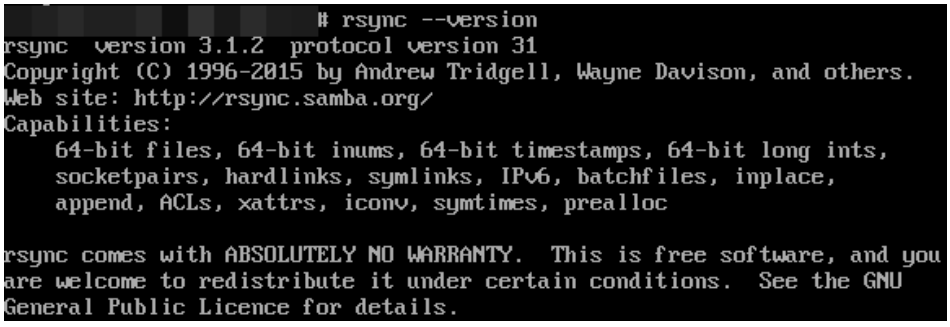
4. Enter **y** and press **Enter**.



5. Run the following command to display rsync details:

   rsync --version

   If the following information is displayed, rsync has been installed:

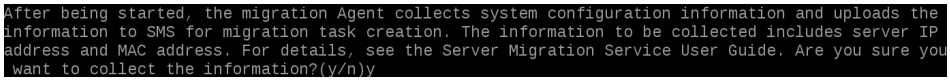


6. Run the following command to start the Agent:

   ./startup.sh

7. Read the displayed information carefully, enter **y**, and press **Enter**.

Figure 6-3 Confirmation



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8. Enter the AK and SK of the HUAWEI CLOUD account that you migrate to.

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

```
Please input AK(Access Key ID) of                :
Please input SK(Secret Access Key) of            :
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
```

SUSE

1. Use PuTTY or another SSH client to log in to the source server as user **root**.
2. Run the following command to install rsync:

   zypper install rsync

```
                    # zypper install rsync
Loading repository data...
Reading installed packages...
Resolving package dependencies...

The following NEW package is going to be installed:
  rsync

1 new package to install.
Overall download size: 363.0 KiB. After the operation, additional 713.0 KiB
will be used.
Continue? [y/n/? shows all options] (y):
```

3. Enter **y** and press **Enter**.

```
Continue? [y/n/? shows all options] (y): y
Retrieving package rsync-3.0.4-2.53.6.1.x86_64 (1/1), 363.0 KiB (713.0 KiB unpac
ked)
Retrieving: rsync-3.0.4-2.53.6.1.x86_64.rpm [done]
Installing: rsync-3.0.4-2.53.6.1 [done]
Additional rpm output:
insserv: warning: script 'S01agentwatch' missing LSB tags
insserv: warning: script 'agentwatch' missing LSB tags
```

4. Run the following command to display rsync details:

   rsync --version

   If the following information is displayed, rsync has been installed:

```
                    # rsync --version
rsync  version 3.0.4  protocol version 30
Copyright (C) 1996-2008 by Andrew Tridgell, Wayne Davison, and others.
Web site: http://rsync.samba.org/
Capabilities:
    64-bit files, 64-bit inums, 64-bit timestamps, 64-bit long ints,
    socketpairs, hardlinks, symlinks, IPv6, batchfiles, inplace,
    append, ACLs, xattrs, iconv, symtimes, SLP

rsync comes with ABSOLUTELY NO WARRANTY.  This is free software, and you
are welcome to redistribute it under certain conditions.  See the GNU
General Public Licence for details.
```

5. Run the following command to start the Agent:

   ./startup.sh

6. Read the displayed information carefully, enter **y**, and press **Enter**.

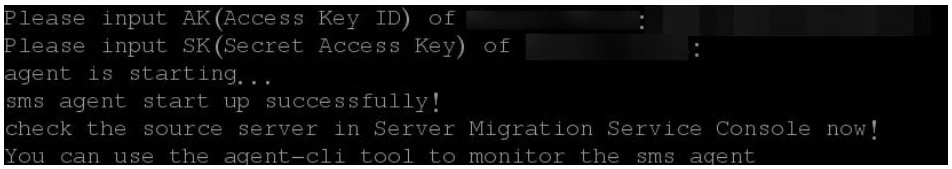
   Figure 6-4 Confirmation

```
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
```

7. Enter the AK and SK of the HUAWEI CLOUD account that you migrate to.

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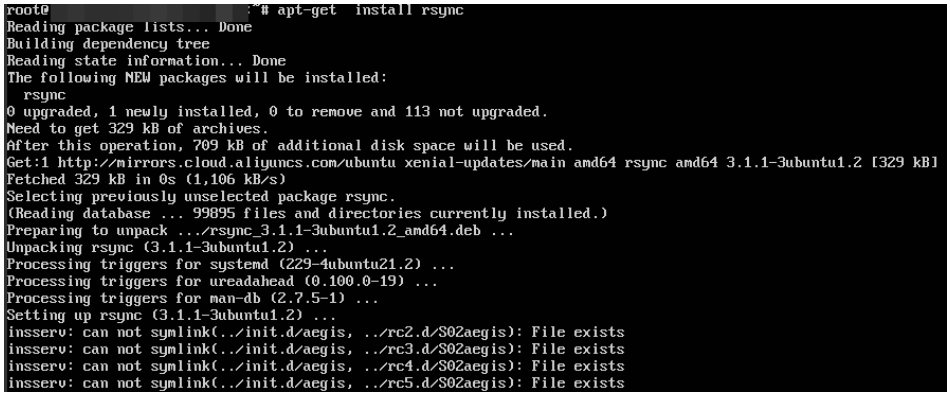
When the following information is displayed, the Agent has been started up and will automatically start reporting source server information to SMS.



Ubuntu

1. Use PuTTY or another SSH client to log in to the source server as user **root**.
2. Run the following command to install rsync:

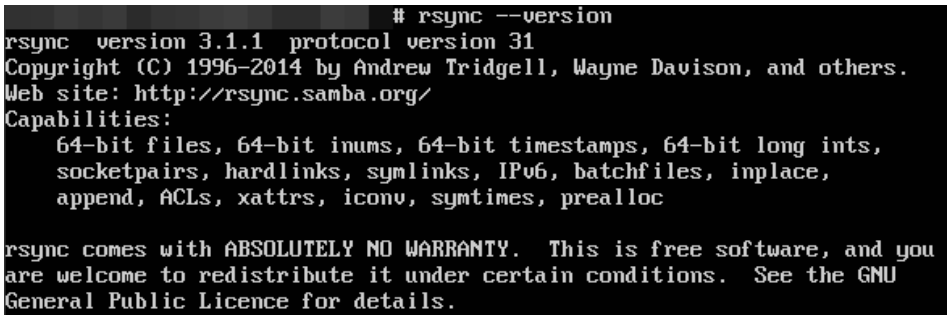
   apt-get install rsync



3. Run the following command to display rsync details:

   rsync --version

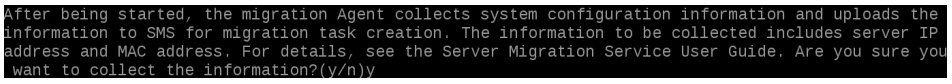
   If the following information is displayed, rsync has been installed:



4. Run the following command to start the Agent:

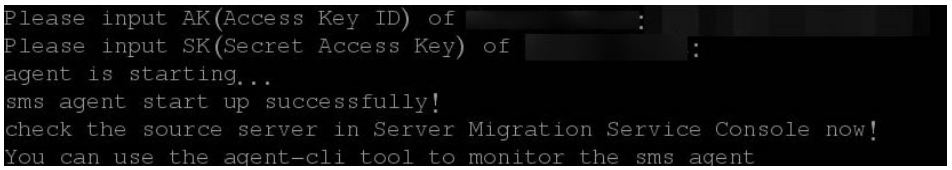
   ./startup.sh

5. Read the displayed information carefully, enter **y**, and press **Enter**.



6. Enter the AK and SK of the HUAWEI CLOUD account that you migrate to.

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



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6.10 How Do I Resolve Error "The application cannot be started due to incorrect parallel configuration" When I Start the Agent?

Symptom

When you started the Agent (Python 2), you received error message "SMS.5109 The application cannot be started due to incorrect parallel configuration."

Solution

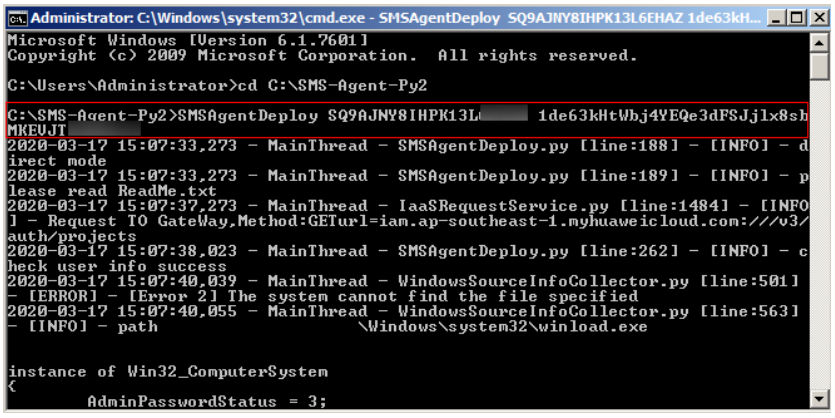
For details, see **Why Does the Agent Not Start the First Time I Launch It?**

6.11 Why Does the Agent Not Start the First Time I Launch It?

Due to the permission structure on some Windows machines, the Agent cannot be started the first time you launch it. If this happens:

1. Right-click the **Start** menu.
2. Click **Run** and enter **cmd**.
3. Enter **cd C:\SMS-Agent-Py2** to switch to the Agent installation directory. Run **SMSAgentDeploy.exe**, as shown in **Figure 6-5**.

Figure 6-5 Starting SMSAgentDeploy.exe



NOTE

- You must have a valid AK/SK pair. For details about how to obtain an AK/SK pair, see **How Do I Obtain the AK and SK of an Account?** or **How Do I Obtain the AK and SK of an IAM User?**
- If message "[401:{"error_msg": " Incorrect IAM authentication in formation: xxx xxx not exist","error_code":"APIGW.0301","request_id":"xxx"} "]" is displayed during the execution, check whether the entered AK and SK are correct.

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6.12 Why Does the Windows Agent Executable Not Run When I Double-Click It?

Symptom

You double-clicked the Windows Agent executable to install the Agent, but the file did not run.

Possible Causes

The file is locked by the system.

Solution

Right-click **SMS-Agent-py*.exe** and select **Properties** from the shortcut. In the displayed window, deselect **Unlock**. Run the file again.

6.13 How Do I Fix Error "Failed to start the I/O monitoring module" When I Start the Agent?

Symptom

When you started the Agent, you received error message "SMS.1902 Failed to start I/O monitoring."

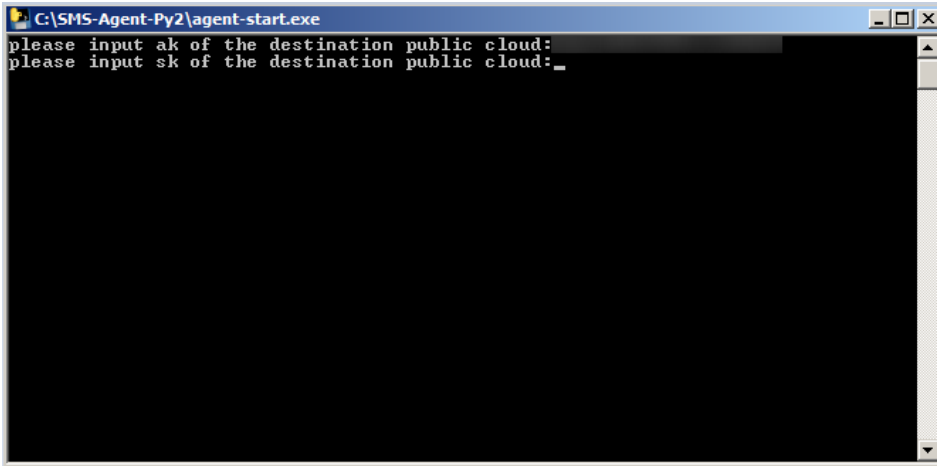
Procedure

Perform the following operations:

1. Uninstall the Agent and re-install it.
   a. If the Agent (Python 3) is installed, enter the AK and SK when prompted.
   b. If the Agent (Python 2) is installed, enter the AK and SK when prompted, as shown in **Figure 6-6**. If no prompt is displayed, double-click **start.bat** in the installation directory and enter the AK and SK when prompted.

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Figure 6-6 Entering the AK and SK



2. Check whether antivirus software is installed on the source server.

   a. If any antivirus or security software is installed, or the firewall is enabled, a pop-up window may be displayed indicating the I/O monitoring driver was blocked. Allow the system to run the I/O monitoring process.

   b. If there is no pop-up warning, but the driver is blocked, you need to start the I/O monitoring driver manually. Add **C:\Windows\System32\drivers\HwDiskMon.sys** to the trusted zone of the antivirus software and restart the Agent. If the problem persists, uninstall the antivirus software.

      NOTE

      Some antivirus software has persistent blocking functions and may block the driver even if disabled.

3. Modify the configuration file to disable I/O monitoring.

   If you do not need to synchronize data, you can modify the configuration file to disable I/O monitoring.

   In the Agent installation directory **config**, change the value of **enablesync** to **False** in the **g-property.cfg** file, and then restart the Agent.

Figure 6-7 Modifying the **g-property.cfg** file

```
[ssl_config]
servercheck = False

[property]
times = 1000
file_exist_check = C:\Windows\system32\DRIVERS\atapi.sys,C:\Windows\system32\DR
enablesync = False
smsuserid = 73d9354840684521bd7dff67432f4084
wmi = True
targetip =
heartmonitorday = 7
stopsync = 0

[enviromentcheck]
vss depend service = RPCSS,EventSystem,SENS,VSS,SWPRV,COMSYSAPP

[linux.config]
linux.support.filesystem = ext2,ext3,ext4,vfat,xfs,reiserfs
linux.unsupport.filesystem = btrfs
tar.exclude.dir = /proc/*,/sys/*,/lost+found/*,/var/lib/ntp/proc/*
tar.check.schedule.times = 4
tar.interval = 30
```


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6.14 How Do I Fix Error "INTERNAL ERROR: cannot create temporary directory!" When I Start the Agent?

Symptom

When you started the SMS-Agent-Py2, you received error message "INTERNAL ERROR: cannot create temporary directory!"



Possible Causes

Some files will be generated in a temp directory of the C: drive when you install the Agent. This error occurs if the available space of the C: drive is insufficient or if you do not have the permission to create a temp directory there.

Solutions

- Check the available space of C: drive. If the space is not enough, clean up the drive.
- Check whether you can create a temp directory on the C: drive. You may need to obtain write permissions.

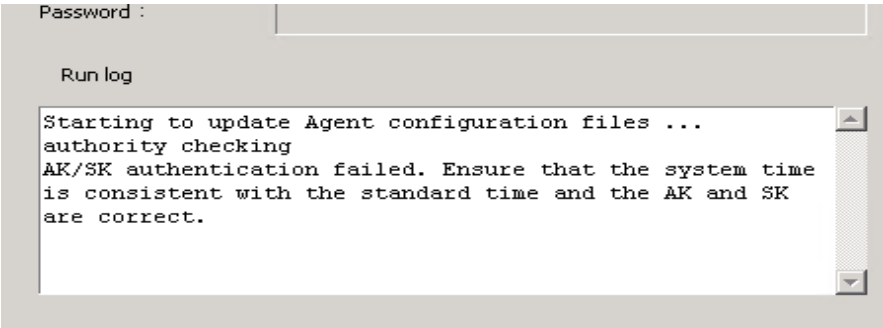
6.15 How Do I Resolve Error "AK/SK authentication failed. Ensure that the system time is consistent with the standard time and the AK and SK are correct" When I Start the Agent?

Symptom

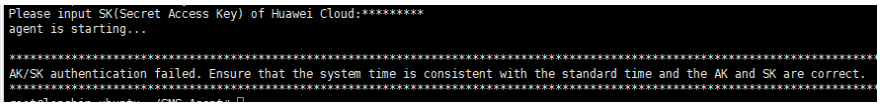
After the AK and SK of your HUAWEI CLOUD account are entered in the Agent, the AK/SK-based authentication fails. The specific error message depends on the OS.

- Windows: AK/SK authentication failed. Ensure that the system time is consistent with the standard time and the AK and SK are correct.

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- Linux: AK/SK authentication failed. Ensure that the system time is consistent with the standard time and the AK and SK are correct.



NOTE

For details about how to obtain the AK and SK, 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?**

Possible Causes

Possible causes are as follows:

- The entered AK or SK is incorrect.
- The system time of the source server is consistent with the local standard time.
- The time zone in the source server is configured incorrectly.
- The AK and SK have been deleted or disabled.
- The programmatic access type is not enabled for the HUAWEI CLOUD account you used for migration.

Handling Methods

- The entered AK or SK is incorrect.

  Check whether the entered AK and SK of the HUAWEI CLOUD account is correct, especially whether any spaces or characters are missed during the copy. Enter the AK and SK for authentication again.

- The system time of the source server is consistent with the local standard time.

  Check whether the system time of the source server is consistent with the standard time of the time zone where the source server is located.

  If it is not, change the system time to the local standard time, and enter the AK and SK for authentication again.

CAUTION

If services on the source server depend on the system time, check whether the time can be changed to avoid impact on services.

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- The time zone in the source server is configured incorrectly.

  Change the time zone in the source server so that the system time plus the time zone is equal to the standard UTC time. For details, see **Changing the Time Zone**. Enter the AK and SK for authentication again.

- The AK and SK have been deleted or disabled.

  Choose **My Credentials** > **Access Keys** to check whether the AK is in the list.

  – If it is not, change or create an AK.

  – If it is, check whether it is disabled. If the AK is disabled, enable it.

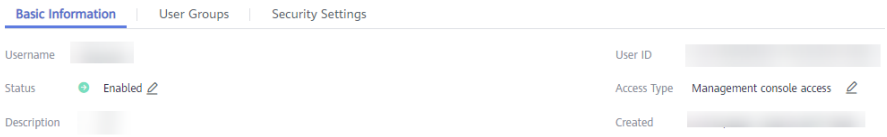
- The programmatic access type is not enabled for the HUAWEI CLOUD account you used for migration.

  a. Log in to the management console.

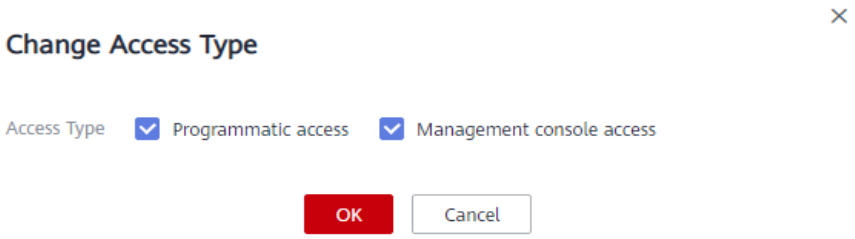
  b. Click the username in the upper right corner and choose **Identity and Access Management**.

  c. In the navigation pane on the left, choose **Users** and click the username you used for migration.

  d. On the **Basic Information** tab page, check whether **Programmatic access** is selected for **Access Type**.



  e. If it is not, click , select **Programmatic access**, and click **OK**.



6.16 How Do I Troubleshoot Failures of Pasting the AK/SK Pair When I Start the Agent (Python 2)?

Symptom

When you started the SMS-Agent (Python 2), you could not paste the AK/SK pair by right-clicking in the command window.

Prerequisites

You have obtained the AK/SK pair. For details, 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?**

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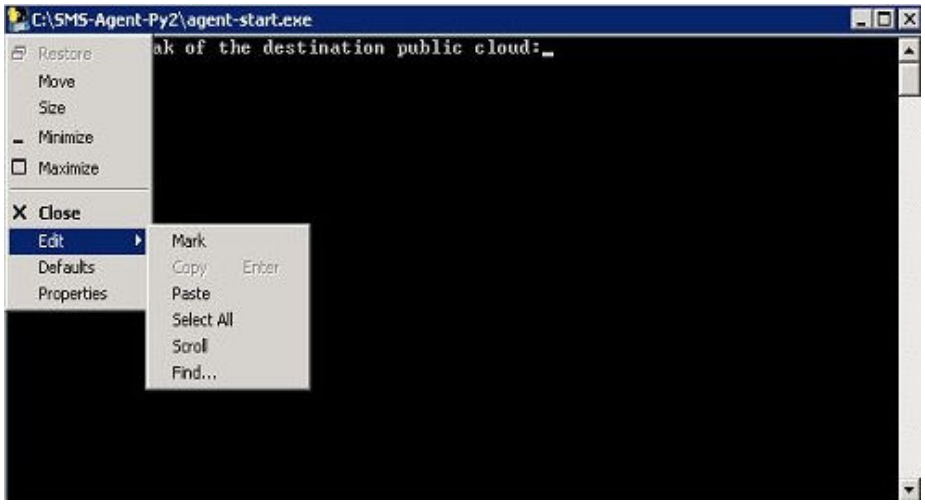
Solution

Step 1 Log in to the source server.

Step 2 Go to the Agent installation directory **C:\SMS-Agent-Py2** and double-click **agent-start.exe.**

Step 3 Copy the AK, click the icon in the upper left corner of the window, choose **Edit** > **Paste** from the displayed menu, and press **Enter**.

Step 4 Copy the SK, click the icon in the upper left corner of the window, choose **Edit** > **Paste** from the displayed menu, and press **Enter**.

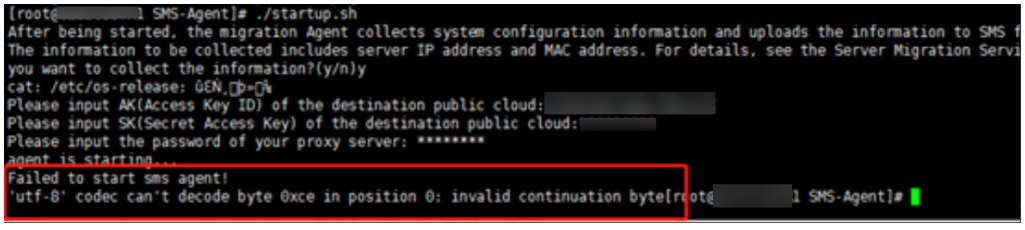


----End

6.17 How Do I Resolve Error "utf-8 codec can't decode byte 0xce in position0: invalid continuation byte" When I Start the Agent?

Symptom

In Linux, after you ran **./startup.sh** or **bash startup.sh** to start the Agent, the following message was displayed: "utf-8 codec can't decode byte 0xce in position0: invalid continuation byte."



Possible Causes

The character set of the source system is incorrect and is incompatible with SMS. As a result, the Agent fails to be started.

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Handling Method

1. Log in to the source server.
2. Run the following command to set the character set:
   ```
   export LANG="en_US.UTF-8"
   ```
3. Restart the Agent. If the problem persists, run the following command to set the character set:
   ```
   export LC_ALL="en_US.UTF-8"
   export LANG="en_US.UTF-8"
   ```

Impact Scope

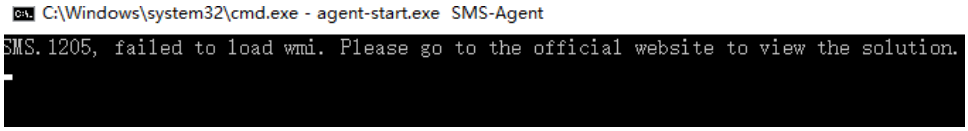
Setting the character set affects only the current shell and applications in the shell. It does not affect your files or other applications.

6.18 How Do I Resolve Error "Failed to load wmi" During the Agent Startup?

Symptom

When you started the Agent, message "SMS.1205 Failed to load wmi" was reported.

Figure 6-8 WMI loading failure



Possible Causes

Windows Management Instrumentation (WMI)-related files are missing or damaged. In Windows, the Agent uses the WMI module to collect source server information, such as CPU, memory, and disks details. The missing or damaged WMI-related files need to be restored.

CAUTION

- WMI will be stopped during the restoration. Confirm that stopping WMI will not affect services on the source server. The restoration will also change the files on the source server, which may involve certain risks. It is recommended that you perform the operations on a cloned source server first.
- If the issue persists, you can create an ECS by following the instructions provided in **Creating a Windows ECS from an Image**.

Restoring WMI

Step 1 Right-click **This Computer** in the navigation pane on the left in your file explorer and choose **Manage** from the shortcut menu.

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Step 2 On the **Computer Management** page, choose **Services and Applications** > **Services**. Stop **Windows Management Instrumentation**.

Step 3 Change **C:\Windows\System32\wbem\repository** to **C:\Windows\System32\wbem\repository_old**.

Step 4 Start **Windows Management Instrumentation**.

Step 5 Open the cmd window as administrator.

Step 6 Run the following command to go to the **C:\Windows\System32\wbem** directory:

cd C:\Windows\System32\wbem

Step 7 Run the following commands to restore WMI:

for /f %s in ('dir /b *.mof') do mofcomp %s

for /f %s in ('dir /b en-us*.mfl') do mofcomp en-us\%s

Step 8 Restart the Agent.

----End

6.19 How Do I Fix the Agent Startup Failures Due to Agent Files Write or Read Failures?

Symptom

When you installed the Agent on a Windows source server, the system displayed a message indicating that the Agent could not be installed because Agent files cloud not be written or opened for writing.

Possible Causes

- If a message indicating a write failure is displayed, it may be that there is not enough space on the system disk of the source server.
- If a message indicating a read failure is displayed, the possible cases are as follows:
  a. Role permissions are insufficient.
  b. Antivirus software is blocking access to the files.

Agent Files Write Failure

- Windows
  - There is a partition of 600 MB or larger, but the available space is less than 320 MB.
  - There is a partition smaller than 600 MB, but the available space is less than 40 MB.
- Linux

  The available space on the root partition is less than 200 MB.

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Agent Files Read Failure

1. Install the Agent as administrator.
2. Disable the antivirus software and try again. If the error persists, uninstall the antivirus software and try again.

6.20 How Do I Restart the Agent?

Windows

- Windows Agent (Python 3)

  1. Right-click the SMS-Agent icon in the task tray and choose **Quit** from the shortcut menu.

  2. Open the **C:\SMS-Agent-Py3** folder and double-click **SMS-Agent.exe**.

  3. On the page that is displayed, enter the AK/SK when promoted and click **Start**.

- Windows Agent (Python 2)

  1. Open the **C:\SMS-Agent-Py2** folder and double-click **restart.bat**.

  2. In the CMD window that is displayed, enter the AK/SK when prompted.

Linux

1. Go to the directory where the SMS-Agent installation package is decompressed and run the **./restart.sh** command.

2. On the page that is displayed, enter the AK/SK when prompted.

6.21 How Do I Fix Agent Startup Failures Due to Insufficient Space in /tmp on a Linux Source Server?

Symptom

When you ran the **sh startup.sh** command to start the SMS Agent, the following message was displayed:

```
Failed to write all bytes for cffibackend.cpython-36m-x86_64-linux.gnu.so
fwrite: No space left on device
```

Possible Causes

When the Agent is being started, directories and files are generated in the **/tmp** directory on the source server. These files will occupy about 40 MB of space. You need to reserve more than 100 MB space for the **/tmp** directory.

Solution

Step 1 Log in to the source server.

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Step 2 Run the **df -lh** command to check whether there is a volume mounted to the **/tmp** directory. If there is, check the available space for that volume.

Step 3 If the available space in the **/tmp** directory is insufficient for the mounted volume, perform either of the following operations:

- Delete unnecessary files or expand the capacity of the volume mounted to the **/tmp** directory.
- Run **export TMPDIR=/home/user/tmpdir command** (replace */home/user/tmpdir* with a directory that meets the requirements) to change the cache directory.

----End

6.22 How Do I Fix Error "Agent startup failed because the noexec permission is not allowed on /tmp for SMS Agent. Please remount /tmp without noexec" When I Start the Linux Agent?

Symptom

When you ran **sh startup.sh** to start the SMS Agent, the following message was reported: "SMS.5102 Agent startup failed because the noexec permission is not allowed on /tmp for SMS Agent Please remount /tmp without noexec."

Possible Causes

This problem occurs because a block device is mounted to the /tmp directory, but the exec permission was not assigned or the noexec permission was assigned during the mounting.

Solution

Step 1 Log in to the source server.

Step 2 Run the **mount -l | grep /tmp** command. If information similar to the following is displayed, the noexec permission is assigned:

```
/dev/vdb1 on /tmp type ext4 (rw, noexec, relatime, data=ordered)
```

Step 3 Remount the block device to the **/tmp** directory. Do not assign the noexec permission during the mounting. Alternatively, run the **mount -o remount exec /tmp** command to assign the **exec** permission.

Step 4 Run the **mount -l | grep /tmp command** again. If information similar to the following is displayed, restart the Agent.

```
/dev/vdb1 on /tmp type ext4 (rw, relatime, data=ordered)
```

----End

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6.23 How Do I Resolve Error "Only servers with x86 architecture can be migrated"?

Symptom

When you started the Agent, message "Only servers with x86 architecture can be migrated" was reported.



Possible Causes

SMS can only migrate x86 servers.

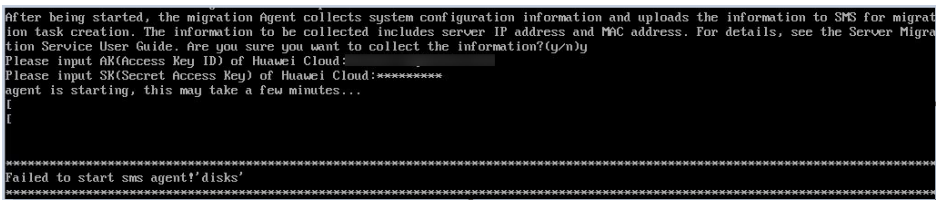
Solution

If your source server is based on the Arm architecture, Kunpeng Professional Services on HUAWEI CLOUD can help you.

6.24 How Do I Fix Error "Failed to start sms agent! 'disks'" When I Start the Agent on a Linux Source Server?

Symptom

When you started the Agent on a Linux source server, message "Failed to start sms agent!'disks'" was displayed.



Possible Causes

Possible causes include:

1. Multiple volume groups are with the same name.

   Check whether the **SmsAgent_Error.log** file records "Multiple VGs found with the same name".

   SMS requires that a Linux source server must not have volume groups with the same name, or the Agent will fail to collect the information about the source server disks. Run the **vgdisplay** command to check whether there are

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volume groups with the same name, and run the **lvdisplay** command to view logical volume properties, such as the host name and creation time.

2. The **fdisk** command cannot be found on the source server.

   Run the **fdisk -l** command on the source server to check whether the **fdisk** command exists in your path. If the **fdisk** command cannot be found, the possible cause is that the **/sbin** directory is not included in PATH, or the **/sbin** directory is included in PATH but does not take effect. This problem may occur after you run the **su** command to switch to the **root** user.

Solutions

1. If there are volume groups with the same name in Linux, these volume groups and the corresponding logical volumes cannot be mounted or read.

   You can detach the disks in the volume groups that fail to be mounted from the source server and attach them to another server. Then check whether the data in the disks needs to be migrated.

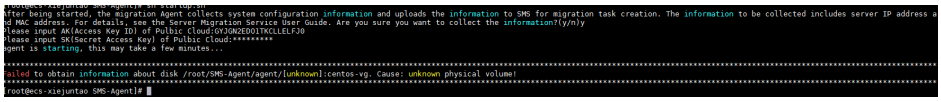
   - If the data needs to be migrated, run the **vgrename** command to rename each of these volume groups, and attach the disks in these groups back to the source server. Then restart the SMS Agent.
   - If the data does not need to be migrated, restart the SMS Agent. After the migration is complete, attach the disks back to the source server.

2. Run the **source /etc/profile** command and restart the SMS Agent.

6.25 How Do I Fix Error "Failed to obtain information about disk *X*" When I Start the Agent on a Linux Source Server?

Symptom

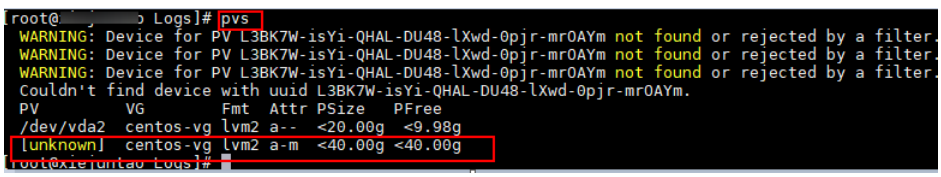
When you started the Agent on a Linux source server, you received message "**Failed to obtain information about disk %s. Cause: unknown physical volume!**"



Possible Causes

The source server uses LVM and there are unknown physical volumes on the server. The Agent cannot collect the information about these volumes.

You can run the **pvs** command on the source server to check the details about its physical volumes.



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Solutions

Step 1 Contact technical support of the source platform to restore the source server.

Step 2 After the source server is restored, run the **pvs** command to check whether unknown physical volumes still exist on the server.

If no unknown physical volumes exist, perform the migration again.

----End

6.26 How Do I Fix Error "SMS.6562: component i386-pc not found on source server. For solution, see SMS API Reference." When I Start the Agent on a Linux Source Server?

Symptom

When you started the Agent installed on a Linux source server, you received error message "SMS.6562: component i386-pc not found on source server. For solution, see SMS API Reference."



Possible Causes

HUAWEI CLOUD requires that component i386-pc must be available on servers booted in BIOS mode for installing GRUB. The error message indicates that the source server is started in BIOS mode but does not have component **i386-pc**. In this case, during the target server configuration by the Agent, GRUB will fail to be installed. As a result, this error is reported during the configuration.

NOTE

The **i386-pc** component is located is in the **/usr/lib/grub/i386-pc** directory.

Procedure

Step 1 Run the following command to check whether the source server is booted in BIOS mode:

```
#[ -d /sys/firmware/efi ] && echo UEFI || echo BIOS
```

- If the output is **bios**, the server is started in BIOS mode.
- If the output is **uefi**, the server is booted in UEFI mode.

Step 2 Run the following command to check whether the **i386-pc** folder exists in the **/usr/lib/grub/** directory:

```
#ls /usr/lib/grub
```

- If the **i386-pc** folder does not exist, go to step **3**.

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- If the **i386-pc** folder exists, run the following command to check whether the **i386-pc** folder is empty:

```
#ls /usr/lib/grub/i386-pc
```

Step 3 On the source cloud platform or HUAWEI CLOUD, use a public image to create a temporary server that runs the same OS as the source server.

Step 4 Log in to the temporary server and transfer the **i386-pc** folder in the **/usr/lib/grub/** directory on the temporary server to the **/usr/lib/grub/** directory on the source server. If an empty **i386-pc** folder exists on the source server, overwrite it.

You can use Secure Copy (SCP) or Rsync to transfer the folder. The following command uses SCP as an example:

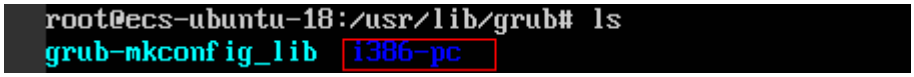
```
#scp -r /usr/lib/grub/i386-pc   username@xx.xx.xx.xx:/usr/lib/grub/
```



CAUTION

- Replace **username** with the username of the source server.
- Replace **xx.xx.xx.xx** with the IP address of the source server.
- Modify the security group of the source server to allow access from the temporary server.

Step 5 Log in to the source server, check that the **i386-pc** folder exists in the **/usr/lib/grub/** directory, and restart the Agent.



----End

6.27 How Do I Fix Error "SMS.6563: File initrd or initramfs of the xxxx version not found under /boot directory. For solution, see SMS API Reference." When I Start the Agent on a Linux Source Server?

Symptom

When you started the Agent installed on a Linux source server, you received error message "SMS.6563: File initrd or initramfs of the xxxx version not found under /boot directory. For solution, see SMS API Reference."



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Possible Causes

The source server does not have the **initrd** or **initramfs** image file. Servers on some cloud platforms use custom kernels and a specific mechanism is used during the startup. The servers can be started without the **initrd** or **initramfs** image file. Servers on Huawei Cloud cannot be started without the **initrd** or **initramfs** image file.

NOTE

The functions of **Initrd** and **Initramfs** are basically the same. They both provide the driver required for starting the kernel.

Different OSs use different image files. For example, Ubuntu uses **Initrd** with name in the format of **initrd.img-***xxx*, and some CentOS distributions use **Initramfs** with name in the format of **initramfs-***xxx***.img**.

Procedure

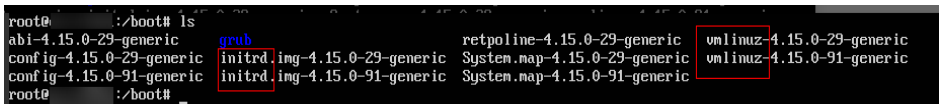
This solution uses Ubuntu as an example.

Step 1 Run the following command on the source server to check whether all required boot files exist in the **/boot** directory:

```
#ls /boot
```

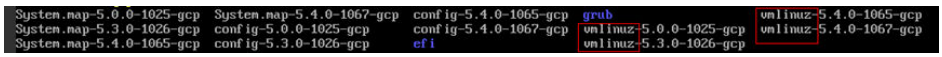
- If the following command output is displayed, the required boot files exist which include the kernel file **kernel vmlinuz-***xxx* and the image file **initrd.img-***xxx* of the corresponding version.

  Figure 6-9 Complete startup files

- If the following command output is displayed, the source server has the kernel file **kernel vmlinuz-***xxx* and does not have the image file **initrd.img-***xxx* of the corresponding version.

  Figure 6-10 Incomplete startup files

Step 2 Run the following command to check whether the component for updating the initrd image file is available:

```
#type update-initramfs
```

- If **update-initramfs** is displayed, the component is available. Go to step 4.

  ```
  root@ :/boot# type update-initramfs
  update-initramfs is /usr/sbin/update-initramfs
  ```

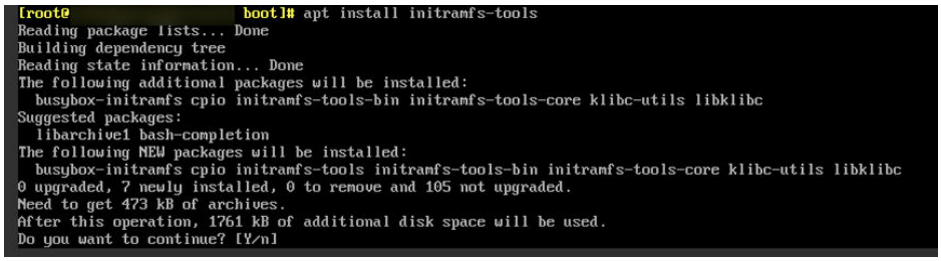
- If **not found** is displayed, the component is missing. Go to the next step.

  ```
  root@ :/boot# type update-initramfs
  -bash: type: update-initramfs: not found
  ```

Step 3 Run the following command to install the update component of the **initrd** image file:

```
#apt install initramfs-tools
```

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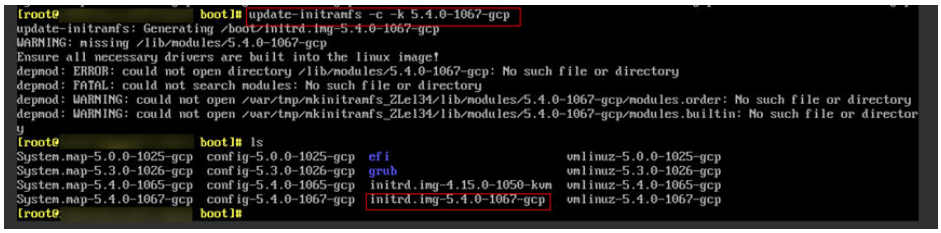


Enter **y** to complete the installation. Run the command in step 2 again to check whether the installation is successful.

Step 4 Run the following command to update the **initrd** image file to the corresponding version, where **xxxxx** indicates the major version number, **xxxx** indicates the minor version number, and **xxx** indicates the kernel source:

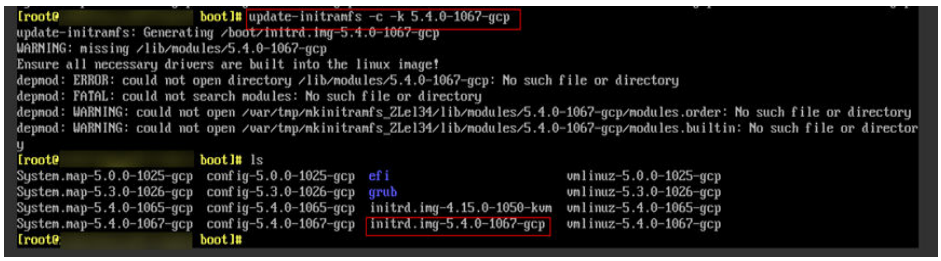
```
#update-initramfs –c –k  xxxxx-xxxx-xxx
```

As shown in the following figure, **5.4.0-1067-gcp** is used as an example.



Step 5 Run the following command to go to the **/boot** directory and check that the **initrd** image file of the required version is added: Restart the Agent.

```
#ls /boot
```

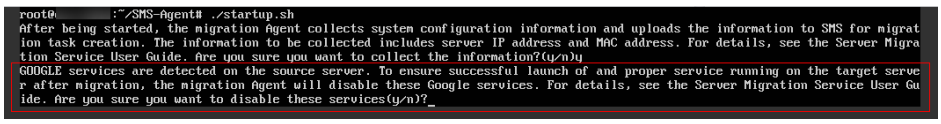


----End

6.28 How Do I Choose When the System Asks Whether to Disable the Google Services Detected on My Source Server on the Google Cloud?

Description

When I started the Agent on the Linux source server running on the Google Cloud, the system asks you whether to disable the detected Google Cloud services.



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Background

Some Google Cloud services depend on the Google Cloud. After the source server is migrated to Huawei Cloud, these Google Cloud services cannot run properly. As a result, after the migration the target server may fail to be launched or other services may fail to be started. Before the migration, read **Description of Disabling Google Cloud Services** and make evaluations based on service requirements.

NOTE

- Disabling these services does not affect the source server and affects the configuration of startup services on the target server.
- If your services depend on these Google Cloud services, contact HUAWEI CLOUD technical support before the migration.

- If you choose to disable these Google Cloud services, enter **y**. During the target server configuration, the Agent will disable these services on the target server.
- If you choose not to disable these Google Cloud services, enter **n**. All the service settings will be retained on the target server after the migration. But the target server may fail to be launched or some services may fail to be started.

Description of Disabling Google Cloud Services

- Servers with startup services in the **/etc/systemd/system** directory, such as those running Ubuntu, CentOS 8, or CentOS 9

  If you choose to disable the Google Cloud services, the Agent will only delete the soft links related to these services in the **/etc/systemd/system** directory. The service files pointed by the soft links are not affected.

NOTE

Deleting the soft links of a service makes the service not start automatically at system startup but does not affect the actual files of the service.

- Servers with startup services in the **/etc/init** directory, such as those running CentOS 6

  If you choose to disable the Google cloud services, the Agent will check the configuration files whose names start with **google** in the **/etc/init** directory, move these configuration files to **/etc/backup_googleconf**, and compress the folder into package **google_conf_bak.tar.gz** for backup.

6.29 How Do I Fix Error "SMS.0410: Failed to obtain NicName/IPAddress information of source server " When I Start the Agent on a Linux Server?

Symptom

When you started the Agent on a Linux server, either of the following messages was displayed:

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- SMS.0410: Failed to obtain NicName information of source server.



- SMS.0410: Failed to obtain IPAddress information of source server.



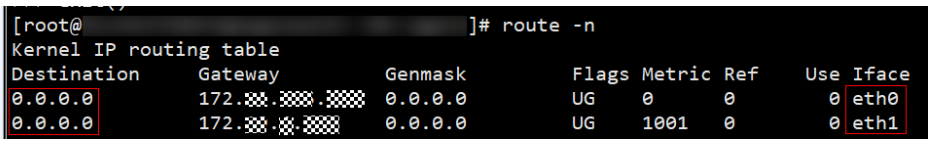
Possible Causes

If the source server has multiple NICs, the Agent may fail to obtain the default gateway information of the source server. As a result, the correct NIC name, MAC address, and IP address cannot be obtained.

Solutions

- Solution for error "SMS.0410: Failed to obtain NicName information of source server"
  a. Run the following command to view the routing table:

```
#route –n
```



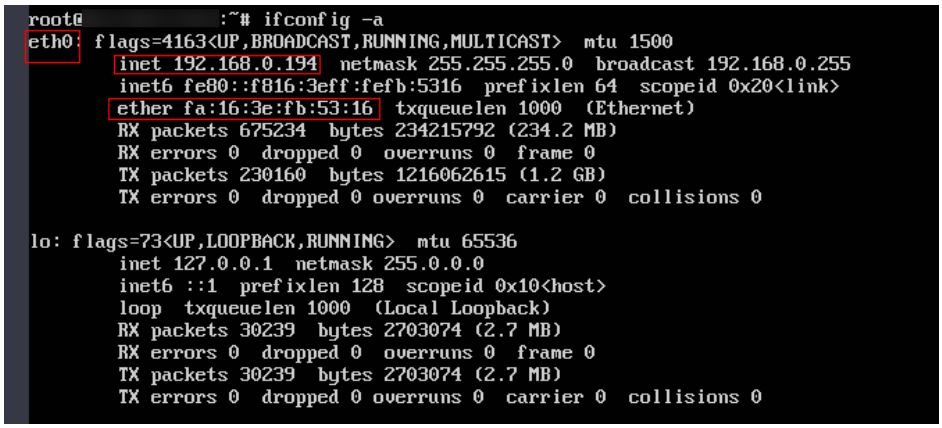
The following table describes the parameters.

Parameter	Description
Destination	The destination IP address. The gateway corresponding to 0.0.0.0 is the default gateway.
Gateway	The gateway IP address.
Iface	The network interface.

As shown in the preceding figure, if the source server has multiple default gateways, the Agent may fail to obtain the default gateway information. In this case, proceed with the subsequent steps.

  b. Run the following command to check the network configuration:

```
#ifconfig -a
```



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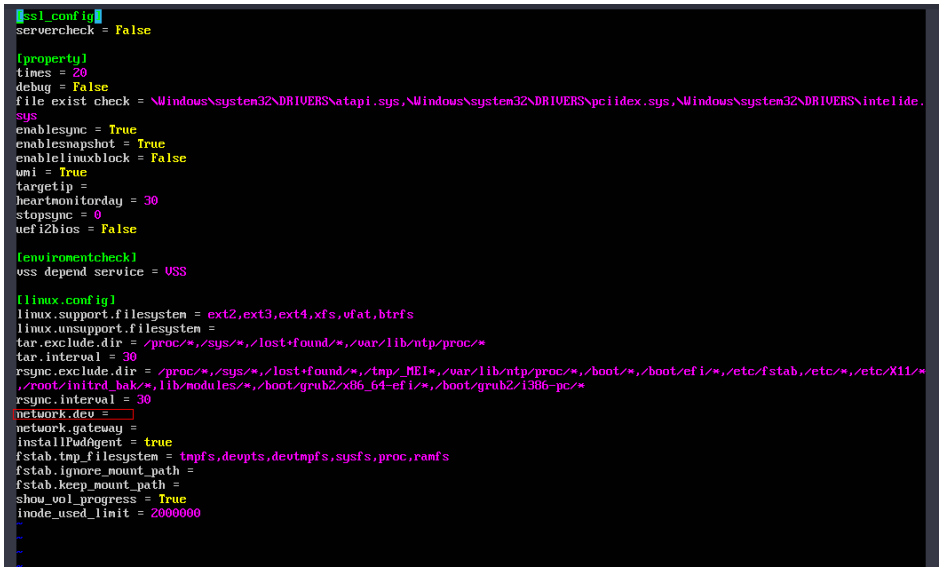
NOTE

- The leftmost column lists NICs, such as ethx, ensx, and enp0sx.
- **inet** indicates the IP address of a NIC.
- **ether** indicates the MAC address of a NIC.

c. Modify **network.dev** in the **.../SMS-Agent/config/g-property.cfg** configuration file.

You need to check which NIC of the source server is used for migration. Then set **network.dev** to the name of the NIC used for migration.

For example, the NICs queried in step 2 include **eth0**, **eth1**, and **eth2**, in which **eth0** is used for migration. Set **network.dev** to **eth0**.



d. After the configuration is complete, restart the Agent.

- Solution for error "SMS.0410: Failed to obtain IPAddress information of source server"

a. Check whether the **network.dev** parameter in the **.../SMS-Agent/config/g-property.cfg** file has been configured.

- If it has, go to step 2.
- If it has not, go to 3.

b. Check whether the NIC specified by **network.dev** is correct by referring to **Solution for error 1**.

- If the configuration is incorrect, modify it and restart the Agent. If the problem persists, go to step 3.
- If the configuration is correct, go to step 3.

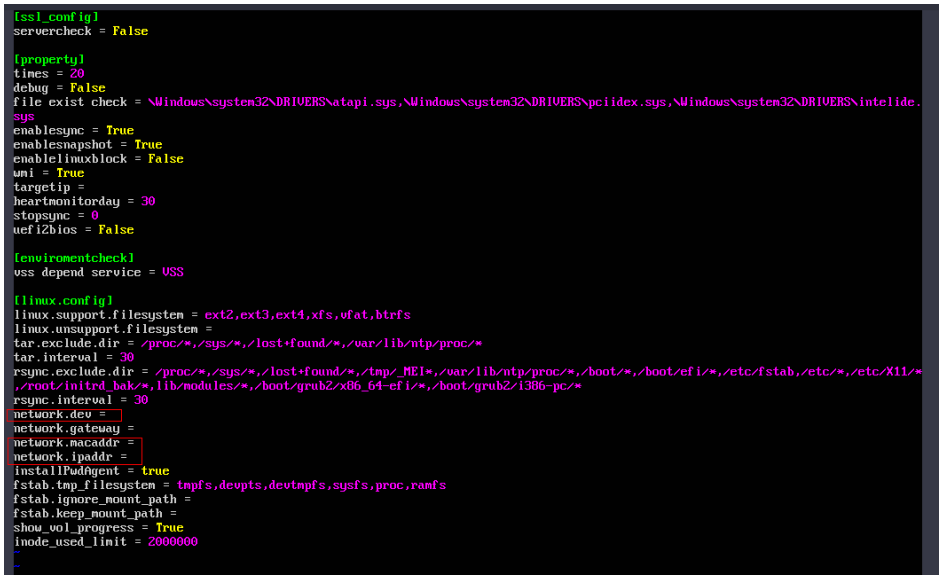
c. Modify **network.macaddr** and **network.ipaddr** in the **.../SMS-Agent/config/g-property.cfg** configuration file.

Set **network.macaddr** and **network.ipaddr** to the values of **inet** (IP address) and **ether** (MAC address) corresponding to the correct NIC queried in **step 2 in handling error 1**.

network.macaddr = *xx-xx-xx-xx-xx-xx (MAC address)*

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network.ipaddr = *xxx.xxx.xxx.xxx (IP address)*



CAUTION

Both the MAC address and IP address need to be set. The six groups of characters in the MAC address must be separated by hyphens (-).

d. After the configuration is complete, restart the Agent.

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7 Disks

7.1 Why Was a 40 GB EVS Disk Added to the Target Server During the Migration?

SMS creates and attaches a 40 GB EVS disk to each target server temporarily during the migration. These EVS disks are billed on a pay-per-use base. After the migration is complete, these EVS disks will be released. Do not delete these EVS disks during the migration or change their billing modes to yearly/monthly, or the migration will fail.

7.2 Why Can't I Attach a System Disk to the Target Server?

Symptom

If a migration fails, the system disk of the target server is a temporary disk with the disk name starting with **sms**. As a result, the original system disk of the target server cannot be attached back.

Possible Causes

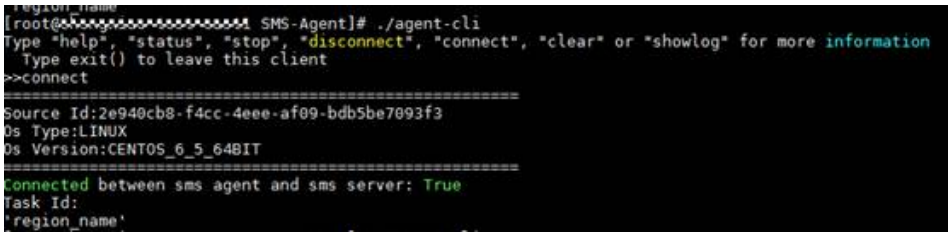
The step of detaching this temporary system disk was not performed. As a result, the system disk of the target server is still the temporary disk created by SMS. You need to manually detach the temporary disk.

Procedure

The following uses Linux as an example to describe how to handle this problem.

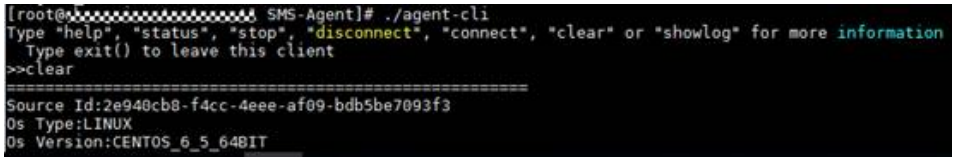
1. Connect the source server to SMS by switching to the **SMS-Agent** directory on the source server, running **./agent-cli**, entering **connect**, and pressing **Enter**.

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2. Run the **clear** command in the CLI of **agent-cli**.

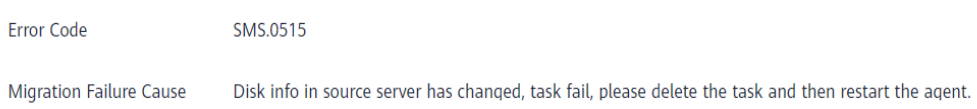
   After about a minute, the temporary disk on the target server will be detached and deleted, and the original system disk will be attached back.



7.3 How Do I Resolve Error "Disk info in source server has changed, task fail, please delete the task and then restart the agent"?

Symptom

When you started the migration, you got an error message "SMS.0515 Disk info in source server has changed, task fail, please delete the task and then restart the agent."



Possible Causes

The Agent collects information about the disks on the source server every two hours. This error will occur if the source server disks are changed during the period from the last collection to the start of migration. Possible changes in source server disks include:

- Disks or partitions were attached or detached to the source server.
- The capacity of a source partition may have been expanded, and now the target disk space is insufficient.
- A large amount of data was written to a source partition, and now the target partition space is insufficient.
- The file system type of the source partition was changed.

Solution

Step 1 Log in to the management console.

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

Locate the row that contains the source server, and in the **Operation** column, choose **More** > **Delete This Server**.

Step 3 Log in to the source server and restart the Agent. The Agent automatically reports changed source disk information to SMS.

Step 4 Reconfigure the target server and start the migration. For details, see **Configuring the Target Server**, **Starting Replication**, and **Launching the Target Server**.

----End

7.4 How Do I Resize Partitions and Disks When I Migrate a Windows Source Server?

Scenarios

You need to manually resize partitions and disks if:

- The system disk of the source server is larger than 1 TB.
- A file system on the source server is not supported by SMS.
- There are partitions that do not need to be migrated or other requirements.

Scenario 1

Consider that the size of the source system disk is 1.1 TB, with 100 GB allocated for the system and boot partitions and 1,024 GB for Data Disk (D:). You can prepare a 100 GB and a 1,024 GB disk on the target server for receiving data from the source system disk.

The procedure is as follows:

1. Go to the Agent configuration directory on the source server.
   - Agent (Python 3)

     C:\SMS-Agent-Py3\config
   - Agent (Python 2)

     C:\SMS-Agent-Py2\config
2. Modify the **disk.cfg** file as follows and save it.

   ```
   [volmap]
   D = 2
   ```

   NOTE

   - **D = 2** indicates that data in disk D will be migrated to the second disk on the target server.
   - There are multiple partitions on the source server, and you want to migrate them to different disks on the target server. In this case, modify the **disk.cfg** file in the same way, such as D=2, E=3, F=4.
3. Go to the SMS console, and delete the record corresponding to this source server.

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4. Restart the Agent installed on the source server. Go back to the SMS console to check whether the disk information has been changed in the source server details.

CAUTION

This method is not suitable for migrating system and boot partitions, because the system and boot partitions can be migrated only to the first disk on the target server.

Scenario 2

FAT32 is used on data disk D of the source server, making the source server fail to pass the migration feasibility check. You can exclude the partition from migration using the configuration file.

The procedure is as follows:

1. Go to the Agent configuration directory on the source server.
   - Agent (Python 3)

     C:\SMS-Agent-Py3\config
   - Agent (Python 2)

     C:\SMS-Agent-Py2\config
2. Modify the **disk.cfg** file as follows and save it.

   ```
   [volmap]
   D = -1
   ```

   NOTE

   D = -1 indicates that disk D will not be migrated.
3. Go to the SMS console, and delete the record corresponding to this source server.
4. Restart the Agent. Go back to the SMS console to check whether the disk information has been changed in the source server details.

Scenario 3

The source server has two data disks, disk D and disk E. You want to migrate the two data disks to the same disk on the target server.

The procedure is as follows:

1. Go to the Agent configuration directory on the source server.
   - Agent (Python 3)

     C:\SMS-Agent-Py3\config
   - Agent (Python 2)

     C:\SMS-Agent-Py2\config
2. Modify the **disk.cfg** file and save it.

   ```
   [volmap]
   E = 2
   ```

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NOTE

E = 2 indicates that data in disk E will be migrated to the second disk on the target server.

3. Go to the SMS console, and delete the record corresponding to this source server.
4. Restart the Agent. Go back to the SMS console to check whether in the source server details, there is only one data disk which consists of partition D and partition E.

7.5 How Do I Shrink the Disk Partitions on My Source Server Running Windows?

Symptom

When you use SMS to migrate a source server running Windows, the disk size of the target server should be at least as large as the size recommended on the **Source Management** page. Otherwise, the migration may fail. If you have created a target server running Windows, and the disk size of the target server is too small, you can reduce the size of the source server disk to be no larger than the target server disk.

Possible Causes

For a migration to be successful, the target server disks must be at least as large as the source disks. If they are not, you need to either scale up the target server disk or shrink the source server disk. On a Windows server, you can shrink disk partitions of the source server using the Windows Disk Management tool.

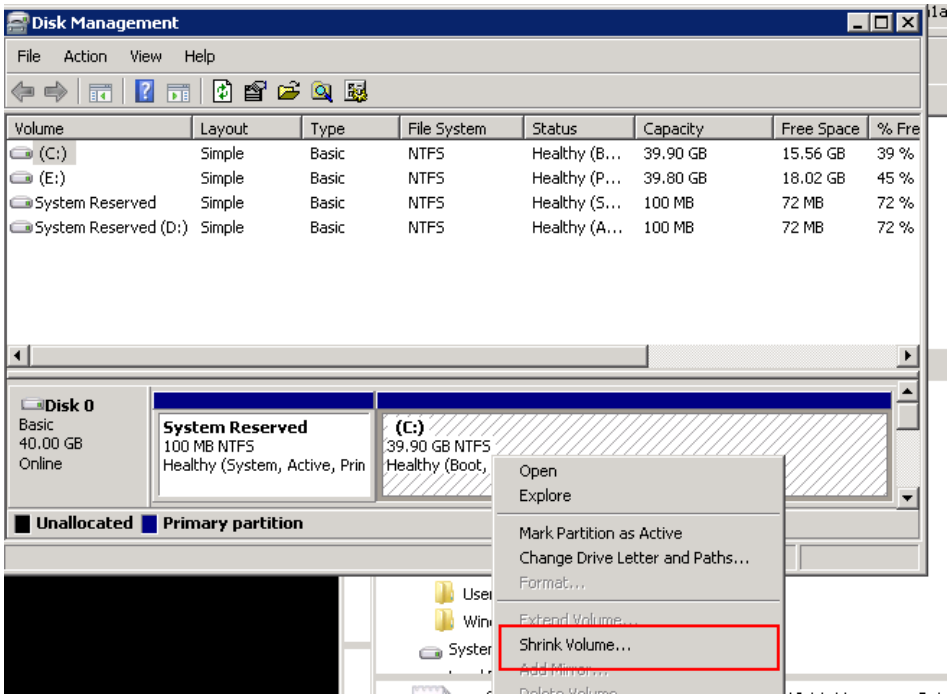
Procedure

1. Choose **Start**, enter **diskmgmt.msc** in the search box.

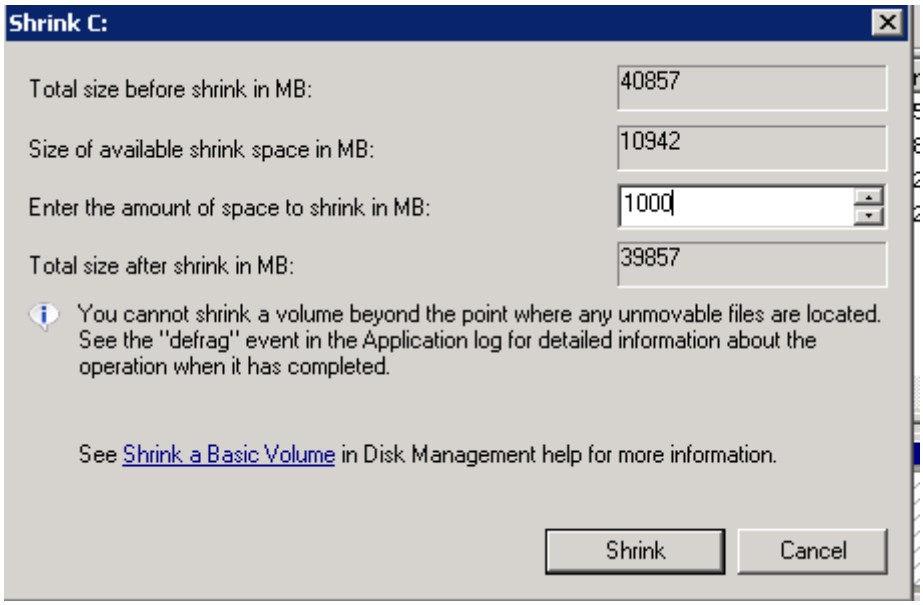
   The **Disk Management** tool is displayed.
2. Right-click the partition of the disk you want to shrink and choose **Shrink Volume**.

   The **Shrink Volume** dialog box is displayed.

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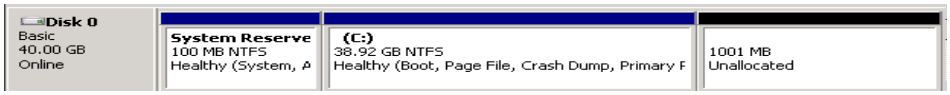


3. Enter the amount you wish to shrink the partition by in the **Enter the amount of space to shrink in MB** text box.



4. Click **Shrink**.
   The new space available is displayed as unallocated space.

Figure 7-1 Disk partition after shrink



5. Log in to the management console.
6. Click **Service List**. Under **Migration**, click **Server Migration Service**.
   The SMS console is displayed.

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7. In the navigation pane on the left, click **Servers**.

   The server list is displayed.

8. Locate the source server to be deleted, and in the **Operation** column, click **More** > **Delete This Server**.

   Alternatively, select the target source server and choose **More** > **Delete** in the upper left corner of the server list.

9. In the displayed **Delete** dialog box, click **Yes**.
10. Report the information about the source server to SMS again.
    - If the Agent has been uninstalled from the source server, install the Agent again. For details, see **Installing the Windows Agent**.
    - If the Agent has been installed on your source server, restart the Agent to report the source server information to SMS.

7.6 How Do I Exclude a Partition from Migration in Windows?

Procedure

Step 1 Go to the Agent configuration directory on the source server.

- Agent (Python 3)

  C:\SMS-Agent-Py3\config
- Agent (Python 2)

  C:\SMS-Agent-Py2\config

Step 2 Modify the **disk.cfg** file as follows and save it.

[volmap]

D = -1

NOTE

D = -1 indicates that disk D will not be migrated.

Step 3 Restart the Agent. You will see that disk D is not displayed in the source server details. If drive D is still displayed in the source server details, delete the source server record on the SMS console and register the source server with SMS again.

NOTE

This method is only suitable for exclusion before the migration, because restarting the Agent during the migration will cause a migration failure.

----End

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7.7 How Do I Fix Error "Failed to modify the configuration files of the target server"?

Symptom

When you tried to modify the configuration files of a Linux target server, you got message "SMS.3101 Failed to modify the configuration files of the target server."

Possible Causes

The **/etc/default/grub** file may be incorrectly configured.

Solution

Step 1 On HUAWEI CLOUD, create an ECS that runs the same OS and is in the same region and AZ as the target server.

Step 2 Stop the target server, detach the system disk from the target server, and attach the system disk to the ECS you created as a data disk, for example, **vdb**.

Step 3 Log in to the ECS and run the following commands:

mount /dev/vdb*x* /mnt (**vdb***x* refers to the root partition of the target server system disk, such as **vdb1** or **vbd2**.)

cp -f /etc/default/grub /mnt/etc/default/grub

umount /mnt

Step 4 Detach the disk from the ECS, attach it back to the target server, and try again.

CAUTION

Do not attach the system disk of the ECS to the target server.

----End

7.8 How Do I Fix Error "Failed to create snapshot"?

Symptom

During the migration, message "SMS.1904 Failed to create snapshot" was reported.

Possible Causes

Before data migration from servers running Windows, the VSS module is used to create snapshots to ensure that data on the source and target servers is from the

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same point in time. If the VSS module on the source server is faulty, the snapshot creation will fail.

Procedure

Step 1 Go to the Agent configuration directory on the source server.

- Agent (Python 3)
  C:\SMS-Agent-Py3\config.
- Agent (Python 2)
  C:\SMS-Agent-Py2\config

Step 2 Open the **g-property.cfg** file and change the value of **enablesnapshot** to **False**.

Restart the migration task. In this way, the migration task skips snapshot creation.

Figure 7-2 Modifying the configuration parameter

```
[ssl_config]
servercheck = False

[property]
times = 100
file exist check = \Windows\system32\DRIVERS\atapi.sys,\Windows\system32\DRIVERS\pciidex.sys,\Windows\system32\DRIVERS\intelide.sys
enablesync = True
enablesnapshot = False
smsuserid = 73c935484068452fbd7dff67432f4084
wmi = True
targetip =
heartmonitorday = 7
stopsync = 0
disktype = SATA

[enviromentcheck]
vss depend service = VSS

[linux.config]
linux.support.filesystem = ext2,ext3,ext4,vfat,xfs,reiserfs,btrfs
linux.unsupport.filesystem =
tar.exclude.dir = /proc/*,/sys/*,/lost+found/*,/var/lib/ntp/proc/*
tar.check.schedule.times = 4
tar.interval = 30
rsync.exclude.dir = /proc/*,/sys/*,/lost+found/*,/var/lib/ntp/proc/*,/boot/*,/boot/efi/*,/etc/fstab,/etc/*,/etc/X11/*,/root/initrd_bak/*,lib/modules/*
rsync.interval = 30
network.dev =
network.gateway =
exclude.filesystem = tmpfs,devpts,devtmpfs,sysfs,proc,ramfs
installPwdAgent = true

[connector.config]
server_ip =
server_port =

[uuid]
uuid = 91cfe030-4c6a-11e9-b17e-b8a887075cef

[network.config]
enable = False
dev.name =
dev.ip =
dev.mac =

[collect.log.config]
obs.domain = obs.myhuaweicloud.com
obs.bucket.location.region = cn-north-1
```

NOTE

If you skip snapshot creation, data on the target server and the source server may be from different points in time during migration, and services on the target server may fail to be started. If this happens, you can stop the software on the source server when no services are running, and then perform a new data synchronization to ensure that the data on the source and target servers is from the same point in time.

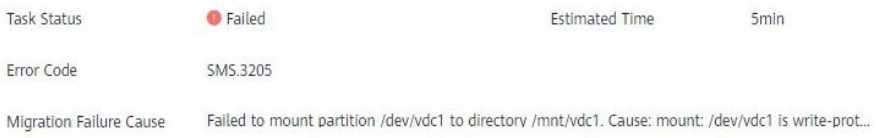
----End

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7.9 How Do I Fix Error "Failed to mount partition xxx to directory xxx"?

Symptom

During the Linux file-level migration fails, you received message "SMS.3205 Failed to mount partition /dev/vdc1 to directory /mnt/vdc1."



Possible Causes

A file system on the source server is not supported by SMS.

Solution

Currently, SMS supports Ext2, Ext3, Ext4, XFS, VFAT, and Btrfs files systems for Linux.

For unsupported file systems such as ReiserFS, you can copy files to other file systems, uninstall the unsupported file systems, and then perform the migration.

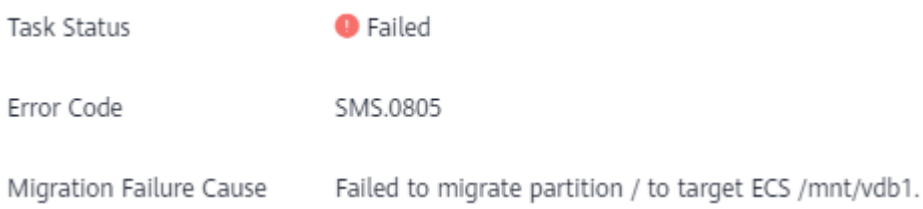
If this is not allowed on the source server, you can:

- Use IMS to create an image for the source system disk from an external image file and use the image to create a target server. For details, see **Creating a Windows System Disk Image from an External Image File** or **Creating a Linux System Disk Image from an External Image File**.
- Use a public image on IMS to create a target server and deploy your applications on the target server.
- Use the Cloud Migration Service on HUAWEI CLOUD.

7.10 How Do I Troubleshoot Failed Migration or Synchronization of a Partition?

Symptom

During the migration, the system displayed message "SMS.0805 Failed to migrate partition xxx to target server xxx" or "SMS.0806 Failed to synchronize partition xxx to target server xxx."



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Possible Causes

The possible causes are as follows:

- The network from the source server to the target server is disconnected.
- There is not enough space on the paired partition of the target server.
- The disk is detached from the target server.
- The **/etc/ssh/ssh_config** file is incorrectly set on the source server.
- The TAR processes exit.

Solutions

1. Check whether the fault is caused by a network disconnection. If it is, rectify the network fault by referring to **How Do I Resolve Error "Failed to establish an SSH connection with the target ECS"?**
2. Check whether there is enough space on the target partition.

   If there is not enough space, delete any unnecessary files from the partition on the target server or the source server, make sure there is enough space, and try again.
3. Check whether the corresponding target server disk is detached.

   If it is, attach the disk to the target server and try again. To be specific, log in to the SMS console, choose **Servers** in the navigation pane on the left, locate the source server, and click **Start** in the **Operation** column.
4. Check whether errors similar to **/etc/ssh/ssh_config: line 69: Bad configuration option: clientactiveinterval** are recorded in the **/root/f2f_migrate_error.log** file.

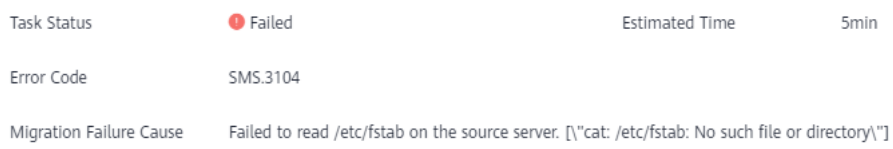
   If yes, the **ssh_config** is incorrectly configured. Correct the configuration and try again.
5. Check whether there are ongoing Tar processes on the source or target server.

   If there are not, the Tar program is terminated. Restart the program. Log in to the SMS console, choose **Servers** in the navigation pane on the left, locate the source server, and click **Start** in the **Operation** column.

7.11 How Do I Fix Error "Failed to read /etc/fstab on the source server"?

Symptom

When the target server was being launched, you got error message "SMS.3104 Failed to read /etc/fstab on the source server."



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Possible Causes

The source server does not have a **fstab** file. If this is the case, an error is reported when the system attempts to read the file during configuration modification.

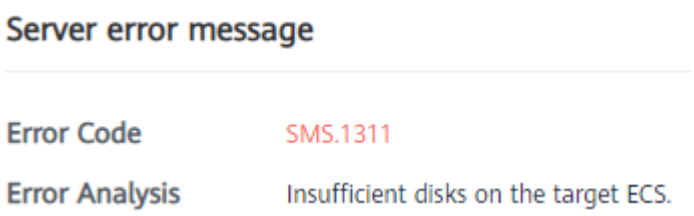
Solution

1. Log in to the source server and restore the **/etc/fstab** file.
2. Log in to the SMS console and click **Servers** in the navigation pane on the left.
3. Locate the source server and click **Start** in the **Operation** to start the migration again.

7.12 How Do I Resolve Error "Insufficient disks on the Target ECS"?

Symptom

When you configured or launched the target server, you got message "SMS.1311 Insufficient disks on the Target ECS."



Possible Causes

- During the configuration of the target server, SMS checks whether the target server has the same number of disks as the target server. When this error occurs, check whether the number of disks on the target server is less than that on the source server, or whether any disks on the target server have been manually deleted or detached. If this is the case, perform the operations described in **Solution for Inconsistent Number of Disks Between the Source and Target Servers** .
- After the Agent is started, any disk additions or deletions on the source server will make the Agent fail to identify the disk changes. If this is the case, perform the operations described in **Solution for Disk Additions or Deletions on the Source Server**.

Solution for Inconsistent Number of Disks Between the Source and Target Servers

Step 1 Click **Service List**. Under **Migration**, click **Server Migration Service**.

Step 2 The SMS console is displayed.

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

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Step 4 The server list is displayed.

Step 5 Locate the source server and choose **More** > **Delete Target Configuration**.

Step 6 Attach disks to the target server to ensure that the target server has at least as many disks as the source server.

Step 7 Go back to SMS console, locate the source server in the server list, and click **Configure** in the **Target** column to configure the target server. Then perform the migration again.

----End

Solution for Disk Additions or Deletions on the Source Server

Step 1 Click **Service List**. Under **Migration**, click **Server Migration Service**.

The SMS console is displayed.

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

The server list is displayed.

Step 3 Locate the source server and choose **More** > **Delete**.

Step 4 Attach disks to the target server to ensure that the target server has at least as many disks as the source server.

Step 5 Go back to SMS console, locate the source server in the server list, and click **Configure** in the **Target** column to configure the target server. Then perform the migration again.

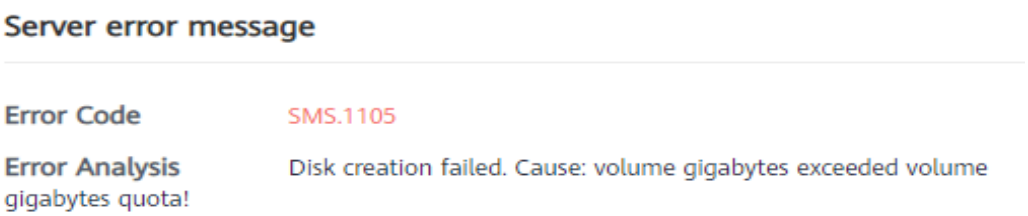
----End

7.13 How Do I Resolve Error "SMS.1105 Disk creation failed"?

Symptom

During the creation of a target server, message "SMS.1105 Disk creation failed" was displayed.

Figure 7-3 Disk creation failure



Possible Causes

Quotas are enforced for service resources on the platform to prevent unforeseen spikes in resource usage. Quotas can limit the number or amount of resources

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available to users, such as the number of EVS disks, the capacity of EVS disks, and the number of EVS snapshots. For how to query the EVS quotas, see **Querying EVS Resource Quotas**.

Solution

Increase EVS disk quantity quota and try again. For details, see **Increasing EVS Resource Quotas**.

7.14 How Do I Resolve Error "Failed to execute df -TH"?

Symptom

When you started the Linux Agent by running the startup.sh script, error "Failed to execute df -TH" was reported.

Possible Causes

After you run **df -TH** and **echo $?** on the source server, if the command output is not **0**, the command execution fails.

In this case, the possible cause is that a mounted device is offline or does not exist.

Solution

Unmount the device. Run **df -TH** and **echo $?** and check whether the output is **0**.

7.15 What Are the Requirements on Disks on a Target Server?

- If you choose not to resize disk partitions, the requirements are as follows:

1. The number of disks on the target server must be no less than that of disks on the source server.
2. The size of each disk on the target server must be larger than their paired source server disk.

- If you choose to resize disk partitions, the requirements are as follows:

1. The number of disks on the target server must be no less than the numbers you specified during partition resizing.
2. The size of each disk on the target server must be larger than the sizes you specified during partition resizing.

   For details about partition resizing rules, see **Resizing disk partitions**.

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7.16 How Can I Migrate a Source Server with a Large System Disk?

Windows

- If a source system disk is too large, and the total size of the system and boot partitions is greater than 1 TB, SMS cannot migrate such a source server.
- If a source disk is larger than 1 TB, but the total size of the system and boot partitions is less than 1 TB, you can modify the Agent configuration file to perform the migration successfully.

  For example, the size of the source system disk is 1.1 TB, with 100 GB for the system and boot partitions and 1,024 GB for data disk (D:). You can prepare a 100 GB and a 1,024 GB disk on the target server for receiving data from the source system disk.

  CAUTION

  The system and boot partitions on the source server can only be migrated to the first disk on the target server.

  You can view the total size of these two partitions using Disk Management in Windows.

  Procedure

  a. Go to the Agent configuration directory on the source server.

  - Agent (Python 3)

    C:\SMS-Agent-Py3\config

  - Agent (Python 2)

    C:\SMS-Agent-Py2\config

  b. Modify the **disk.cfg** file as follows and save it.

  ```
  [volmap]
  D = 2
  ```

  NOTE

  1. **D = 2** indicates that data in disk D will be migrated to the second disk on the target server.
  2. There are multiple partitions on the source server, and you want to migrate them to different disks on the target server. In this case, modify the **disk.cfg** file in the same way, such as D=2, E=3, F=4.

  c. Restart the Agent. You will see that the partition locations have been changed.

Linux

If a source disk is too large, you can perform a file-level migration and resize the disk partitions. For details about partition resizing rules, see **Resizing disk partitions**. If this method does not work, contact technical support.

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7.17 How Do I Resolve Error "Some disks on the target server are smaller than those on the source server. Select another target server" When I Configure the Target Server?

Symptom

When you clicked **Next: Confirm** after you select an existing ECS as the target server, message "Some disks on the target server are smaller than those on the source server. Select another target server" was displayed.

Possible Causes

When you configure a target server, ensure that the following requirements are met:

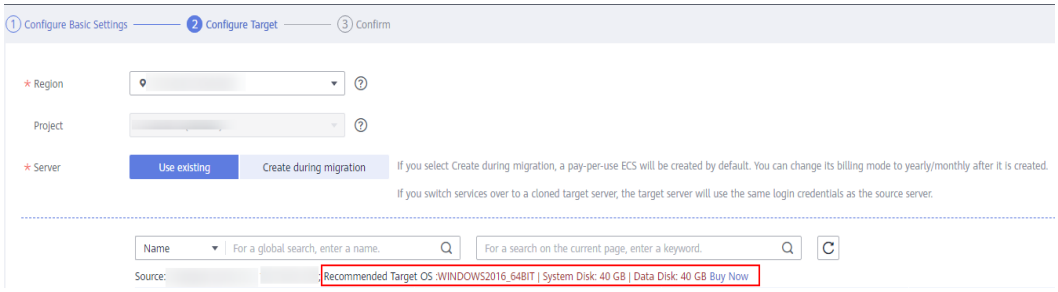
- The target server must have at least as many disks as the source server.
- The size of each disk on the target server must be at least as large as the corresponding source server disk.

If the requirements are not met, the preceding message will be displayed.

Solution

Step 1 Locate the target server disks that do not meet the second requirement, and expand these disks on the ECS console to be at least as large as the corresponding source server disks.

You can expand the target server disks based on the recommended disk sizes on the **Configure Target** page of the SMS console.



If the second requirement can be met by adjusting the disk mounting sequence, perform the following steps:

1. Go to the ECS console and stop the target server.
2. Detach all of the disks from the target server.
3. Attach these disks back to the target server based on the recommended disk sequence displayed on the **Configure Target** page of the SMS console.

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Step 2 Switch to the SMS console and select the target server you just configured.

----End

7.18 Can SMS Migrate Local Disks on a Source Server?

SMS does not migrate local disks on source servers. You are advised to replace the local disks with **EVS disks**.

7.19 Why Do I Need to Set the Target Server Disk Be at Least 1 GB Larger than the Paired Source Server GPT Disk on Alibaba Cloud?

Scenario

You wanted to migrate a Windows server on Alibaba Cloud. The server had a 40 GB GPT disk, and the disk was partitioned into one partition. When you configured the target server, you chose a 40 GB disk as the source server pair, and the system displayed the message "Some disks on the target server are smaller than those on the source server. Select another target server." The size recommended for this target server disk is 41 GB.

Possible Causes

In the GPT partition type, an MSR partition is automatically generated. This partition is invisible to users and can be viewed only by using DiskPart.

On Alibaba Cloud, an MSR partition occupies 15 MB by default.

On HUAWEI CLOUD, an MSR partition occupies 128 MB by default.

When a GPT disk is migrated from Alibaba Cloud to HUAWEI CLOUD, 113 MB space needs to be provided for the MSR partition. The EVS disk capacity must be expanded in increments of 1 GB. Therefore, the paired target server disk must be at least 1 GB larger than the source GPT disk.

Solutions

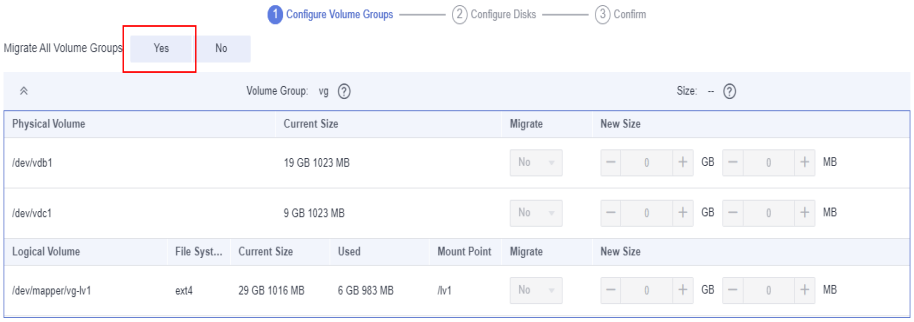
Expand the capacity of the target server disk to ensure that the disk size is at least as large as the recommended size.

7.20 Why Can't I Specify Whether to Migrate a Physical Volume When I Resize the Disk Partitions in Linux?

- Case 1: Parameter **Migrate** is set to **No** and cannot be modified for a physical volume.

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If all logical volumes in a volume group are not migrated, their physical volumes are not migrated by default. If you want to change the settings, select **Yes** for **Migrate All Volume Groups** and try again.



- Case 2: Parameter **Migrate** is set to **Yes** and cannot be changed for a logical volume.

  If there are physical volumes that do not need to be migrated, increase the total size of the other physical volumes or decrease the total size of logical volumes to ensure that the total size of physical volumes is larger than that of logical volumes.

  For details, see **Rules for Resizing Volume Groups and Disk Partitions**.

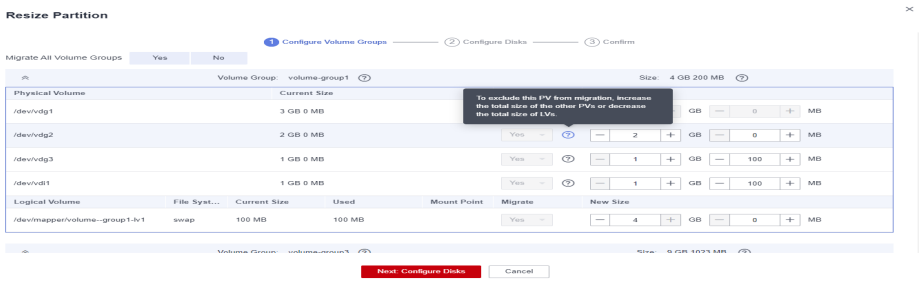
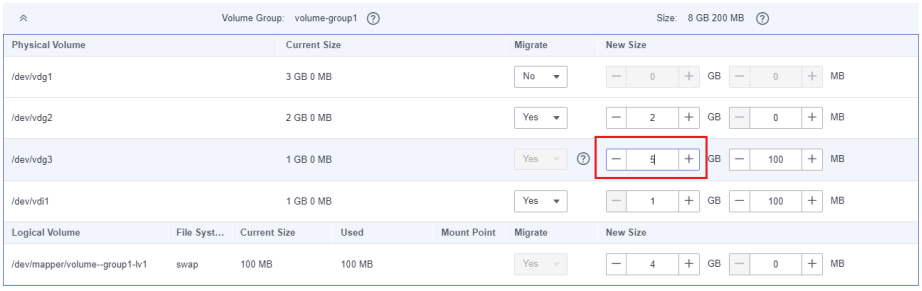
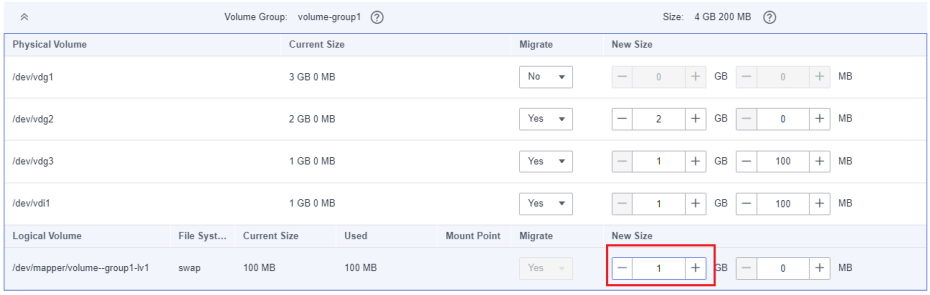


Figure 7-4 Increasing the total size of the other physical volumes



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Figure 7-5 Decreasing the size of a logical volume or excluding a logical volume from migration



- Case 3: In a Linux block-level migration, you can choose to migrate either all or none physical and logical volume groups.

  For block-level migration of Linux servers using LVM, physical volumes and logical volumes cannot be resized.

7.21 Why Can't I Specify Whether to Migrate a Logical Volume When I Resize the Disk Partitions in Linux?

- Case 1: Logical volumes without mount points are migrated by default.
- Case 2: Parameter **Migrate** is set to **No** and cannot be modified for a logical volume.

  To migrate this logical volume, increase the volume group size to ensure that the size is larger than the total logical volume size.

  For details, see **Rules for Resizing Volume Groups and Disk Partitions**.

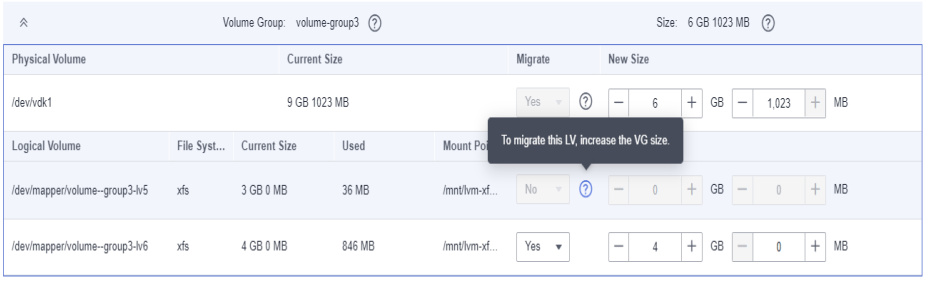
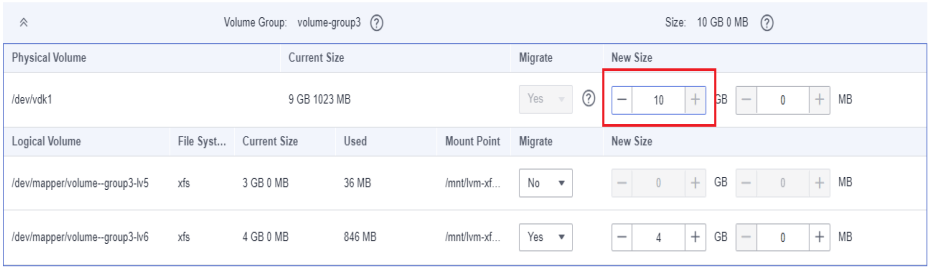


Figure 7-6 Increasing the total size of physical volumes



- Case 3: In a Linux block-level migration, you can choose to migrate either all or none physical and volume groups.

  For block-level migration of Linux servers using LVM, physical volumes and logical volumes cannot be resized.

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7.22 What Are the Rules for Resizing Volume Groups, Disks, and Partitions?

Table 7-1 Rules for resizing disks and partitions in Windows

Item	Minimum Size	Maximum Size
Disk	• System disk (The larger value is used.) – Total size of partitions after resizing – 40 GB • Data disk (The larger value is used.) – Total size of partitions after resizing – 10 GB	• System disk: 1,024 GB • Data disk: 32,768 GB
Disk partition	The smaller value is used. • Used space + 1 GB • Size before resizing	Disk size after resizing – Total size of the other partitions in the disk

Table 7-2 Rules for resizing volumes, disks, and partitions in Linux

Scenario	Item	Minimum Size	Maximum Size
LVM	Logical volume (LV)	The smaller value is used. • Used space + 1 GB • Size before resizing	VG size after resizing – Size of the other LVs in the VG
	Physical volume (PV) - disk	The larger value is used. • 10 GB • Total size of LVs in the VG – Total size of the other PVs in the VG	32,768 GB
	Physical volume (PV) - partition	The larger value is used. • 1 GB • Total size of LVs in the VG – Total size of the other PVs in the VG	Disk size after resizing – Total size of the other partitions in the disk

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Scenario	Item	Minimum Size	Maximum Size
Non-LVM	Disk	• System disk (The larger value is used.) – Total partition size after resizing – 40 GB • Data disk: 10 GB	• System disk: 1,024 GB • Data disk: 32,768 GB
	Partition	The smaller value is used. • Used space + 1 GB • Size before resizing	Disk size after resizing – Total size of the other partitions in the disk

7.23 How Do I Migrate a Server with the System Disk Larger than 1 TB?

Background

SMS is restricted by the IMS restriction that the system disk size cannot exceed 1 TB when you use an image to create an ECS. If the system disk of the source server to be migrated is larger than 1 TB, the migration can be performed only when certain conditions are met and the disk is resized.

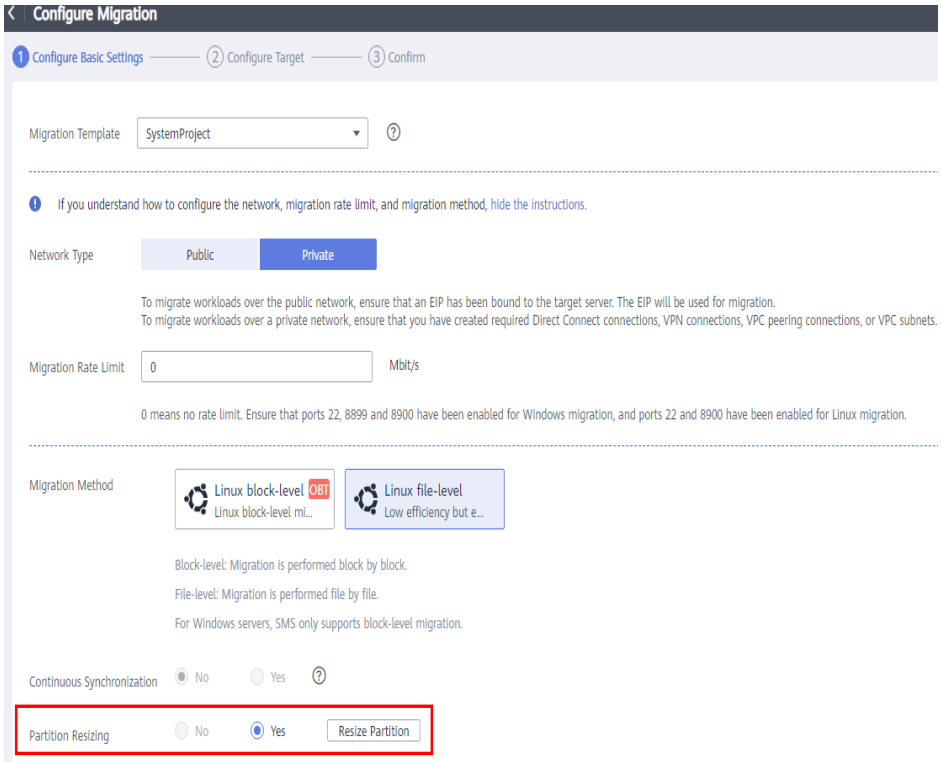
Linux File-Level Migration

If the system disk is larger than 1 TB but the disk usage is low and the used space is less than 1 TB, you can resize the system disk and system partition of the target server before migration.

Step 1 Install the Agent on the source server. For more information, see **Installing the Agent**.

Step 2 Start the Agent. After the Agent is started, configure a target server by referring to **Configuring a Target Server**. When you configure the basic settings, select **Yes** for **Partition Resize** to resize the disks and partitions of the target server.

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Step 3 In the **Resize Partition** window, set a new size for the system disk and partition as needed.

Step 4 Click **Next: Configure Target** to complete the migration configuration and start the migration.

----End

Windows Migration

See **How Do I Resize Partitions and Disks on a Target Server Running Windows Before the Migration?**

7.24 How Do I Detach the Temporary System Disk from My Target Server and Attach the Original One?

Symptom

After you deleted a failed or suspended migration task from the SMS console, the target server was still using the temporary system disk whose name starts with SMS. As a result, the original system disk could not be attached back.

Possible Causes

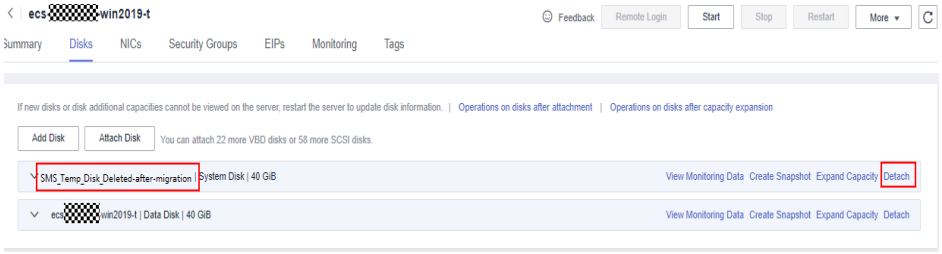
If a migration task fails or is suspended, the system will not automatically detach the temporary system disk and attach the original one back. You need to manually perform this step if you want to restore this server to its original condition.

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Solution

Step 1 Detach the temporary system disk.

1. Log in to the ECS console.
2. In the server list, locate this server and click its name.
3. Click the **Disks** tab, locate disk **SMS-Temp_Disk_Deleted-after-migration**, and click **Detach**.



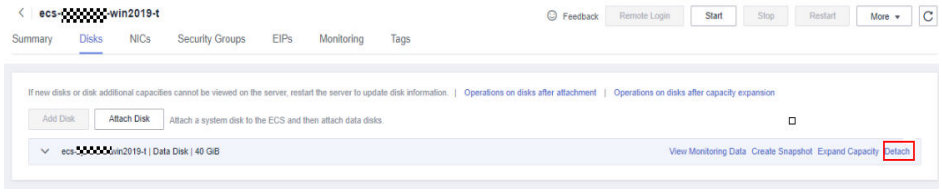
4. Click **Yes**.

Step 2 Detach the original system disk.

NOTE

The original system disk is attached as a data disk. You need to detach it and attach it as a system disk again.

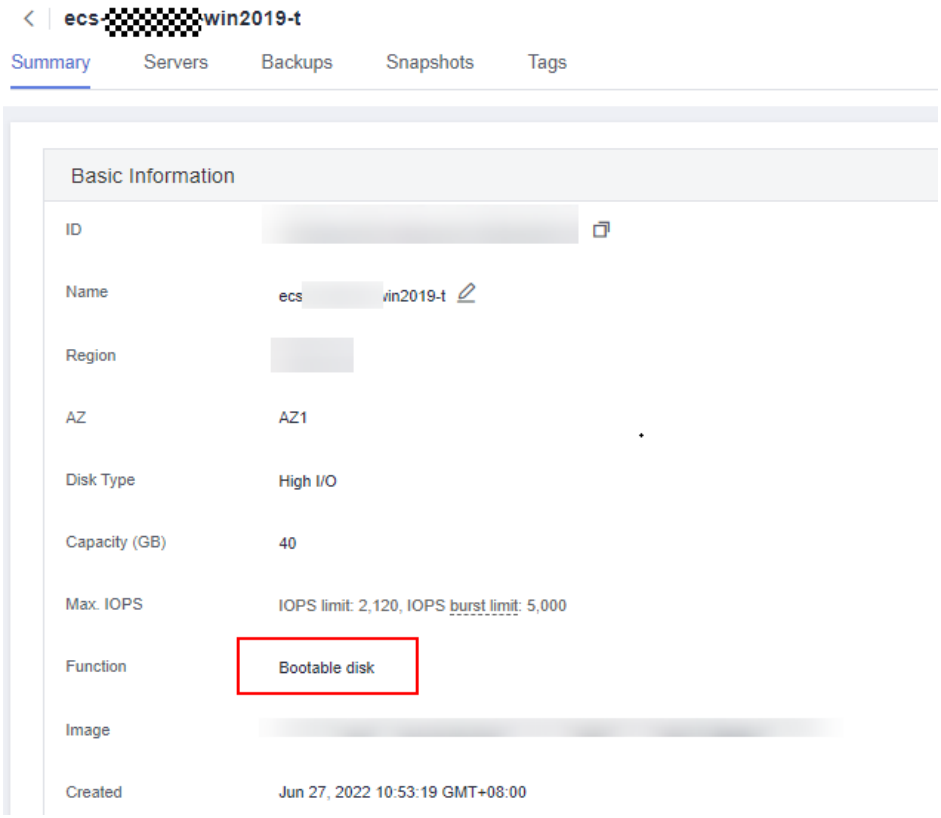
1. Detach the original system disk from the target server by referring to step **1.**.



2. Log in to the EVS console. In the disk list, locate the disk you just detached and click the disk name.

   Check whether the disk has changed from a data disk to a system disk. If it has, go to the next step.

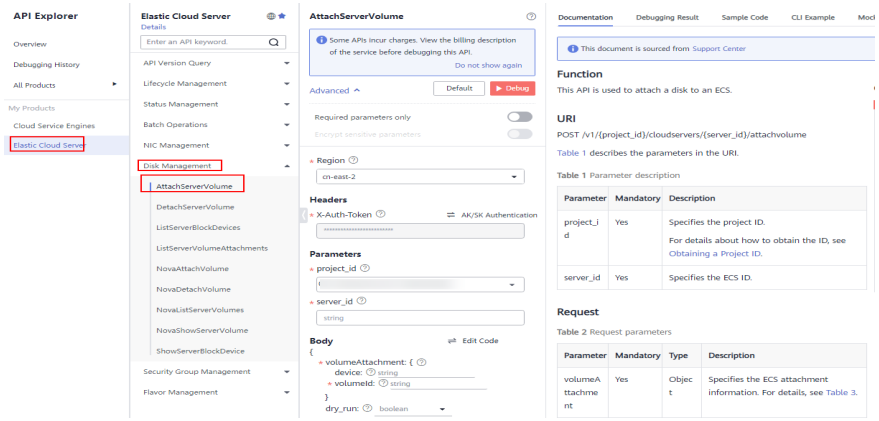
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Step 3 Reattach the original system disk.

1. Log in to **API Explorer**.
2. In the navigation pane on the left, choose **Elastic Cloud Server** > **Disk Management** > **AttachServerVolume** and set the following parameters:
   - **Region**: Select the target region.
   - **Project_id**: indicates the project ID, which is automatically filled after login. Therefore, you can leave it blank.
   - **server_id**: indicates the ID of the ECS to which the system disk is to be attached.
   - **device**: indicates the disk mount point.
     - For Xen ECSs, **device** is mandatory. Set **device** to **/dev/sda**.
     - For KVM ECSs, set **device** to **dev/vda**.
   - **volumeId**: indicates the ID of the disk to be attached. The value is in UUID format.

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3. Click **Debug**. After the debugging is successful, the system disk has been attached to the ECS.

----End

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8 Migration or Synchronization Failures

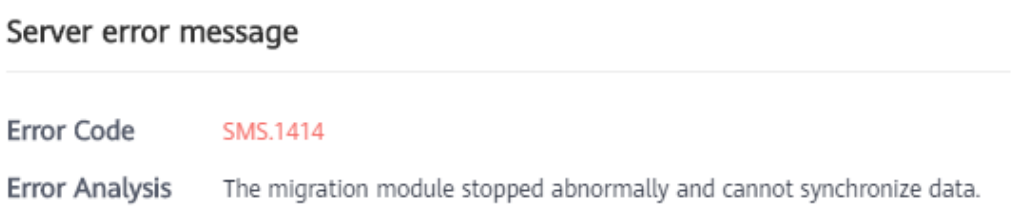
8.1 What Can I Do If New Data Is Generated on the Source Server During the Migration?

To synchronize the incremental data to the started target ECS, click **Start** in the **Operation** column that contains the source server to start incremental replication. When the migration status becomes **Continuous Synchronization**, click **Launch Target ECS**. When the real-time migration status becomes **Completed**, the new data has been synchronized to the target ECS.

8.2 How Do I Fix Error "The migration module stops abnormally and cannot synchronize data"?

Symptom

Message "SMS.1414 The migration module stops abnormally and cannot synchronize data" was displayed during the continuous synchronization.



Possible Causes

The Agent or the source server has been restarted.

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NOTE

On the source server, there is a process that monitors disk changes and synchronizes the incremental data from the source server to the target server. If the source server is restarted, this process is stopped, and the incremental synchronization cannot be performed.

Solution

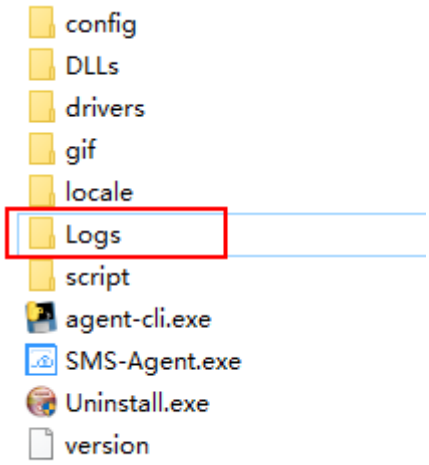
In this case, the migration task cannot continue. Delete the task and create a migration task for the source server again. To prevent this issue from happening, take care to avoid restarting the source server or Agent during migration.

8.3 How Do I Upload Migration Logs If the Migration Fails?

If a migration task fails and you want HUAWEI CLOUD technical support to locate the fault, perform the following steps to send the **SMS run logs** to the technical support:

Step 1 Compress the **Logs** folder in the SMS-Agent installation directory.

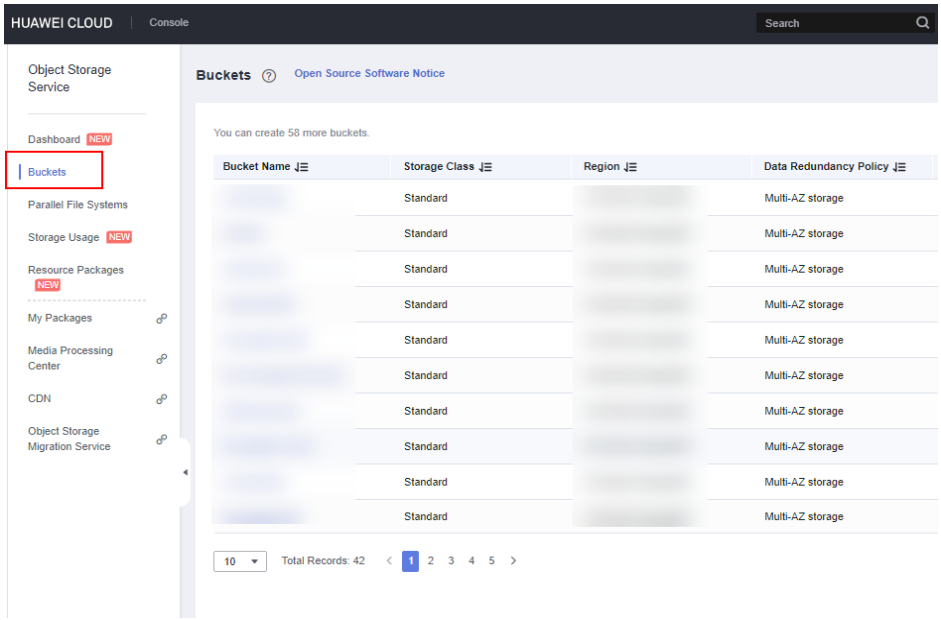
Figure 8-1 Compressing the Logs folder



Step 2 Log in to the HUAWEI CLOUD management console. In the service list, choose **Object Storage Service** and go to the OBS bucket list.

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Figure 8-2 OBS bucket list



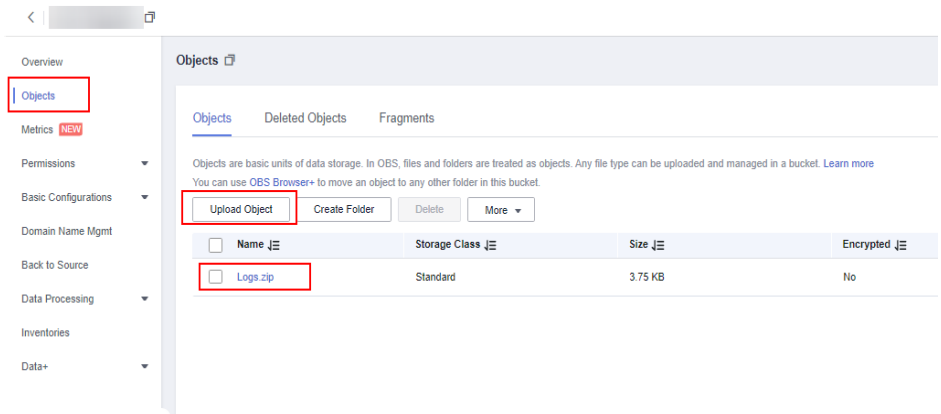
Step 3 Select the bucket where you want to store the compressed folder **Logs** and click the bucket name.

NOTE

If you have not created an OBS bucket, create one by referring to **Creating a Bucket**.

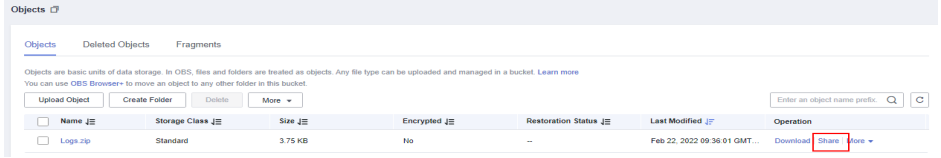
Step 4 Choose **Objects** > **Upload Object** and upload the compressed folder **Logs** to the OBS bucket.

Figure 8-3 Uploading the compressed folder

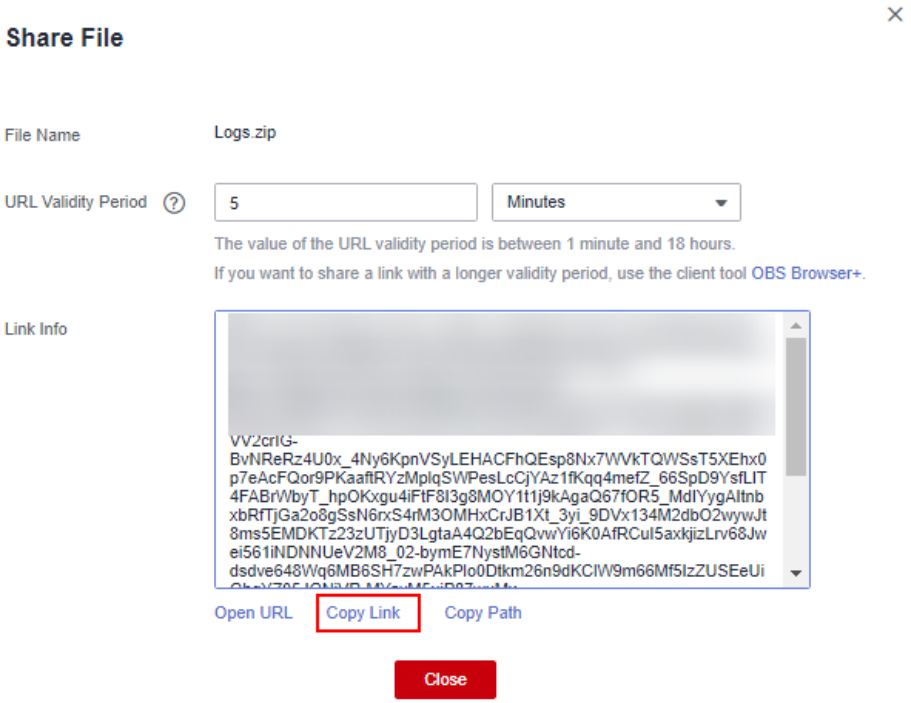


Step 5 Locate the folder and click **Share** in the **Operation** column to share the link for downloading the folder with the technical personnel.

Figure 8-4 Sharing the download link



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----End

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9 Target Server Configuration and Launch

9.1 What Are the Differences Between Target and Source Servers After the Migration?

Table 9-1 Differences between target and source servers after the migration

Item	Can Be Changed	Target Server	Remarks
Server SID	Yes	The SID of the target server is used.	In Windows, a Security Identifier (SID) is a unique, immutable identifier for a server in a given domain. Therefore, if the source server is added to a domain, the SID will become invalid after the migration and the target server needs to be added to the domain again.
Server name	Possibly	The server name may be changed.	Services bound to the server name may be affected.
OS type	No	The target server runs the same type of OS as the source server.	The original OS of the target server is overwritten.
MAC address	Yes	The MAC address of the target server is used.	A MAC address is a unique identifier assigned to a NIC when target server is created.

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Item	Can Be Changed	Target Server	Remarks
NIC name	Possibly	The names of NICs on the target server are determined by the NIC configuration files migrated from the source server.	You can modify the NIC names after the migration, or your services may be affected.
IP address	Yes	The IP address of the target server is used.	After the migration, the public IP address is changed that of the target server. If the private IP address of the source server is included in the network segment of the VPC to which the target server belongs, the private IP address can remain unchanged.
DNS	Probably	The DNS of the target ECS is determined by the DNS configuration on the source server.	After the migration is complete, you can modify the DNS.
Disk name	Possibly	The disk names depend on the virtualization type of the target server.	Services are not affected.
Username	No	The target server uses the same username as the source server.	None
Password/ Certificate	No	The target server uses the same username, certificate, and password as the source server.	None

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Item	Can Be Changed	Target Server	Remarks
Registry and startup items	Yes	The registry and startup items are modified as needed.	SMS modifies the registry and startup items to adapt to HUAWEI CLOUD.
Other data	No	Other data, including files, applications, and configurations, are consistent with those on the source server.	None

9.2 How Does the Authentication of a Target Server Changes?

The changes of a target server authentication are as follows:

- For a complete migration, the target server uses the same login credentials as the source server, such as username, certificate, and password.
- For an ongoing Linux migration, the login credentials of the target server depend on the option you choose when you configure the target server.
  - If **Use existing** is selected, the target server uses its original login credentials.
  - If **Create new** is selected, a random password is generated. For details about how to obtain the password, see **Obtain Passwords**. After the migration is complete, the target server uses the same credentials as the source server.

9.3 What Configurations and Optimization Need I Perform on a Windows Target Server After the Migration?

Scenarios

After the migration, you need to manually install drivers on the target server to solve the compatibility issues between the source and target servers.

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Procedure

1. Log in to the management console.
2. Under **Compute**, click **Elastic Cloud Server**.
3. In the ECS list, view the flavors of the target ECS.

   The ECS flavors are named in the format of AB.C.D, for example, m2.8xlarge.8.

   A specifies the ECS type. **B** specifies the type ID. **C** specifies the flavor size. **D** specifies the ratio of memory to vCPUs expressed in a digit. For details about ECS flavors, see **ECS Types**.

   - If **B** of your target ECS is 1, for example, s1.small.2, the ECS uses Xen virtualization, and you will need to install the PV driver.
   - If **B** of your target ECS is not 1, for example, s2.small.3, the ECS uses KVM virtualization, and you will need to install the UVP VMTools.
4. Check whether the PV driver or UVP VMTools software package exists on the target ECS based on the virtualization type queried in **3**.
   - If it is, go to **7**.
   - If it is not, go to **5**.
5. Download the PV driver or UVP VMTools software package to the source server based on the virtualization type queried in **3**. For more information, see **Obtaining Required Software Packages**.
6. Synchronize the PV driver or UVP VMTools software package on the source server to the target ECS.
7. Install the required driver on the target ECS.
   a. **Installing UVP VMTools**
   b. **Installing the PV Driver**

9.4 How Do I Fix Error "SMS.1113 Failed to reconfigure partition details on the target server" When I Launch the Target Server?

Symptom

The target server failed to be launched, and message "Failed to reconfigure partition details on the target server" was displayed.

Possible Causes

Due to unstable network connection, the command obtaining times out, which makes the target server fail to be launched.

Solution

Ensure that the source bandwidth is sufficient. Pause the migration task and then restart it.

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9.5 How Do I Activate My Windows Target Server After the Migration?

Symptom

After a Windows source server is migrated to an ECS on HUAWEI CLOUD, you need to reactivate the target server using the license server of HUAWEI CLOUD.

Prerequisites

You have configured the IP address of the DNS server of HUAWEI CLOUD.

Procedure

1. On the target server, choose **Start** and enter **cmd**.
2. Run the following command to register the server with the KMS server:

   slmgr -skms 100.125.1.2
3. Run the following command to check whether the server has been activated:

   slmgr -ato

   If error 0xC004F074 occurs, the server fails to be activated. In this event, go to **4**.
4. Identify the cause of the server activation failure.
   a. Check whether the private IP address of the server is correct.
      i. Run the following command to obtain the private IP address:

         ipconfig
      ii. Check whether this IP address is the same as the private IP address displayed on the management console.
         - If it is, go to **4.b**.
         - If it not, go to **4.a.iii**.
      iii. Run the following command to release the private IP address:

         ipconfig /release
      iv. Run the following command to assign an IP address to the server again:

         ipconfig /renew
      v. Run the following command to check whether the server has been activated:

         slmgr -ato
   b. Verify that the system time in the server is the same as the standard time. If the time is significantly different, the server cannot be activated.
   c. Run the following command on the target server to check whether the link between the server and the activated server port is reachable:

      telnet 100.125.1.2 1688

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On the ECS, test the link to the activated server port. If the link failed, perform the following operations:

- Verify that the internal server firewall and security software such as SafeDog are disabled, or that the data on TCP port **1688** can bypass the internal ECS firewall.
- Verify that the data on port 1688 can bypass the security group rule in the outbound direction.

  NOTE

  The Windows client must periodically communicate with the KMS server over port 1688. Ensure this port is allowed in the server security group in the outbound direction. If the network communication is interrupted, the Windows client automatically enters the inactive state.

d. Run the following command to check whether the server has been activated:

   slmgr -ato

   The system displays a message indicating that the server has been activated.

9.6 Why Is the Used Space of C: Drive on My Windows Target Server Larger than That on the Source Server After the Migration?

Symptom

In a Windows migration, after the source server is migrated to HUAWEI CLOUD, the used space of C: drive on the target server will be at least one GB larger than the used space of C: drive on the source server.

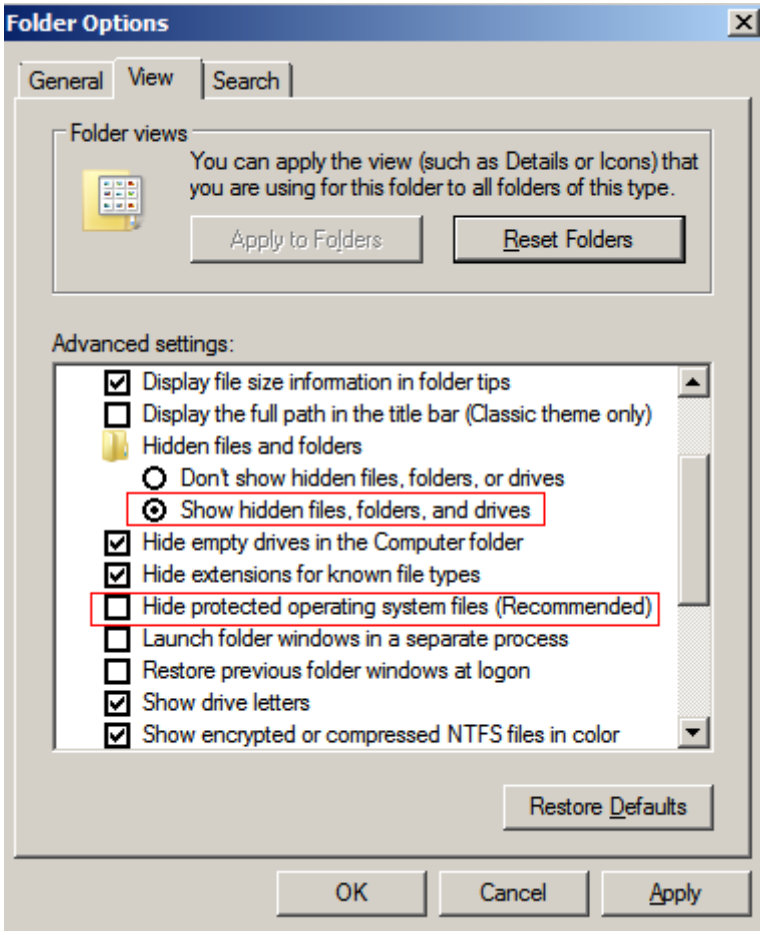
Possible Causes

This is a normal phenomenon resulting from the fact that the size of paging file, used for virtual memory, tends to be larger on the target server. You can perform the following steps to adjust the size of the paging file:

1. Log in to the source server.
2. Choose **Start** > **Control Panel** > **Folder Options**.

   The **Folder Options** dialog box is displayed.
3. Click the **View** tab. In the **Advanced settings** area, perform the following operations:
   - Deselect **Hide protected operating system files (Recommended)**.
   - Select **Show hidden files, folders, and drives** and click **Apply**.

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4. Log in to the target server and repeat **2** and **3**.
5. Compare the size of the virtual memory file **pagefile.sys** in the **Local Disk (C:)** on the source and target servers.

   The size of the **pagefile.sys** file on the target server is greater than that on the source server.

   The differences in the sizes of **pagefile.sys** on the two servers should account for the difference in used space.
6. On the target server, click **Start**.
7. Choose **Control Panel** > **System** > **Advanced system settings**.

   The **System Properties** dialog box is displayed.
8. Click the **Advanced** tab, click **Settings** in the **Performance** area.

   The **Performance Options** page is displayed.
9. Click the **Advanced** tab, click **Change** in the **Virtual memory** area.

   The **Virtual Memory** is displayed.

   You can see that the target server uses **Automatically manage paging file size for all drives**. That is, the size of virtual memory file **pagefile.sys** on the target server is equal to the size of file **Installed Memory (RAM)** on the server.

   If the size of file **Installed Memory (RAM)** on the target server is different from that on the source server, the used space of C: drive on the target server is inconsistent with that on the source server.

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9.7 How Do I Uninstall the SMS-Agent from the Source and Target Servers After the Migration?

Symptom

After the migration is complete, you can perform the following operations to uninstall the SMS-Agent.

Windows

- Method 1
  a. Log in to the server where the SMS-Agent is to be uninstalled.
  b. Choose **Start** > **All Programs**.
  c. In the **All Programs** panel, click the **SMS-Agent** folder.
  d. Click **Uninstall** in the **SMS-Agent** file.
  e. In the **SMS-Agent-1.0.0 Uninstall** dialog box, click **Yes**.
- Method 2
  a. Log in to the server where the SMS-Agent is to be uninstalled.
  b. Click **Start**, and then select **Computer**.
  c. Go to the **C:\Program Files (x86)\SMS-Agent** directory.
  d. Double-click **Uninstall.exe**.
  e. In the **SMS-Agent-1.0.0 Uninstall** dialog box, click **Yes**.

Linux

1. Log in to the server where SMS-Agent is to be uninstalled as user **root**.
2. Go to the SMS-Agent installation directory.
3. Stop the SMS-Agent.
   shutdown.sh
4. Go to the upper-level directory.
   cd ..
5. Delete the SMS-Agent installation directory.
   rm -rf SMS-Agent

9.8 How Do I Configure the Yum Repository After Migration?

Scenarios

If you are migrating servers to from Alibaba Cloud to HUAWEI CLOUD, note that the yum repository used on Alibaba Cloud does not use a public server address. Therefore, after a server is migrated to HUAWEI CLOUD, the originally configured

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repository will be unavailable for your target server. You will need to change the repository settings.

Constraints

- You have configured the intranet DNS server provided by HUAWEI CLOUD. For how to obtain an intranet DNS server, see **What Are the Private DNS Server Addresses Provided by HUAWEI CLOUD DNS?**
- The operations described in this section apply to x86_64 ECSs.

Procedure

1. Log in to the ECS as **root**. For details, see **Logging In to a Linux ECS**.
2. Run the following commands to back up the **CentOS-Base.repo** file:

   mkdir -p /etc/yum.repos.d/repo_bak/

   mv /etc/yum.repos.d/*.repo /etc/yum.repos.d/repo_bak/
3. Use **curl** to download the **CentOS-Base.repo** file, and save the file into **/etc/yum.repos.d/**:
   - CentOS 6

     The CentOS community no longer provides security patch update or image source support for CentOS 6. The CentOS 6 image source package has been removed from the source address http://mirror.centos.org/centos-6/ and third-party images. If you want to continue to use CentOS 6, see **How Do I Replace an Image Source with an Official HUAWEI CLOUD Image Source?**
   - CentOS 7

     curl -o /etc/yum.repos.d/CentOS-Base.repo http://mirrors.myhuaweicloud.com/repo/CentOS-Base-7.repo
4. Run the following command to clear the original yum cache:

   yum clean all
5. Run the following command to generate a new cache:

   yum makecache

9.9 Why Is the File System Size Inconsistent Before and After the Migration?

Symptom

- After the migration, the used partition space on the target server is different from that on the source server.
- After the migration, a particular file size on the target server is different from that on the source server.

Possible Causes

If there are sparse files on the source server, the total size of the migrated files on the target server may be smaller than that on the source server. This is because

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rsync automatically truncates sparse files during the transmission. The file system transparently converts metadata representing empty blocks into "real" blocks filled with null bytes at runtime.

You can check whether the files before and after the migration are consistent. For details, see **Procedure**.

NOTE

In a UNIX file system, when the file displacement is greater than the file length, the next write operation will extend the file length and form a hole in the file, creating a sparse file. This is achieved by writing brief information (metadata) representing the empty blocks to disks instead of the actual "empty" space which makes up the block, thus consuming less disk space. The full block size is written to disk as the actual size only when the block contains "real" (non-empty) data.

Procedure

1. Check the size of the file on the source server and the used disk space. The **/tmp/test-data.img** file is used as an example.
   a. Run the following command to check the size of the **/tmp/test-data.img** file:

      ll /tmp/test-data.img

   b. Run the following command to check the disk space occupied by **/tmp/test-data.img**:

      du -sh /tmp/test-data.img

      Figure 9-1 Checking the file size

      ```
      root@ubuntu:~# ll /tmp/test-data.img
      -rw-r--r-- 1 root root 1073741824 Aug 19 08:54 /tmp/test-data.img
      root@ubuntu:~# du -sh /tmp/test-data.img
      1.1G    /tmp/test-data.img
      ```

2. After the migration is complete, check the size of the migrated file on the target server. **Figure 9-2** shows that the used disk space decreases after the migration.

   Figure 9-2 Checking target server file size

   ```
   root@ubuntu:~# ll /tmp/test-data.img
   -rw-r--r-- 1 root root 1073741824 Aug 19 08:54 /tmp/test-data.img
   root@ubuntu:~# du -sh /tmp/test-data.img
   5.5M    /tmp/test-data.img
   ```

3. Run the following command on the source server and target server to obtain the sha256 values of the files to determine whether the files are the same.

   If the sha256 values of the files are the same, the file content is consistent.

   sha256sum /tmp/test-data.img

   Figure 9-3 Obtaining the sha256 value

   ```
   root@ubuntu:~# sha256sum /tmp/test-data.img
   82348a9b82fb96c86cd1431a32e94d67f6242ef551d28703e2b9b3f68e8f3333  /tmp/test-data.img
   root@ubuntu:~#
   ```

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9.10 Why Can't I See the Data Disks on the Windows Target Server After Migration?

Possible Causes

The SAN policy for the source server OS is Offline Shared. This means the data disks will be offline after migration.

Solutions

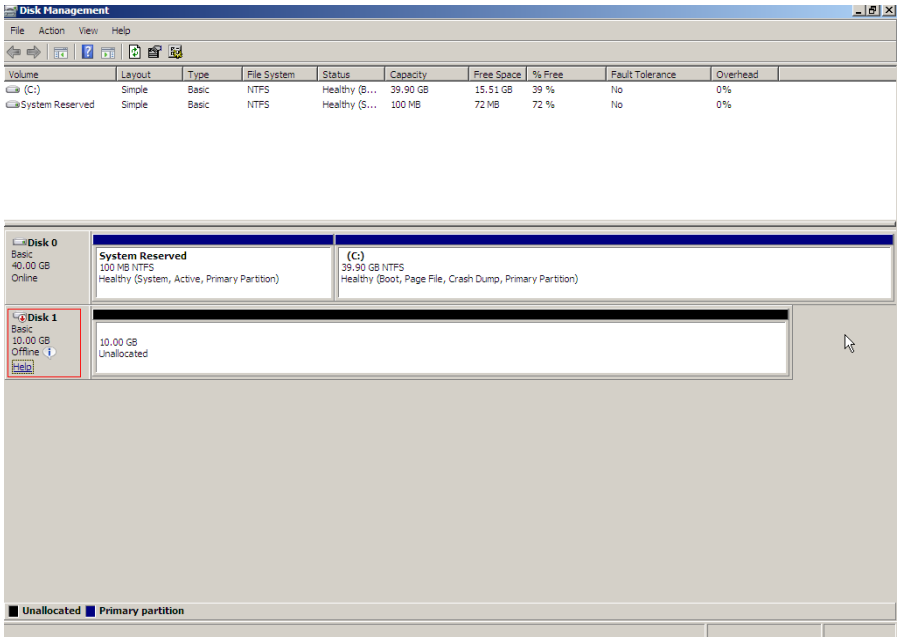
Solution 1

Step 1 Click **Start** > **Run**.

Step 2 Enter **diskmgmt.msc** and press **Enter** to open the **Disk Management** window.

As shown in the following figure, **disk 1** is offline.

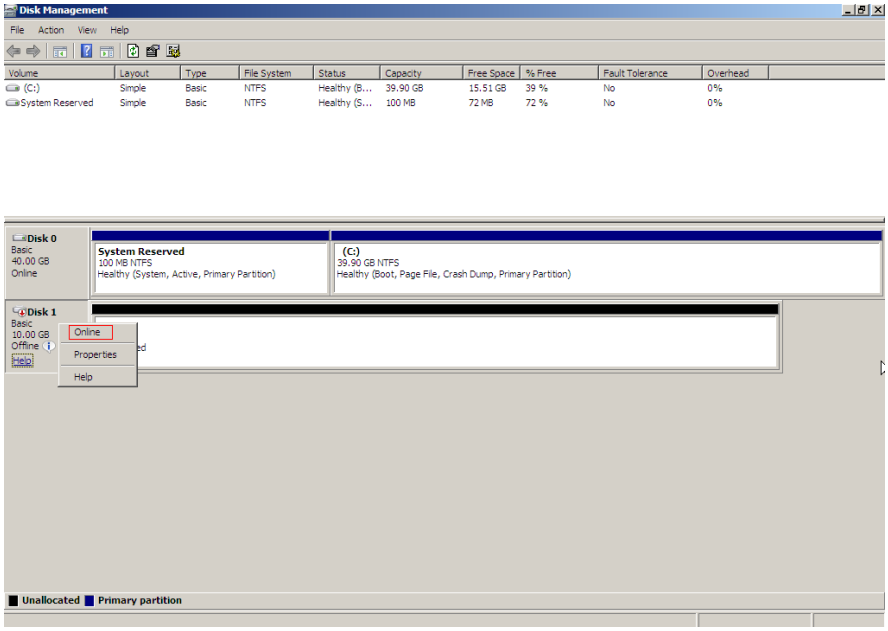
Figure 9-4 Offline



Step 3 Right-click the offline data disk and select **online** from the popped-up menu.

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Figure 9-5 Bringing the disk online



----End

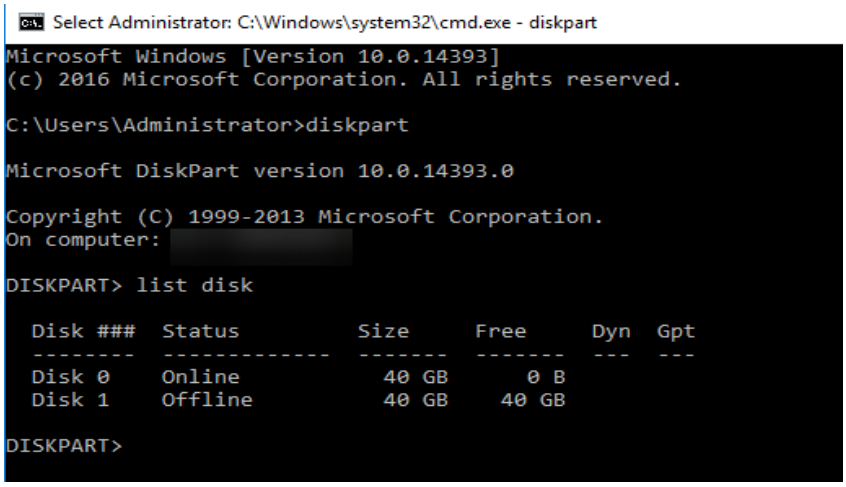
Solution 2

Step 1 Right-click the **Start** menu.

Step 2 Click **Run** and enter **cmd**.

Step 3 Run **diskpart** to start the disk management tool.

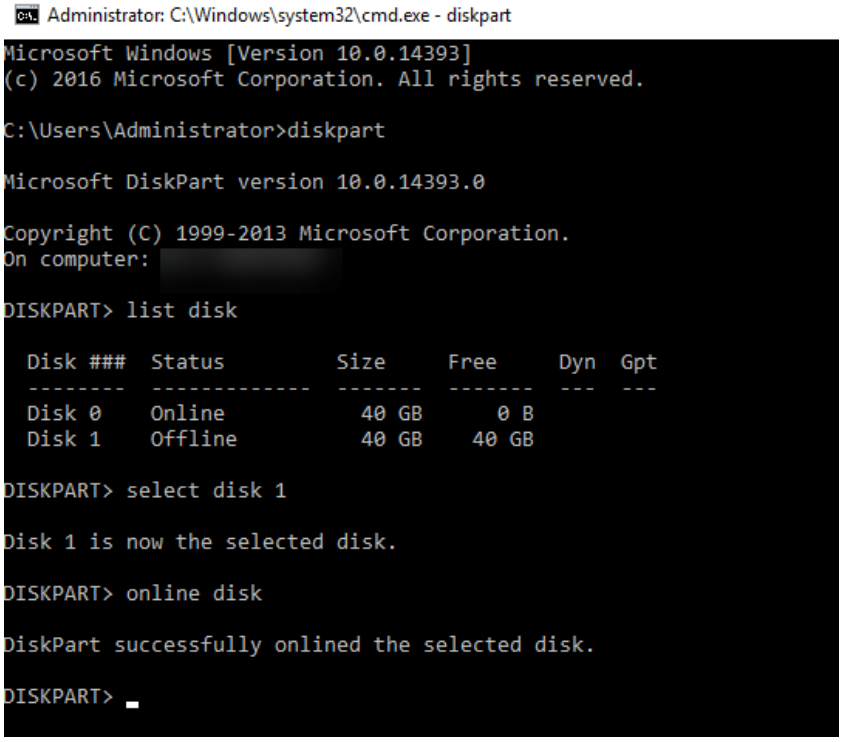
Step 4 Run the **list disk** command to query all disks on the current server. As shown in the following figure, **disk 0** is online and **disk 1** is offline.



Step 5 Run the **select disk 1** command.

Step 6 Run the **online disk** command to change the disk status from offline to online.

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Step 7 If the disk is read only after it goes online, run the **attribute disk clear readonly** command to remove the write protection on the disk.

----End

9.11 Why the Windows Target Server Cannot Access the Internet After the Migration?

Symptom

After a migration was completed, the Windows target server could not access the Internet and message "The target server running Windows cannot access the Internet" was displayed.

Possible Causes

The possible causes are as follows:

- Any network adapter drivers on the target server are abnormal.
- The network configuration of the target server is incorrect.

Solutions

- Solution for abnormal network adapter drivers
  a. Locate the abnormal network device using the device manager. Use the **Search automatically for updated driver software** option to update its driver. Then restart the target server.
  b. If the fault persists, disable the driver and enable it, and restart the target server.

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c. If the fault persists, find another ECS that is in the same AZ as the target server and can access the Internet. Then, detach a data disk from the target server and attach this disk to the ECS you find.

i. On the temporary ECS, download the **VMTools** installation package to the disk you have attached but do not install VMTools.

ii. Attach the data disk back to the target server. Then, log in to the target server and install VMTools.

iii. Restart the target server.

- Solution for incorrect network configuration

  1. Open the **cmd** window, run the **ipconfig** command to view the IP address of the target server. Check whether the IP address is the same as that displayed on the ECS console. If they are different, a static IP address may be set for the target server. In this case, change the IP address acquisition mode to DHCP.

  2. If the EIP of the target server can be pinged, but the external domain name cannot be pinged, see **Configuring DNS**.

9.12 Why the System Recovery Options Window Is Displayed When the Target Server Is Started?

Symptom

After the migration is complete, the target server starts and the System Recovery Options window is displayed.

Possible Causes

Something is wrong with the key startup files.

Solution

Run **BCDBoot** to resolve the problem.

a. Stop the target server, create a snapshot for its system disk, and detach the disk.

b. Purchase a temporary pay-per-use Windows server with 1 vCPU, 2 GB memory, and 40 GB system disk. The region and AZ of the server must be the same as those of the target server.

c. Attach the system disk of the target server to the temporary server as a data disk.

d. Run **cmd** as administrator on the temporary server. Run the following command:

bcdboot e:\windows /s d:

NOTE

In the preceding command, **e:\windows** indicates the path of the system disk on the target server, and **d:** indicates the path of the boot disk on the target server.

You can run **bcdboot /?** to view the help information.

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e. After the command is executed, detach the disk from the temporary server and attach the disk back to the target server. Refresh the page for several times, and start the target server.

f. If the system still cannot be started, use the created snapshot for rollback. If the problem persists, contact technical support.

9.13 How Do I Expand the Capacity of a Windows System Disk After the Migration?

Possible Causes

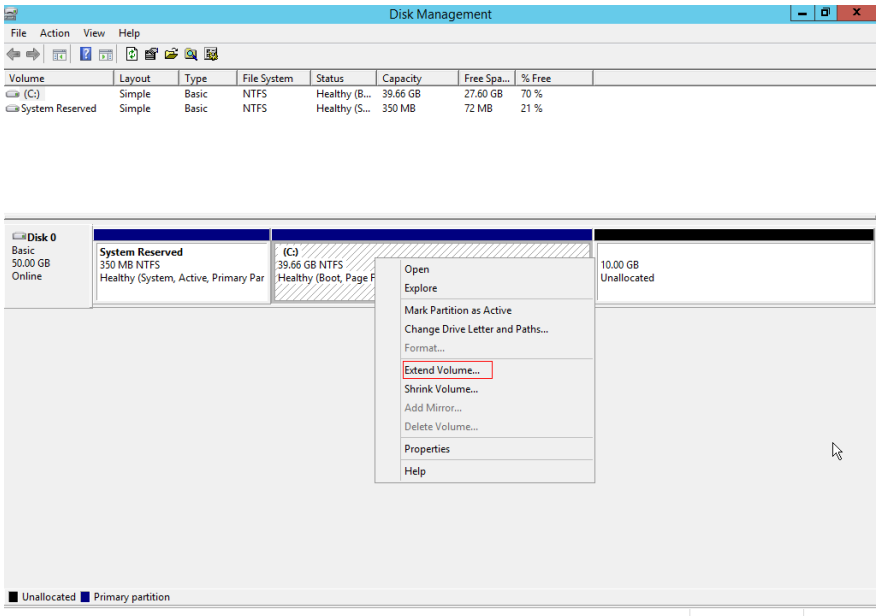
If a source server disk was smaller than the target server disk, there will be unallocated space left over on the target server disk. You can expand the system disk of the target server by taking advantage of the unallocated space.

Procedure

1. Choose **Start** > **Run**.
2. Enter **diskmgmt.msc** and press **Enter**.

   The **Disk Management** dialog box is displayed.
3. Right-click partition (C:) and choose **Expand Volume**.

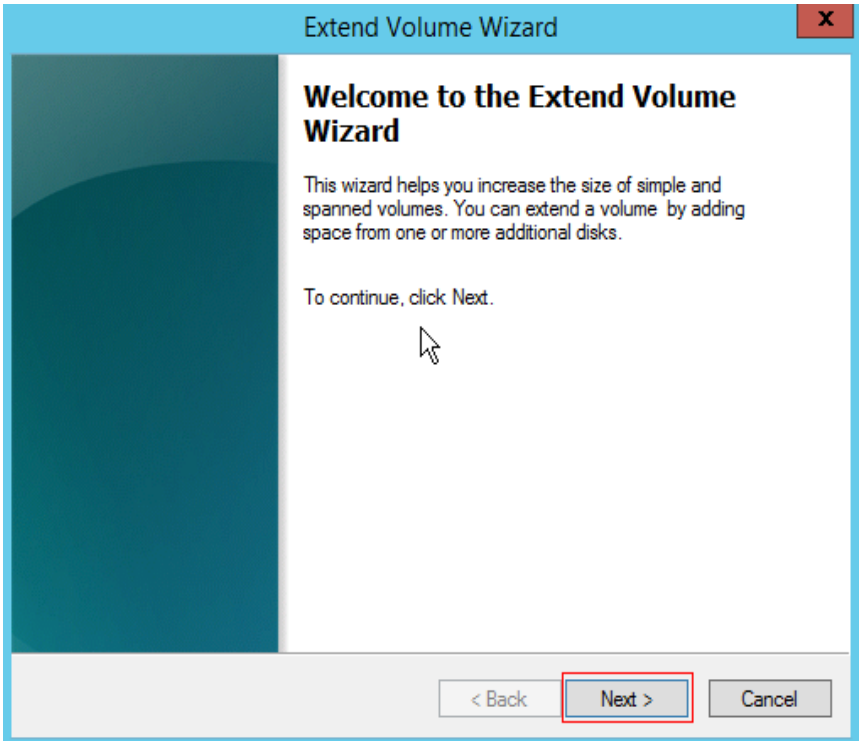
   Figure 9-6 Expanding volumes



4. In the displayed dialog box, click **Next**.

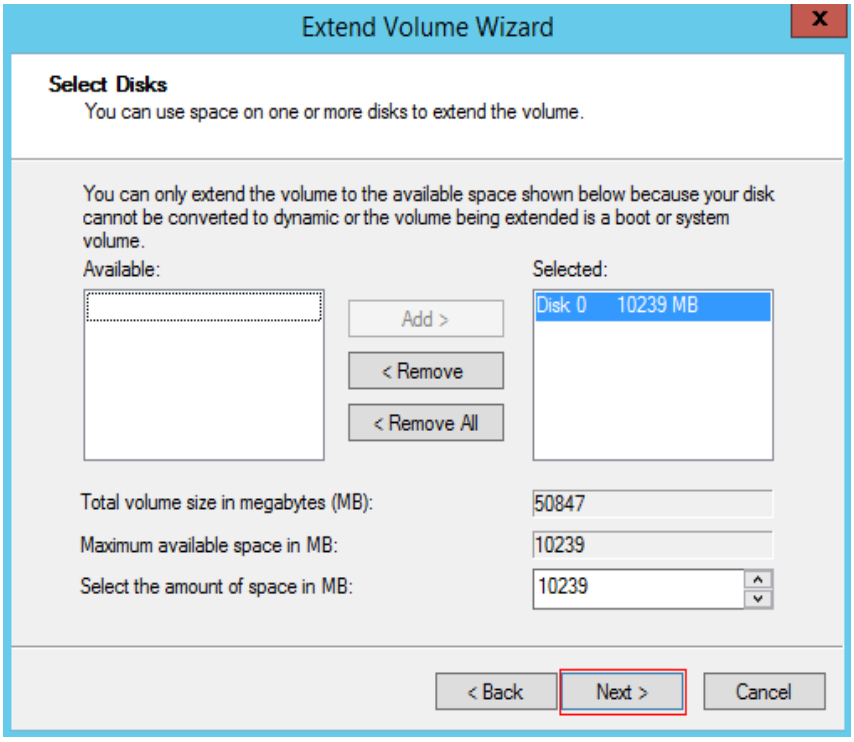
Copyright © Huawei Technologies Co., Ltd.

Figure 9-7 Extend Volume Wizard



5. Add the available space to the C partition and click **Next**.

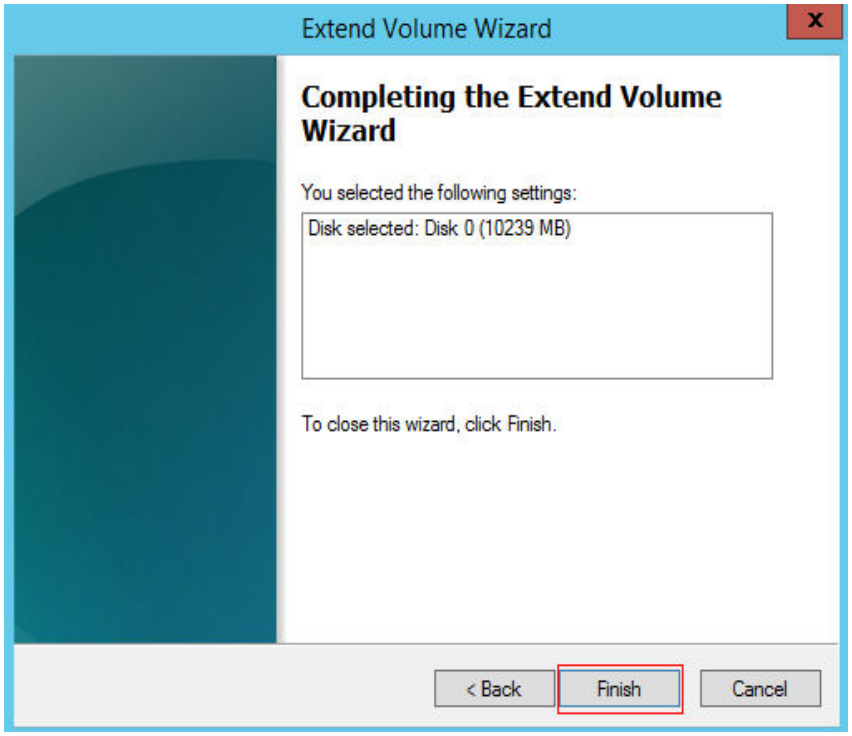
Figure 9-8 Expanding the disk



6. In the displayed dialog box, click **Finish**.

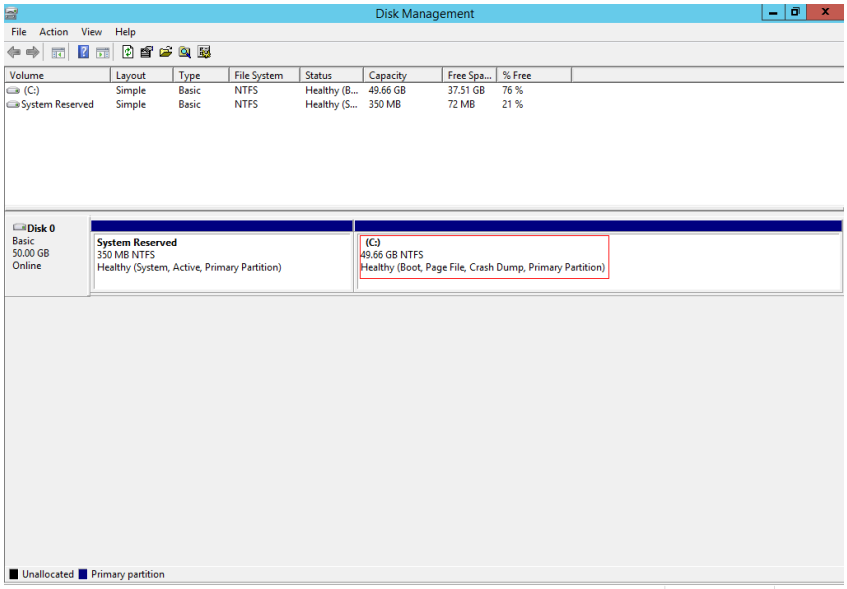
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Figure 9-9 Completing the expansion



7. Check the expanded capacity.

Figure 9-10 Checking the expanded capacity

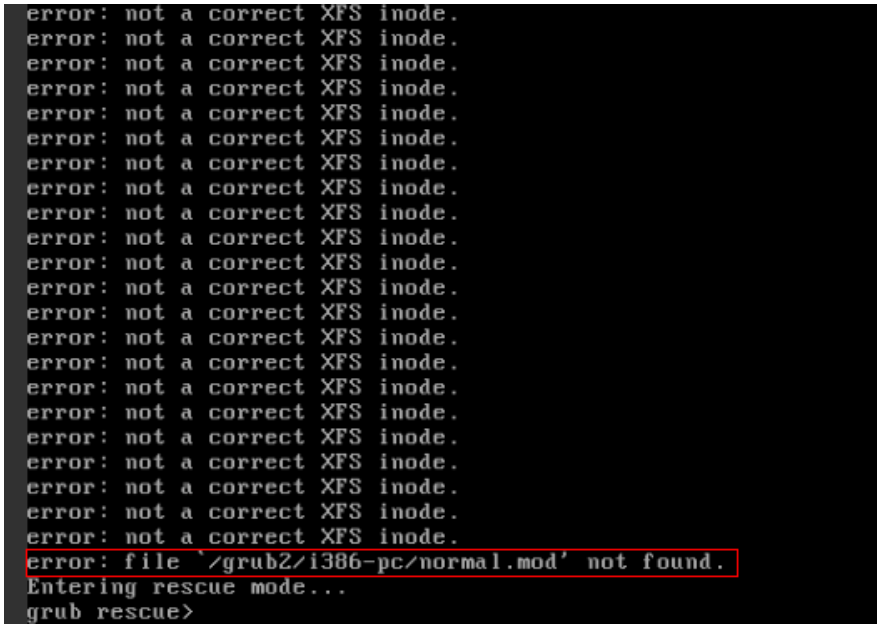


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9.14 How Do I Fix a GRUB Error Because an XFS Volume Is Mounted to the /boot Partition?

Symptom

On a source server running CentOS 7.1, an XFS volume is mounted to the **/boot** partition. After the source server is migrated to HUAWEI CLOUD, the corresponding target server failed to be launched.



Possible Causes

The XFS file system volume is mounted to the **/boot** partition, causing a GRUB error.

Solutions

- Solution 1

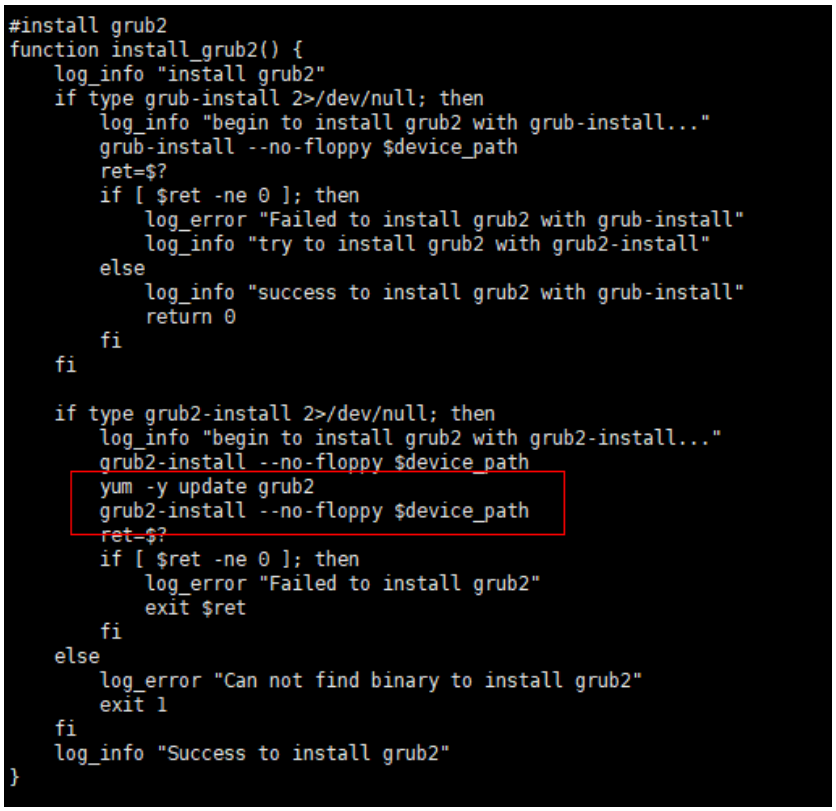
  Detach the system disk from the target server, and attach it to another ECS running for example CentOS7.6. After the system disk is successfully attached, mount the XFS file system and unmount the file system. Then detach the disk and attach it back to the original server.

- Solution 2

  Edit the GRUB installation script file **SMS-Agent/agent/linux/resources/shell/install_grub.sh** on the source server, locate the **install_grub2** function, and add the two lines of code in the red box in the following figure. Then restart the Agent for migration.

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Figure 9-11 Editing the GRUB installation script file



```
#install grub2
function install_grub2() {
    log_info "install grub2"
    if type grub-install 2>/dev/null; then
        log_info "begin to install grub2 with grub-install..."
        grub-install --no-floppy $device_path
        ret=$?
        if [ $ret -ne 0 ]; then
            log_error "Failed to install grub2 with grub-install"
            log_info "try to install grub2 with grub2-install"
        else
            log_info "success to install grub2 with grub-install"
            return 0
        fi
    fi

    if type grub2-install 2>/dev/null; then
        log_info "begin to install grub2 with grub2-install..."
        grub2-install --no-floppy $device_path
        yum -y update grub2
        grub2-install --no-floppy $device_path
        ret=$?
        if [ $ret -ne 0 ]; then
            log_error "Failed to install grub2"
            exit $ret
        fi
    else
        log_error "Can not find binary to install grub2"
        exit 1
    fi
    log_info "Success to install grub2"
}
```

9.15 What Do I Do If a Target Server Fails to Be Created?

Symptom

During the migration, the target server fails to be created.

Possible Causes

There are many causes for target server creation failures.

- The account balance is insufficient.
- The quota is insufficient.
- The requested AZ is unavailable.

Solutions

- Solution for insufficient balance

  Check whether the account balance is greater than ¥100 CNY and whether the budget is enough. If the balance is insufficient, top up the account or increase the budget and try again.
- Solution for insufficient quota

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Check whether the relevant quotas have been exhausted. If they have, increase the quotas or delete unnecessary resources to release the quotas.

- Solution for unavailable AZ

  Delete the target server configuration. Select another AZ when you create a task again.

9.16 Why the Start or Launch Target Button Is Unavailable?

- **Start** unavailable

  Check whether your account balance is less than ¥100 CNY. If it is, top up your account and try again.

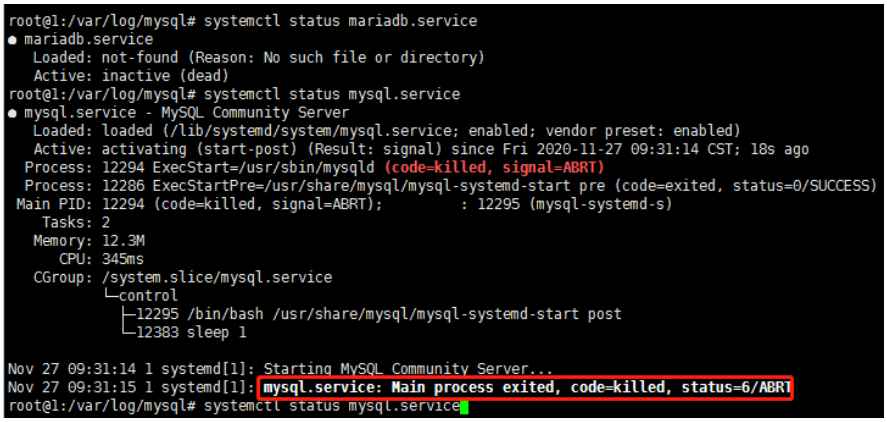
- **Launch Target ECS** unavailable

  Check whether your account balance is less than ¥100 CNY. If it is, top up your account and try again. If this button is still unavailable, check whether **Continuous Synchronization** was set to **No**. If it was, this button is unavailable by default and the system will automatically launch the target server.

9.17 How Do I Troubleshoot a MySQL Startup Failure on the Target Server After the Migration?

Symptom

After the migration, the MySQL service on the target server cannot start up or immediately shut down after being started.



Possible Causes

The MySQL service on the source server is not stopped after the migration. As a result, the related files on the target server do not match with those on the source server.

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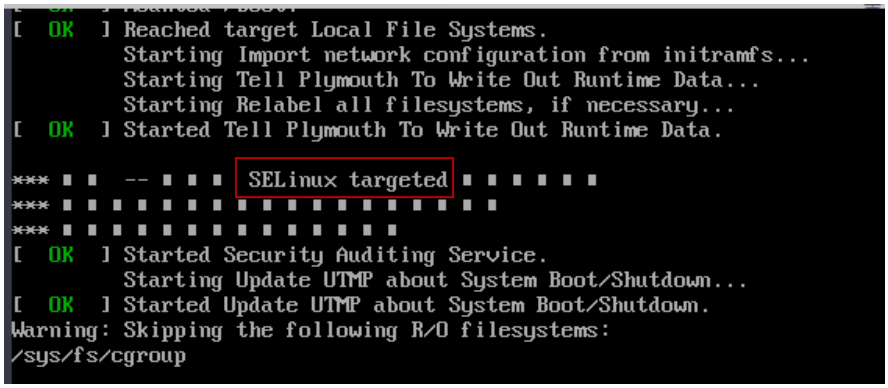
Solution

Stop the MySQL service on the source service, perform a synchronization, and try again.

9.18 How Do I Resolve Error "SELinux targeted" When I Start a Linux Target Server After the Migration Is Complete?

Symptom

When you started a Linux target server after the migration succeeded, message "SELinux targeted" was displayed.



Possible Causes

The SELinux configuration is incorrect.

Solution

Step 1 Find another ECS that is in the same AZ as the target server and can access the Internet. Detach the system disk from the target server and attach the disk to the ECS.

Step 2 Mount the related disk partitions.

Step 3 Locate the SELinux configuration file in the disk and set **SELinux** to **Disabled**.

CAUTION

Do not modify the SELinux configuration file of the temporary ECS.

Step 4 Mount the system disk and related partitions back to the target server and restart the target server.

----End

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9.19 Why Do the Agent Plug-ins from the Source Cloud Service Provider Exist on the Target Server After the Migration Is Complete?

SMS migrates everything, such as disk data and service configurations, from a source server to the target server.

If the Agent plug-ins from the source cloud service provider are deployed on the disks of the source server and are configured to automatically start upon system startup, these Agent plug-ins will be migrated to the target server and still start upon system startup.

You can delete or uninstall these plug-ins or modify related configurations on the target server.

NOTICE

SMS only ensures data consistency before and after migration. You need to modify service configurations as needed.

9.20 Why Is the Usable Memory (RAM) Less Than the Total Installed Memory on a Target Server Running 64-bit Windows?

Symptom

On a target server running 64-bit Windows, the usable memory (RAM) is much less than the installed memory. For example, the system reports that there is only 2 GB of usable memory on the target server that has 32 GB of memory installed.

Possible Causes

The maximum memory is set for the target server.

Solution

Step 1 Press **Win+R** on the keyboard to open the **Run** window. Enter **msconfig** and click **OK**. The **System Configuration** window is displayed.

Step 2 Click the **Boot** tab and click **Advanced options**. The **BOOT Advanced Options** dialog box is displayed.

Step 3 Check whether **Maximum memory** is selected. If it is, deselect it and click **OK**.

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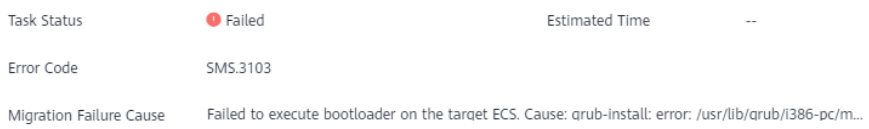
Step 4 Click **OK** to close the system configuration window and restart the target server.

----End

9.21 How Do I Fix Error "Failed to execute boot loader on the target ECS" When I Launch the Target Server?

Symptom

When you launched the target server, you got message SMS.3103 "Failed to execute boot loader on the target ECS."



Possible Causes

When a target server is being launched, the system reinstalls the Grub on the server. This error is reported if any files used for installing the Grub are missing, such as **normal.mod** in **/usr/lib/grub/i386-pc**.

NOTE

If the migration fails, other causes may be displayed, for example, readlink not found. In this case, check whether the **SmsAgent_Error.log** file on the source server contains the **i386-pc** field. If yes, the **i386-pc** folder is missing on the target server.

Solution

Step 1 Create an ECS that resides in the same region and AZ and runs the same OS as the target server.

Step 2 Detach the system disk of the target server, and attach and mount the disk to the **vdb** disk of the ECS created in the previous step.

Step 3 Copy and paste the **/usr/lib/grub/i386-pc** folder from the ECS to the corresponding directory on the system disk of the target server to overwrite the original folder.

Step 4 Detach the disk you mounted from the ECS and attach the disk back to the target server.

Step 5 Restart the target server.

----End

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9.22 After the Migration Is Complete, Will the Deletion of the Target Server Configuration or This Server Affect the Source or Target Servers?

After the migration is complete, services are verified to be running properly on the target server, and no synchronization is required, you can delete the target server configuration and this server, and the source and target servers are not affected.

CAUTION

- After the target server configuration is deleted, the migration task is still in the list, but the target server information is deleted and any incremental synchronizations cannot be performed. You can configure a target server to perform the migration again.
- After this server is deleted, the migration task is deleted from the list. You can restart the Agent on the source server, and the system will generate a new migration task for you.

9.23 How Do I Fix BSOD Errors When I Start a Windows Target Server After the Migration?

Symptom

After the migration, you started and logged in to the Windows target server. However, the blue screen of death (BSOD) happened and the system restarted automatically.

Possible Causes

The issue may be caused by antivirus software.

Solution

Step 1 Start the target server in safe mode. If the server cannot start, rectify the system driver faults and go to **2**. If the server starts, go to **2**.

Step 2 Check whether any antivirus software such as Sophos or Kaspersky is installed.

If any antivirus software is installed, use either of the following methods to fix the issue:

- **Method 1**
  a. Create an ECS in the same region and AZ as the target server. Detach the system disk from the target server and attach it to the ECS. Search for

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and delete all antivirus software-related installation directories, registries, and startup items.

b. Attach the disk back to target server, restart the system for several times to check that BSOD does not occur.

- **Method 2**

a. Uninstall the antivirus software on the source server and perform a synchronization.

NOTE

If you cannot uninstall some antivirus software, contact their providers.

b. After the synchronization, restart the target server for several times to check that BSOD does not occur.

----End

9.24 How Do I Fix Startup Failures of a Windows Target Server After the Migration?

Symptom

After the migration, the Windows target server cannot be started, even in safe mode.

Possible Causes

The KVM driver or KVM registry is missing.

Solutions

- **Solution 1**

a. Create a temporary ECS in the same region and AZ as the target server. Detach the system disk from the target server and attach it to the temporary ECS.

b. Check the KVM driver.

- Check whether files **viostor.sys** and **vioscsi.sys** exist in the **Windows\System32\drivers** directory of the disk.
- Check whether files **viostor.cat** and **vioscsi.cat** exist in the **Windows\System32\CatRoot\{F750E6C3-38EE-11D1-85E5-00C04FC295EE}** directory of the disk.
- Check whether files **viostor.inf** and **vioscsi.inf** exist in the **Windows\System32\drivers** directory of the disk.

  If any of the preceding files is missing, download the VMware Tools upgrade package and copy the file pair from the package.

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> **CAUTION**
>
> Files **.sys**, **.cat**, and **.inf** are used in pair. You need to copy a file pair instead of copying only the missing one.

c. Check the registry.

i. Open the **Registry Editor** and click **HKEY_LOCAL_MACHINE** in the navigation pane on the left.

ii. On the menu bar, choose **File** > **Local Hive**, locate registry **C:\Windows\System32\config\SYSTEM**, and change its name from **SYSTEM** to **p2v**.

iii. Open the registry and check whether entries **p2v/ControlSet001/services/viostor** and **p2v/ControlSet001/services/vioscsi** exist.

If they do not, manually add them to the registry by referring to the registry of the temporary ECS.

d. Stop the temporary ECS, and attach the disk back to the target server. Then, restart the target server.

- **Method 2**

  Install VMware Tools on the source server, perform a synchronization, and try to start the target server again.

> **CAUTION**
>
> After the VMware Tools are installed, do not restart the source server, or the synchronization will fail.

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10 Change History

Released On	Description
2022-06-22	This issue is the thirty-sixth official release. Added **How Do I Detach the Temporary System Disk from My Target Server and Attach the Original One?**
2022-06-08	This issue is the thirty-fifth official release. • Added **How Do I Fix Error "SMS.0410: Failed to obtain NicName/IPAddress information of source server " When I Start the Agent on a Linux Server?** • Updated **How Does the Authentication of a Target Server Changes?**
2022-05-07	This issue is the thirty-fourth official release. • Added **How Do I Fix Error "SMS.6562: component i386-pc not found on source server. For solution, see SMS API Reference." When I Start the Agent on a Linux Source Server?** • Added **How Do I Fix Error "SMS.6563: File initrd or initramfs of the xxxx version not found under /boot directory. For solution, see SMS API Reference." When I Start the Agent on a Linux Source Server?** • Added **How Do I Choose When the System Asks Whether to Disable the Google Services Detected on My Source Server on the Google Cloud?**
2022-04-22	This issue is the thirty-third official release. • Added **How Do I Resolve Error "SMS.0302 Failed to resolve domain name xxx"?** • Added **How Do I Troubleshoot Error "SMS.0303 Unable to access domain name xxx"?**

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Released On	Description
2022-03-17	This issue is the thirty-second official release. • Added **Why Can't I Specify Whether to Migrate a Physical Volume When I Resize the Disk Partitions in Linux?** • Added **Why Can't I Specify Whether to Migrate a Logical Volume When I Resize the Disk Partitions in Linux?** • Added **What Are the Rules for Resizing Volume Groups, Disks, and Partitions?** • Added **How Do I Migrate a Server with the System Disk Larger than 1 TB?**
2022-02-17	This issue is the thirty-first official release. • Added **How Do I Fix Error "Failed to obtain information about disk X" When I Start the Agent on a Linux Source Server?** • Added **How Do I Upload Migration Logs If the Migration Fails?** • Updated **How Do I Fix Error "Failed to modify the configuration files of the target server"?** • Updated **How Do I Exclude Specific Directories from a Linux File-Level Migration?**
2021-12-20	This issue is the thirtieth official release. • Updated **How Do I Display the Name of a Target ECS OS on the ECS Console?** • Updated **How Do I Create an AK/SK Pair for an IAM User?**
2021-11-17	This issue is the twenty-ninth official release. • Added **How Do I Fix BSOD Errors When I Start a Windows Target Server After the Migration?** • Added **How Do I Fix Startup Failures of a Windows Target Server After the Migration?** • Updated **How Do I Fix Error "Failed to modify the configuration files of the target server"?** • Updated **How Do I Fix a Connection Failure Between the Source Server and API Gateway Due to a Busy Network?**

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Released On	Description
2021-10-29	This issue is the twenty-eighth official release. • Added **Why Do I Need to Set the Target Server Disk Be at Least 1 GB Larger than the Paired Source Server GPT Disk on Alibaba Cloud?** • Added **Can I Release or Modify the Target Server EIP During the Migration?** • Updated **How Do I Resolve Error "Failed to establish an SSH connection with the target ECS"?**
2021-09-11	This issue is the twenty-seventh official release. • Added **Will an Incremental Synchronization Overwrite the Existing Data on a Launched Target Server?** • Added **Why Can't I Save the Migration Configuration as a Template?** • Added **How Do I Exclude Specific Directories from a Linux File-Level Migration?** • Added **How Do I Create a Target Server that Meets the SMS Requirements?** • Added **Can SMS Migrate Self-built Databases, Big Data Services, or Websites Deployed on a Source Server?** • Added How Do I Fix Error "SMS.1901, Agent cannot read disk information" When I Start the Agent Installed on a Windows Source Server? • Updated **How Do I Select a Target ECS?** • Updated **How Long Does a Migration Take?** • Updated **How Do I Fix Agent Startup Failures Due to Insufficient Space in /tmp on a Linux Source Server?**
2021-09-03	This issue is the twenty-sixth official release. • Added **How Do I Resolve Error "Some disks on the target server are smaller than those on the source server. Select another target server" When I Configure the Target Server?** • Added **Can SMS Migrate Local Disks on a Source Server?**
2021-08-11	This issue is the twenty-fifth official release. • Added **After the Migration Is Complete, Will the Deletion of the Target Server Configuration or This Server Affect the Source or Target Servers?**

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Released On	Description
2021-07-27	This issue is the twenty-fourth official release. • Added **How Do I Fix Error "Failed to execute boot loader on the target ECS" When I Launch the Target Server?** • Added **How Do I Configure a Source Server to Access HUAWEI CLOUD Through a Proxy?**
2021-07-09	This issue is the twenty-third official release. Added **Why Do the Agent Plug-ins from the Source Cloud Service Provider Exist on the Target Server After the Migration Is Complete?** Added **Why Is the Usable Memory (RAM) Less Than the Total Installed Memory on a Target Server Running 64-bit Windows?**
2021-06-08	This issue is the twenty-second official release. • Added **What Are the Snapshots of a Target Server Used for?** • Added **How Do I Resolve Error "SELinux targeted" When I Start a Linux Target Server After the Migration Is Complete?** • Added **How Do I Fix Error "Failed to start sms agent! 'disks'" When I Start the Agent on a Linux Source Server?** • Updated **How Do I Restore the Connection Between the Agent and SMS?** • Updated **Why the Windows Target Server Cannot Access the Internet After the Migration?** • Updated **How Do I Resolve 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?** • Updated **How Do I Resolve Error "SMS.1105 Disk creation failed"?** • Updated **How Does the Authentication of a Target Server Changes?** • Updated **How Do I Verify the Integrity of the Agent Installation File?** • Updated **How Do I Fix a GRUB Error Because an XFS Volume Is Mounted to the /boot Partition?**

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Released On	Description
2021-05-19	This issue is the twenty-first official release. • Updated **How Do I Fix a Connection Failure Between the Source Server and API Gateway Due to a Busy Network?** • Added **Why Does the Migration Stay in a Stage for a Long Time?** • Added **How Do I Troubleshoot a MySQL Startup Failure on the Target Server After the Migration?**
2021-04-27	This issue is the twentieth official release. • Updated **How Do I Resolve Error "SMS.1105 Disk creation failed"?** • Updated **Where Can I Find the Agent Run Logs?**
2021-04-14	This issue is the nineteenth official release. • Updated **How Do I Fix a GRUB Error Because an XFS Volume Is Mounted to the /boot Partition?** • Updated **How Do I Troubleshoot Failed Migration or Synchronization of a Partition?** • Updated **How Do I Resolve Error "Insufficient permissions. Add corresponding fine-grained permissions"?** • Updated **How Do I Resolve Error "Failed to establish an SSH connection with the target ECS"?** • Updated **How Do I Fix Error "Failed to connect to the target ECS. Check whether its IP address is reachable and confirm that port XX is enabled"?** • Added **How Does SMS Differ from IMS in the Migration Scenario?** • Added **How Do I Check the Firmware Type of a Source Server?** • Added **Does My Source Server Have to Connect to the Internet?** • Added **Is the Migration Speed Determined by the Source Bandwidth or the Target Bandwidth?** • Added **What Are the Requirements on Disks on a Target Server?** • Added **How Can I Migrate a Source Server with a Large System Disk?** • Added **Why the Start or Launch Target Button Is Unavailable?**

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Released On	Description
2021-03-09	This issue is the eighteenth official release. • Optimized **How Do I Set Up a Secure Migration Network for Using SMS?** • Optimized **How Do I Prepare a Target Server in Advance?** • Optimized **How Do I Configure Security Group Rules for Target Servers?** • Added **How Do I Display the Name of a Target ECS OS on the ECS Console?**
2021-03-01	This issue is the seventeenth official release. • Optimized **What Information Does SMS Collect About Source Servers?** • Optimized **How Do I Resolve Error "Failed to establish an SSH connection with the target ECS"?** • Optimized **How Does Migration Using SMS Differ from Migration Using IMS?**
2021-02-09	This issue is the sixteenth official release. • Added **How Do I Resize Partitions and Disks When I Migrate a Windows Source Server?** • Added **What Do I Do If a Target Server Fails to Be Created?** • Added **How Do I Determine Whether a Migration Is Complete?** • Added **Can I Migrate Only Some Services on the Source Server?** • Added **Can the Target Server Run a Different Type of OS from the Source Server?** • Added **What Determines the Specifications of a Target Server?** • Added **Which Download Option Should I Choose When I Download the Windows Agent?** • Added **Can I Migrate a Source Server If There Is No Corresponding Image Available on HUAWEI CLOUD?**

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Released On	Description
2021-02-01	This issue is the fifteenth official release. • Added **What Can I Do If the Partition Information Fails to Be Reconfigured on the Target Server?** • Added How Do I Fix Error "Failed to create a file on the source server. Cause: /bin/sh: line 0: echo: write error: No space left on device"? • Added **Where Can I Find the Agent Run Logs?** • Added **Why Does the Windows Agent Executable Not Run When I Double-Click It?** • Added **Why the System Recovery Options Window Is Displayed When the Target Server Is Started?** • Added **Why Doesn't the Increased Bandwidth Take Effect During Migration?** • Added **What Can I Do If the System Prompts that Disk Creation Failed on the Target Server?** • Added **How Do I Restart the Agent?** • Added **Why Is the OS Name of the Target ECS Displayed on the ECS Console Different from That of the Source Server?** • Added **How Do I Resolve Error "Insufficient permissions. Add corresponding fine-grained permissions"?** • Deleted section What Can I Do If Message "The source server runs Windows 2003. Network may be unavailable after migration" Is Displayed?
2021-01-08	This issue is the fourteenth official release. • Optimized **Why the Windows Target Server Cannot Access the Internet After the Migration?** • Optimized **How Do I Exclude a Partition from Migration in Windows?** • Added **How Do I Find and Modify the Agent Configuration Files?** • Added **How Do I Fix Error "Failed to modify the configuration files of the target server"?** • Added **How Do I Fix a GRUB Error Because an XFS Volume Is Mounted to the /boot Partition?**

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Released On	Description
2020-11-05	This issue is the thirteenth official release. • Added **How Do Resolve Error "Source server lacks driver files"?** • Added **How Do I Resolve Error "VSS not installed on the source server"?** • Added **How Do I Fix Error "Agent startup failed because the noexec permission is not allowed on /tmp for SMS Agent. Please remount /tmp without noexec" When I Start the Linux Agent?** • Added **Why Is My Target Server Locked During the Migration?** • Added **How Do I Unlock a Target Server Manually?**
2020-10-31	This issue is the twelfth official release. Added **How Do I Resolve Error "Disk info in source server has changed, task fail, please delete the task and then restart the agent"?**
2020-09-10	This issue is the eleventh official release. Optimized the structure of section "FAQs."
2020-07-13	This issue is the tenth official release. • Added **Why Does the Agent Not Start the First Time I Launch It?** • Added **How Do I Resolve Error "utf-8 codec can't decode byte 0xce in position0: invalid continuation byte" When I Start the Agent?** • Added **How Do I Migrate a Linux Source Server as a Non-root User?**
2020-02-01	This issue is the ninth official release. Added **How Do I Resolve Error "Inconsistent firmware type. Source: UEFI, Target: BIOS" When I Create a Migration Task?**
2020-2-11	This issue is the eighth official release. • Added **How Do I Migrate an ECS from One Account to Another?** • Added **How Do I Migrate an ECS from One Region to Another Using SMS?**
2019-12-10	This issue is the seventh official release. Added **Why Can't I Attach a System Disk to the Target Server?**

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Released On	Description
2019-09-12	This issue is the sixth official release. Added section What Can I Do If Message "The source server runs Windows 2003. Network may be unavailable after migration" Is Displayed?
2019-08-30	This issue is the fifth official release. Added **Why Is the File System Size Inconsistent Before and After the Migration?** Added **Why Can't I See the Data Disks on the Windows Target Server After Migration?** Added **How Do I Expand the Capacity of a Windows System Disk After the Migration?**
2019-06-30	This issue is the third official release. Added **How Do I Verify the Integrity of the Agent Installation File?**
2019-01-15	This issue is the second official release. Added **How Do I Create an ECS?** and **How Do I Select a Target ECS?** SMS supports migration of source servers to yearly/monthly ECSs on HUAWEI CLOUD.
2018-09-30	This issue is the first official release.

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