## Server Migration Service

# Best Practices

**Issue** 08

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HUAWEI TECHNOLOGIES CO., LTD.

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# Contents

# 1 Moving Huawei Cloud ECSs from Multiple Accounts to a Single Account

## Overview

Server Migration Service (SMS) can help you easily move Elastic Cloud Servers (ECSs) from multiple Huawei Cloud accounts to a single Huawei Cloud account, regardless of whether these ECSs are in the same region or in different regions.

## Procedure

1. Obtain an AK/SK pair for the account you are migrating to. For details, see **How Do I Create an AK/SK Pair for an Account?**

   If you are migrating to the account of an IAM user, you need to obtain the required permissions and an AK/SK pair for the IAM user. For details, see **How Do I Create an AK/SK Pair for an IAM User?**

2. Install the SMS Agent on each ECS to be migrated. For details, see **How Do I Install the Agent on Source Servers?**
3. Run the SMS Agent and enter the AK/SK pair obtained in **1**.

   NOTE

   After the Agent is started, it reports details about the ECSs to SMS, so SMS can check whether the ECSs can be migrated.

4. Log in to the SMS console using the account you are migrating to. Choose **Servers** from the navigation pane and view the ECSs in the server list.
5. Create and run migration tasks for migrating these ECSs. For details, see **Configuring the Target Server**, **Starting a Full Replication**, and **Launching the Target Server**.

   If the source and target ECSs are in the same VPC on Huawei Cloud, you can set **Network Type** to **Private**. Private connections will be established to the private IP addresses of the target ECSs, and data will be transmitted over these private connections. After the migration is complete, the target ECSs use the same login credentials as their paired source ECSs.

NOTE

- If the source and target ECSs are in the same account and the same region, but are in different VPCs, you need to create a peering connection between the VPCs so that you can migrate over a private network. For more information, see **Creating a VPC Peering Connection with Another VPC in Your Account**.
- If the source and target ECSs are in the same region, but are in different accounts and different VPCs, you need to create a peering connection between the VPCs so that you can migrate over a private network. For more information, see **Creating a VPC Peering Connection with a VPC in Another Account**.

6. (Optional) Synchronize incremental data from the source ECSs to the target ECSs by using the **Sync** option on the SMS console.

# 2 Migrating Physical or Virtual Servers On-Premises or in Other Clouds to Huawei Cloud

## Overview

SMS helps you quickly migrate physical or virtual servers on-premises or in another cloud to Huawei Cloud.

## Procedure

1. Obtain an AK/SK pair for the account you are migrating to. For details, see **How Do I Create an AK/SK Pair for an Account?**

   If you are migrating to the account of an IAM user, you need to obtain the required permissions and an AK/SK pair for the IAM user. For details, see **How Do I Create an AK/SK Pair for an IAM User?**

1. Install the SMS Agent on each source server to be migrated. For details, see **How Do I Install the Agent on Source Servers?**

2. Run the SMS Agent and enter the AK/SK pair obtained in **1**.

   NOTE

   After the Agent has started, it reports details about the source servers to SMS, so SMS can check whether the servers can be migrated.

3. Log in to the SMS console using the account you are migrating to. Choose **Servers** from the navigation pane and view the source servers in the server list.

4. Create and run migration tasks for migration the source servers. For details, see **Configuring the Target Server**, **Starting a Full Replication** and **Launching the Target Server**.

   NOTE

   After the migration is complete, the target servers use the same login credentials as the source servers.

5. (Optional) Synchronize incremental data from the source servers to the target servers by using the **Sync** option on the SMS console.

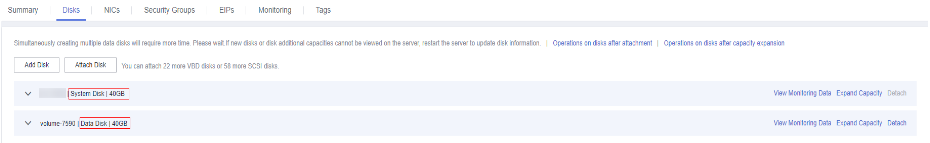
# 3 Migrating the System and Data Partitions of a Windows Server to the Separate Disks of a Huawei Cloud ECS

## Overview

A Huawei Cloud ECS consists of one system disk and several data disks, as shown in **Figure 3-1**. An on-premises server may have the system partition and other partitions located on the same disk, as shown in **Figure 3-2**.

You can use SMS to easily migrate the system partition (volume C) of the on-premises server to the system disk of the ECS, and other partitions (volumes D and E) to the data disks of the ECS.

**Figure 3-1** Disks on a Huawei Cloud ECS



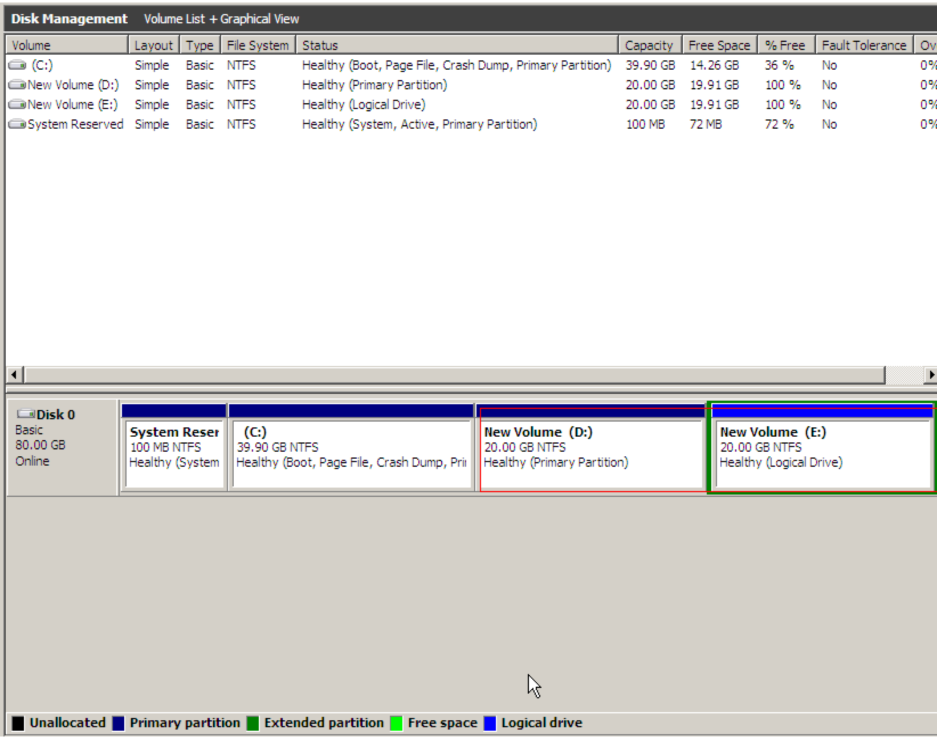
Simultaneously creating multiple data disks will require more time. Please wait.If new disks or disk additional capacities cannot be viewed on the server, restart the server to update disk information. | Operations on disks after attachment | Operations on disks after capacity expansion

You can attach 22 more VBD disks or 58 more SCSI disks.

[redacted] | System Disk | 40GB

volume-7590 | Data Disk | 40GB

**Figure 3-2** Disks on an on-premises server



Disk Management Volume List + Graphical View

| Volume | Layout | Type | File System | Status | Capacity | Free Space | % Free | Fault Tolerance | Ov |
|---|---|---|---|---|---|---|---|---|---|
| (C:) | Simple | Basic | NTFS | Healthy (Boot, Page File, Crash Dump, Primary Partition) | 39.90 GB | 14.26 GB | 36 % | No | 0% |
| New Volume (D:) | Simple | Basic | NTFS | Healthy (Primary Partition) | 20.00 GB | 19.91 GB | 100 % | No | 0% |
| New Volume (E:) | Simple | Basic | NTFS | Healthy (Logical Drive) | 20.00 GB | 19.91 GB | 100 % | No | 0% |
| System Reserved | Simple | Basic | NTFS | Healthy (System, Active, Primary Partition) | 100 MB | 72 MB | 72 % | No | 0% |

## Procedure

1. Obtain an AK/SK pair for the account you are migrating to. For details, see **How Do I Create an AK/SK Pair for an Account?**

   If you are migrating to the account of an IAM user, you need to obtain the required permissions and an AK/SK pair for the IAM user. For details, see **How Do I Create an AK/SK Pair for an IAM User?**

2. Install the SMS Agent on the source server to be migrated. For details, see **How Do I Install the Agent on Source Servers?**

3. Go to the Agent installation directory, for example, **C:\SMS-Agent-Py*X*\config**, and modify the configuration file **disk.cfg** as follows:

   ```
   [vol_mount_modify]
   D=2
   E=2
   ```

   NOTE

   **D=2** and **E=2** indicate that volumes D and E will be migrated to the second disk, a data disk on the ECS.

4. Run the SMS Agent and enter the AK/SK pair obtained in **1**.

   NOTE

   After the Agent has started, it reports source server details to SMS, so SMS can check whether the server can be migrated.

5. Log in to the SMS console using the account you are migrating to. Choose **Servers** from the navigation pane and view the source server in the server list.

6. Create and run a migration task for migrating the source server. For details, see **Configuring the Target Server**, **Starting a Full Replication** and **Launching the Target Server**.

After the migration is complete, the target server has a system disk and a data disk which are separated from each other.

📖 **NOTE**

After the migration is complete, the target server uses the same login credentials as the source server.

7. (Optional) Synchronize incremental data from the source ECSs to the target ECSs by using the **Sync** option on the SMS console.

# 4 Migrating a Server into an Enterprise Project

## 4.1 Background

SMS allows you to migrate a server into a specific enterprise project. You can learn about the Enterprise Project Management Service (EPS) from **What Is Enterprise Project Management Service?**

You must enable the EPS service for the Huawei Cloud account you will migrate to. When you start the SMS Agent on a source server, the Agent lists all enterprise projects the account is allowed to access. You can select the enterprise you would like to migrate the source server to. This enables you to isolate permissions, resources, and finance during the migration.

## 4.2 Enabling EPS and Creating an Enterprise Project

### Enabling EPS

For details, see **Enabling the Enterprise Project Function**.

### Creating an Enterprise Project

Create user group **Test_EPS** and IAM user **Test_EPS_User**, and add the IAM user to the user group. Then create enterprise project **Test_EPS_Project**. For details, see **Getting Started with Enterprise Management**.

NOTE

**Test_EPS**, **Test_EPS_User**, and **Test_EPS_Project** are examples only. You need to change the names as required.

# 4.3 Authorizing the User Group to Manage the Enterprise Project

You can assign user group **Test_EPS** the permissions required to manage enterprise project **Test_EPS_Project**. Only the IAM users in the user group then are allowed to manage the resources in the enterprise project. This can prevent unauthorized users from accessing the resources in the enterprise project.

⚠ CAUTION

You need to create two separate custom policies by enterprise project and IAM project and attach them to the user group.

## Assigning Permissions to the User Group by Enterprise Project

**Step 1** Create custom policy **SMS Custom Policy For EPS**. For details, see section "Creating a Custom Policy in JSON View" in **Creating a Custom Policy**.

Copy the following information to the policy content:

```
{
    "Version": "1.1",
    "Statement": [
        {
            "Action": [
                "vpc:securityGroups:create",
                "vpc:securityGroups:delete",
                "vpc:vpcs:create",
                "vpc:vpcs:delete",
                "vpc:publicIps:create",
                "vpc:publicIps:delete",
                "vpc:subnets:create",
                "vpc:subnets:delete",
                "ecs:cloudServers:create",
                "ecs:cloudServers:attach",
                "ecs:cloudServers:detachVolume",
                "ecs:cloudServers:start",
                "ecs:cloudServers:stop",
                "ecs:cloudServers:delete",
                "ecs:cloudServers:reboot",
                "ecs:cloudServers:updateMetadata",
                "ecs:cloudServers:vnc",
                "ecs:serverPasswords:manage",
                "ecs:serverKeypairs:delete",
                "ecs:diskConfigs:use",
                "ecs:CloudServers:create",
                "ecs:servers:setMetadata",
                "ecs:serverVolumes:use",
                "ecs:serverKeypairs:create",
                "ecs:serverInterfaces:use",
                "ecs:serverGroups:manage",
                "ecs:securityGroups:use",
                "ecs:servers:unlock",
                "ecs:servers:rebuild",
                "ecs:servers:lock",
                "evs:volumes:use",
                "evs:volumes:create",
                "evs:volumes:update",
                "evs:volumes:delete",
                "evs:snapshots:create",
                "evs:snapshots:delete",
                "evs:snapshots:rollback",
                "ecs:*:get*",
                "ecs:*:list*",
                "evs:*:get*",
                "evs:*:list*",
                "vpc:*:list*",
                "vpc:*:get*",
                "ims:*:get*",
                "ims:*:list*"
            ],
            "Effect": "Allow"
        }
    ]
}
```

**Step 2** On the IAM console, choose **User Groups** in the navigation pane.

**Step 3** Click user group **Test_EPS**.

**Step 4** Click **Authorize**, select the **SMS FullAccess** role and the **SMS Custom Policy For EPS** policy, and click **Next**.

**Step 5** Select **Enterprise projects** for **Scope**, select the enterprise project created in **Enabling EPS and Creating an Enterprise Project**, and click **OK**.

**----End**

## Assigning Permissions to the User Group by IAM Project

**Step 1** Create custom policy **SMS Custom Policy For EPS At IAM**. For details, see section "Creating a Custom Policy in JSON View" in **Creating a Custom Policy**.

Copy the following information to the policy content:

```
{
    "Version": "1.1",
    "Statement": [
        {
            "Action": [
                "ecs:availabilityZones:list",
                "ecs:servers:list",
                "ecs:servers:unlock",
                "ecs:servers:lock",
                "ecs:servers:reboot",
                "ecs:serverPasswords:manage",
                "ecs:diskConfigs:use",
                "ecs:servers:setMetadata",
                "ecs:serverVolumes:use",
                "ecs:serverKeypairs:create",
                "ecs:serverKeypairs:get",
                "ecs:serverKeypairs:delete",
                "ecs:serverInterfaces:use",
                "ecs:serverGroups:manage",
                "ecs:securityGroups:use",
                "vpc:securityGroupRules:create",
                "vpc:securityGroupRules:delete",
                "vpc:securityGroupRules:get",
                "vpc:securityGroupRules:update",
                "vpc:networks:get",
                "vpc:ports:get",
                "vpc:vpcTags:get",
                "vpc:subnetTags:get",
                "vpc:routers:get",
                "vpc:securityGroups:get",
                "evs:volumes:list",
                "evs:types:get"
            ],
         "Effect": "Allow"
      }
   ]
}
```

**Step 2** On the IAM console, choose **User Groups** in the navigation pane.

**Step 3** Click user group **Test_EPS**.

**Step 4** Click **Authorize**, select the **SMS Custom Policy For EPS At IAM** policy, and click **Next**.

**Step 5** Select **All resources** for **Scope** and click **OK**.

**----End**

### Assigning Global Permissions to the User Group

**Step 1** Create a custom policy by referring to section "Creating a Custom Policy in JSON View" in **Creating a Custom Policy**.

Copy the following information to the policy content:

```
{
   "Version": "1.1",
   "Statement": [
      {
         "Effect": "Allow",
         "Action": [
             "sms:server:registerServer",
             "sms:server:migrationServer",
             "sms:server:queryServer"
         ]
      }
   ]
}
```

**Step 2** On the IAM console, choose **User Groups** in the navigation pane.

**Step 3** Click user group **Test_EPS**.

**Step 4** Click **Authorize**, select the created SMS custom policy with global permissions, and click **Next**.

**Step 5** Select **All resources** for **Scope** and click **OK**.

**----End**

## 4.4 Migrating the Source Server

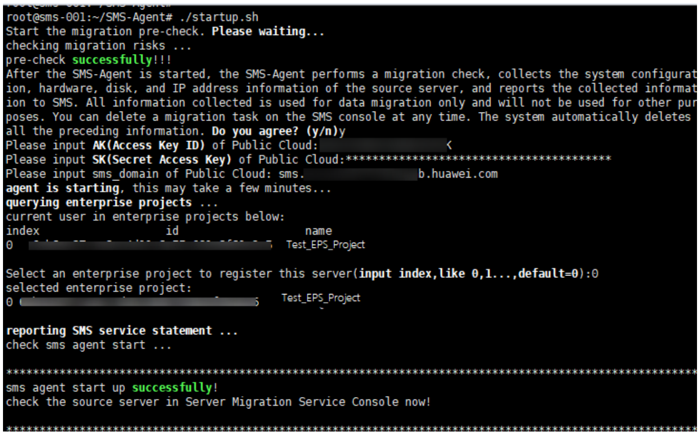
You need to install the SMS Agent that matches the OS of the source server.

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

## Linux Agent

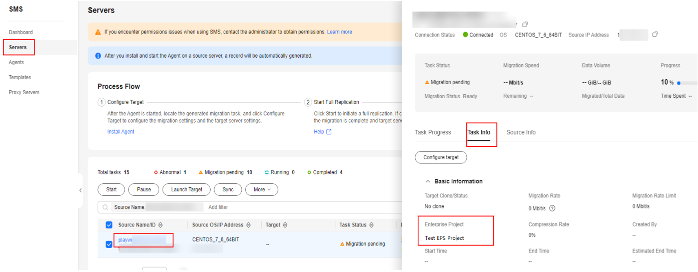
**Step 1** Install the Linux Agent.

**Step 2** Start the Agent. After the Agent lists the enterprise projects your target account is authorized to access, select your desired enterprise project. In this example, select enterprise project **Test_EPS_Project** created in Creating an Enterprise Project.



```
root@sms-001:~/SMS-Agent# ./startup.sh
Start the migration pre-check. Please waiting...
checking migration risks ...
pre-check successfully!!!
After the SMS-Agent is started, the SMS-Agent performs a migration check, collects the system configurat
ion, hardware, disk, and IP address information of the source server, and reports the collected informat
ion to SMS. All information collected is used for data migration only and will not be used for other pur
poses. You can delete a migration task on the SMS console at any time. The system automatically deletes
all the preceding information. Do you agree? (y/n)y
Please input AK(Access Key ID) of Public Cloud: [redacted]K
Please input SK(Secret Access Key) of Public Cloud:****************************************
Please input sms_domain of Public Cloud: sms.[redacted]b.huawei.com
agent is starting, this may take a few minutes...
querying enterprise projects ...
current user in enterprise projects below:
index                  id                    name
0   [redacted]   Test_EPS_Project

Select an enterprise project to register this server(input index,like 0,1...,default=0):0
selected enterprise project:
0 [redacted]   Test_EPS_Project

reporting SMS service statement ...
check sms agent start ...

**************************************************************************************************
sms agent start up successfully!
check the source server in Server Migration Service Console now!

**************************************************************************************************
```

**Step 3** Log in to the SMS console. In the navigation pane on the left, choose **Servers**. In the server list, click the server name. The enterprise project **Test_EPS_Project** is displayed in the task details.



If you encounter permissions issues when using SMS, contact the administrator to obtain permissions. Learn more

After you install and start the Agent on a source server, a record will be automatically generated.

Process Flow

1 Configure Target
After the Agent is started, locate the generated migration task, and click Configure Target to configure the migration settings and the target server settings.
Install Agent

2 Start Full Replication
Click Start to initiate a full replication. If c
the migration is complete and target serv
Help

Total tasks 15 Abnormal 1 Migration pending 10 Running 0 Completed 4

| Source Name/ID | Source OS/IP Address | Target | Task Status |
|---|---|---|---|
| playw[redacted] | CENTOS_7_6_64BIT | -- | Migration pending |

[redacted]
Connection Status: Connected OS: CENTOS_7_6_64BIT Source IP Address: 1[redacted]

| Task Status | Migration Speed | Data Volume | Progress |
|---|---|---|---|
| Migration pending | -- Mbit/s | -- GiB/-- GiB | 10 % |
| Migration Status Ready | Remaining -- | Migrated/Total Data | Time Spent -- |

Basic Information

| Target Clone/Status | Migration Rate | Migration Rate Limit |
|---|---|---|
| No clone | 0 Mbit/s | 0 Mbit/s |
| Enterprise Project | Compression Rate | Created By |
| Test EPS Project | 0% | -- |
| Start Time | End Time | Estimated End Time |
| -- | -- | -- |

**Step 4** Perform the procedures described in Configuring the Target Server, Starting a Full Replication, and Launching the Target Server.

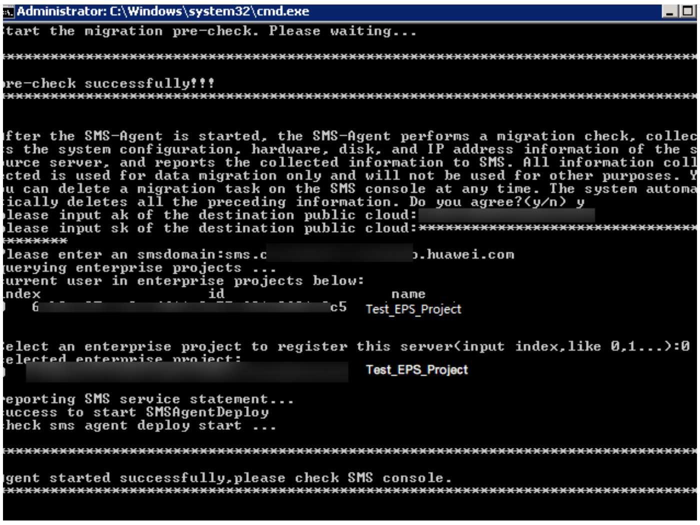
> NOTE
>
> To avoid permission errors, you are advised to create an ECS (that will be used as the target server), VPC, subnet, security group, and EIP in the enterprise project **Test_EPS_Project** before performing the migration.

**----End**

## CLI-based Windows Agent (Python 2)

**Step 1** Install the Windows Agent.

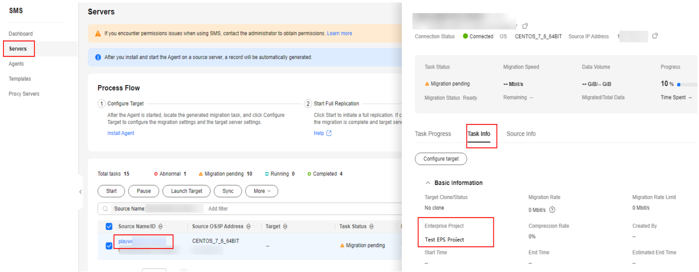
**Step 2** Start the Agent. After the Agent lists the enterprise projects your target account is authorized to access, select your desired enterprise project. In this example, select enterprise project **Test_EPS_Project** created in Creating an Enterprise Project.



Administrator: C:\Windows\system32\cmd.exe

```
tart the migration pre-check. Please waiting...

*******************************************************************************

re-check successfully!!!
*******************************************************************************


fter the SMS-Agent is started, the SMS-Agent performs a migration check, collec
s the system configuration, hardware, disk, and IP address information of the s
urce server, and reports the collected information to SMS. All information coll
cted is used for data migration only and will not be used for other purposes. Y
u can delete a migration task on the SMS console at any time. The system automa
ically deletes all the preceding information. Do you agree?(y/n) y
lease input ak of the destination public cloud:[redacted]
lease input sk of the destination public cloud:*******************************
********
lease enter an smsdomain:sms.c[redacted]).huawei.com
uerying enterprise projects ...
urrent user in enterprise projects below:
ndex                    id                    name
    6[redacted]c5    Test_EPS_Project


elect an enterprise project to register this server(input index,like 0,1...):0
elected enterprise project:
  [redacted]    Test_EPS_Project

eporting SMS service statement...
uccess to start SMSAgentDeploy
heck sms agent deploy start ...

*******************************************************************************

gent started successfully,please check SMS console.
*******************************************************************************
```

**Step 3** Log in to the SMS console. In the navigation pane on the left, choose **Servers**. In the server list, click the server name. The enterprise project **Test_EPS_Project** is displayed in the task details.



**Step 4** Perform the procedures described in **Configuring the Target Server**, **Starting a Full Replication**, and **Launching the Target Server**.

NOTE

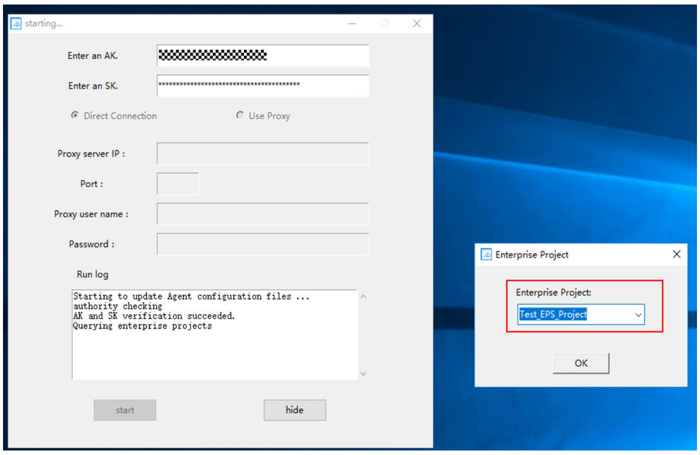
To avoid permission errors, you are advised to create an ECS (that will be used as the target server), VPC, subnet, security group, and EIP in the enterprise project **Test_EPS_Project** before performing the migration.

**----End**

## GUI-based Windows Agent (Python 3)

**Step 1** **Install the Windows Agent**.

**Step 2** Start the Agent. After the Agent lists the enterprise projects your target account is authorized to access, select your desired enterprise project. In this example, select enterprise project **Test_EPS_Project** created in **Creating an Enterprise Project**.



starting...

Enter an AK. [redacted]

Enter an SK. ****************************************

● Direct Connection ○ Use Proxy

Proxy server IP :

Port :

Proxy user name :

Password :

Run log

```
Starting to update Agent configuration files ...
authority checking
AK and SK verification succeeded.
Querying enterprise projects
```

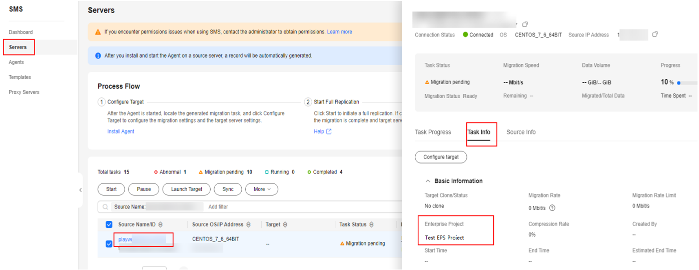
start hide

Enterprise Project

Enterprise Project: Test_EPS_Project

OK

**Step 3** Log in to the SMS console. In the navigation pane on the left, choose **Servers**. In the server list, click the server name. The enterprise project **Test_EPS_Project** is displayed in the task details.



SMS

Servers

If you encounter permissions issues when using SMS, contact the administrator to obtain permissions. Learn more

After you install and start the Agent on a source server, a record will be automatically generated.

Process Flow

1 Configure Target

After the Agent is started, locate the generated migration task, and click Configure Target to configure the migration settings and the target server settings.

Install Agent

2 Start Full Replication

Click Start to initiate a full replication. If c the migration is complete and target serv

Help

Total tasks 15 Abnormal 1 Migration pending 10 Running 0 Completed 4

Source Name: Add filter

| Source Name/ID | Source OS/IP Address | Target | Task Status |
|---|---|---|---|
| playw | CENTOS_7_6_64BIT | -- | Migration pending |

Connection Status Connected OS CENTOS_7_6_64BIT Source IP Address 1

| Task Status | Migration Speed | Data Volume | Progress |
|---|---|---|---|
| Migration pending | -- Mbit/s | -- GiB/-- GiB | 10 % |
| Migration Status Ready | Remaining -- | Migrated/Total Data | Time Spent -- |

Basic Information

| Target Clone/Status | Migration Rate | Migration Rate Limit |
|---|---|---|
| No clone | 0 Mbit/s | 0 Mbit/s |
| **Enterprise Project** | **Compression Rate** | **Created By** |
| Test EPS Project | 0% | -- |
| **Start Time** | **End Time** | **Estimated End Time** |
| -- | -- | -- |

**Step 4** Perform the procedures described in **Configuring the Target Server**, **Starting a Full Replication**, and **Launching the Target Server**.

NOTE

To avoid permission errors, you are advised to create an ECS (that will be used as the target server), VPC, subnet, security group, and EIP in the enterprise project **Test_EPS_Project** before performing the migration.

**----End**

# 4.5 FAQ

## 4.5.1 How Do I Fix Error "SMS.0204 Insufficient permissions" When the Migration Fails?

### Symptom

During the migration, the system tells you that you have insufficient permission to complete the migration.

### Procedure

Obtain the required permissions by referring to **Authorizing the User Group to Manage the Enterprise Project**.

## 4.5.2 How Do I Fix Error "Enterprise project not enabled" When I Start the Agent?

### Symptom

When you started the Agent, the error message "Enterprise project not enabled" was reported.

NOTE

If you do not need to migrate the server to a specified enterprise project, ignore this message.

### Possible Causes and Solutions

- The enterprise project function may not have been enabled.

  Check whether the enterprise project function has been enabled. If it has not, enable it by referring to **Enabling Enterprise Project**.
- The account you are migrating to may not have the **SMS FullAccess** permissions on the enterprise project you are migrating to.

  Check whether the account has the **SMS FullAccess** permissions on the target enterprise project. If it does not, assign the permissions to it by referring to **Assigning Permissions to the User Group by Enterprise Project**.
- The enterprise project function may not be available in the target region.

  Check whether the enterprise project function is available in the region that you are migrating to. If it is not, you cannot migrate servers to enterprise projects in that region.

# 5 Migrating Servers Whose OSs Are Not Supported by SMS

## 5.1 Background

SMS can migrate the OSs listed in **Supported OSs**. The unsupported OSs are still widely used, such as CentOS, Oracle, and Red Hat Linux distributions earlier than 6.0, and Windows releases earlier than Windows Server 2008. We can use a third-party tool to help you migrate servers running these unsupported OSs.

### Disclaimer

SMS is not involved in this solution, and we are not responsible for any problems that occur during the migration, including but is not limited to data loss on target servers, startup failures of target servers, and third-party tool errors.

## 5.2 Migrating Servers Running Unsupported Linux OSs

This practice walks you through how to migrate servers running unsupported Linux OSs. You can check whether your source OSs are supported by SMS in **Supported Linux OSs**.

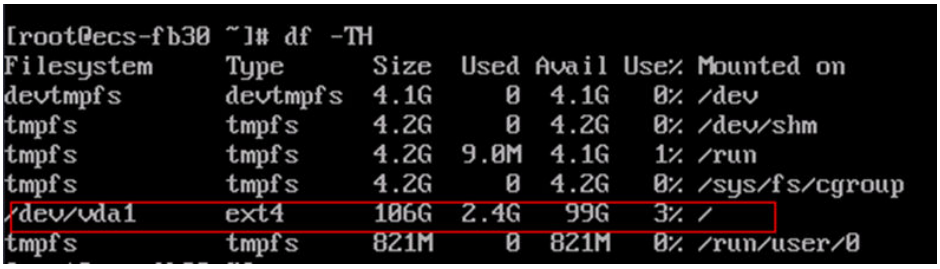
### Procedure

**Step 1** Check the format of the system partition on the source server to be migrated.

```
sudo parted -l /dev/vda | grep 'Partition Table'
```

- If **msdos** is displayed, the partition uses MBR, and you can continue to the next step.
- If **gpt** is displayed, the partition uses GPT. This solution does not work, and you need to find another way.

**Step 2** Run **df -TH** to view the disk information. As shown in the following figure, **/dev/vda1** is the system partition.



```
[root@ecs-fb30 ~]# df -TH
Filesystem     Type      Size  Used Avail Use% Mounted on
devtmpfs       devtmpfs  4.1G     0  4.1G   0% /dev
tmpfs          tmpfs     4.2G     0  4.2G   0% /dev/shm
tmpfs          tmpfs     4.2G  9.0M  4.1G   1% /run
tmpfs          tmpfs     4.2G     0  4.2G   0% /sys/fs/cgroup
/dev/vda1      ext4      106G  2.4G   99G   3% /
tmpfs          tmpfs     821M     0  821M   0% /run/user/0
```

**Step 3** Obtain the UUID of the system partition.

```
sudo blkid /dev/vda1
```

**Step 4** Use **vi** to open **/etc/fstab**. Press **i** to enter editing mode and add the UUID obtained in **Step 3** to the end of the file.

```
vi /etc/fstab
```

**Step 5** Save the file and exit.

```
:wq
```

**Step 6** Install the qemu-img tool.

CentOS is used as an example.

```
yum -y install qemu-img
```

**Step 7** Export **/dev/vda** to **/mnt/vdb/test.qcow2**.

```
sudo qemu-img convert -f raw -O qcow2 /dev/vda /mnt/vdb/test.qcow2
```

In this command, **/mnt/vdb** is the data disk or other storage where the image will be created. To export the partition to another format, you can change the value of the **-O** option.

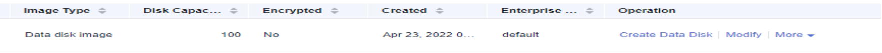
| Example Value | Description |
|---|---|
| qcow2 | QCOW2 format |
| vhd | VHD format |
| vmdk | VMDK format |
| raw | Raw image format |

**Step 8** Use OBS Browser+ to upload the image file to an OBS bucket on Huawei Cloud and register the image file as a private image. For details, see **Registering the Image File as a Private Image**.

**Step 9** Create an ECS from the registered private image. For details, see **Creating an ECS from an Image**.

**Step 10** Create images for data disks on the source server by repeating **Step 2** to **Step 8**.

**Step 11** On the IMS console, create data disks using the data disk images.



| Image Type | Disk Capac... | Encrypted | Created | Enterprise ... | Operation |
|---|---|---|---|---|---|
| Data disk image | 100 | No | Apr 23, 2022 0... | default | Create Data Disk \| Modify \| More |

**Step 12** Attach the created data disks to the ECS by referring to **Attaching an EVS Disk to an ECS**.

**----End**

# 5.3 Migrating Servers Running Unsupported Windows OSs

This section walks you through how to migrate servers running unsupported Windows OSs. You can check whether the source server OSs are supported by SMS in **Supported Windows OSs**.

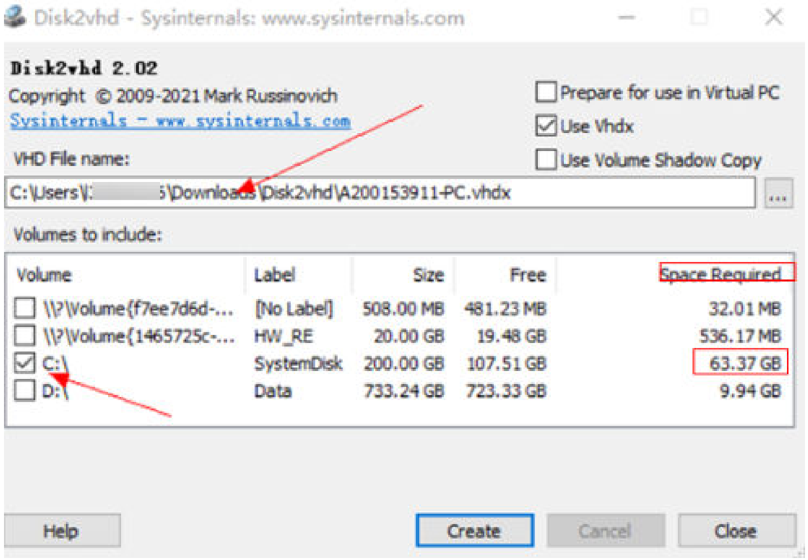
## Procedure

**Step 1** **Installing UVP VMTools** on the source server. Then the target server will support KVM virtualization after the migration is complete.

**Step 2** **Install and configure Cloudbase-Init** on the source server.

**Step 3** Use the Disk2vhd tool to create an image for the system volume of the source server.

1. Download **Disk2vhd** and select the desired version.
2. Select the system volume you want to create an image for and specify where to create the image. Ensure that the destination folder has enough space for the image.



Disk2vhd - Sysinternals: www.sysinternals.com

Disk2vhd 2.02
Copyright © 2009-2021 Mark Russinovich
Sysinternals - www.sysinternals.com

□ Prepare for use in Virtual PC
☑ Use Vhdx
□ Use Volume Shadow Copy

VHD File name: C:\Users\[redacted]\Downloads\Disk2vhd\A200153911-PC.vhdx

Volumes to include:

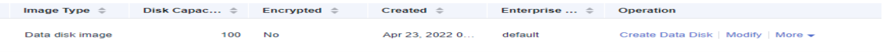
| | Volume | Label | Size | Free | Space Required |
|---|---|---|---|---|---|
| □ | \\?\Volume{f7ee7d6d-... | [No Label] | 508.00 MB | 481.23 MB | 32.01 MB |
| □ | \\?\Volume{1465725c-... | HW_RE | 20.00 GB | 19.48 GB | 536.17 MB |
| ☑ | C:\ | SystemDisk | 200.00 GB | 107.51 GB | 63.37 GB |
| □ | D:\ | Data | 733.24 GB | 723.33 GB | 9.94 GB |

**Step 4** Use OBS Browser+ to upload the image file to an OBS bucket on Huawei Cloud and register the image file as a private image. For details, see **Registering the Image File as a Private Image**.

**Step 5** Create an ECS from the registered private image. For details, see **Creating an ECS from an Image**.

**Step 6** Create images for data disks by repeating **Step 3** and **Step 4**.

**Step 7** On the IMS console, create data disks using the data disk images.



| Image Type | Disk Capac... | Encrypted | Created | Enterprise ... | Operation |
|---|---|---|---|---|---|
| Data disk image | 100 | No | Apr 23, 2022 0... | default | Create Data Disk \| Modify \| More |

**Step 8** Attach the created data disks to the ECS by referring to **Attaching an EVS Disk to an ECS**.

**----End**

# 6 Customizing Agent Images

## 6.1 Using Custom Agent Images

You can customize agent images by referring to **Creating a Windows Agent Image** and **Creating a Linux Agent Image**. Then you can use these custom agent images for migration by modifying the SMS Agent configuration file.

### Precautions

SMS only provides standard, security-hardened agent images for testing use. You need to use your custom agent images for migration.

- You are advised to use your custom agent images for migration of sensitive data. Before the migration, you need to scan and evaluate security risks in your agent images. Huawei Cloud can provide help for you. You are responsible for possible migration failures and data losses caused by the security risks identified in your agent images.
- The agent images provided by SMS are only for migration testing. You are not advised to use them for other purposes.
- In your custom agent images created using SMS agent images, do not change the IP address 169.254.*XX.XX* contained in the scripts. The IP address is used by ECS to access the metadata service.

### Using a Windows Agent Image (Python 3)

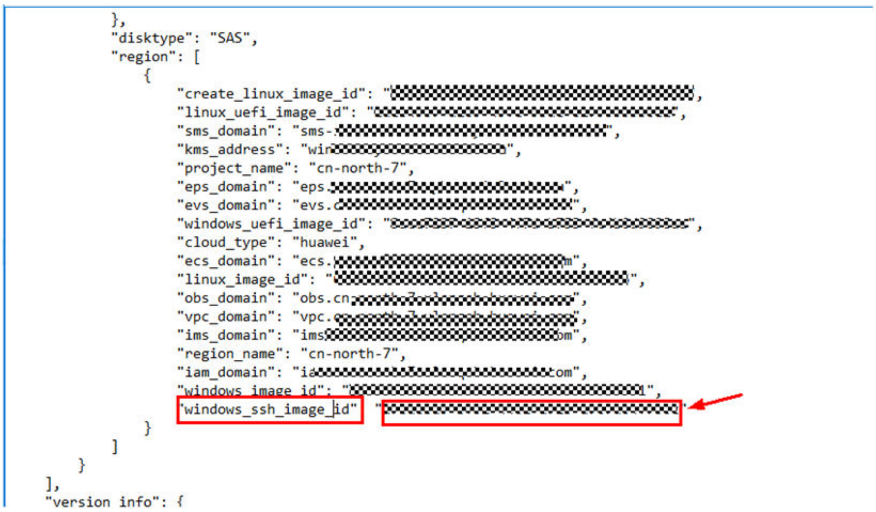
**Step 1** Log in to the SMS console. In the navigation pane on the left, choose **Agents**.

**Step 2** Download Windows Agent (Python 3), upload it to the source server, and double-click **SMS-Agent-Py3.exe** to install the SMS-Agent. Click **Finish** to complete the installation.

**Step 3** Enter the AK/SK pair and SMS domain name to start the SMS-Agent.

**Step 4** Go to the directory where the SMS-Agent was installed (typically **C:\SMS-Agent-Py3\config**).

**Step 5** In the **cloud-region.json** file, search for **"windows_ssh_image_id"** and replace the content as indicated by the arrow in the picture below with the ID of your custom image.



```
                },
                "disktype": "SAS",
                "region": [
                    {
                        "create_linux_image_id": "[redacted],
                        "linux_uefi_image_id": "[redacted],
                        "sms_domain": "sms-[redacted]",
                        "kms_address": "wi[redacted]",
                        "project_name": "cn-north-7",
                        "eps_domain": "eps.[redacted]",
                        "evs_domain": "evs.c[redacted]",
                        "windows_uefi_image_id": "[redacted]",
                        "cloud_type": "huawei",
                        "ecs_domain": "ecs.[redacted]m",
                        "linux_image_id": "[redacted]",
                        "obs_domain": "obs.cn[redacted]",
                        "vpc_domain": "vpc.[redacted]",
                        "ims_domain": "ims[redacted]om",
                        "region_name": "cn-north-7",
                        "iam_domain": "ia[redacted]com",
                        "windows_image_id": "[redacted]",
                        "windows_ssh_image_id" "[redacted]
                    }
                ]
            }
        ],
        "version_info": {
```

**----End**

## Using a Windows Agent Image (Python 2)

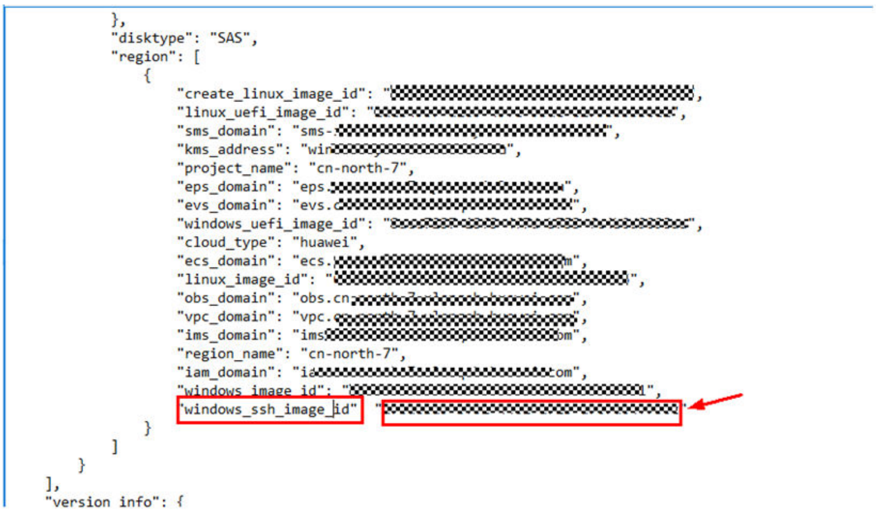
**Step 1** Log in to the SMS console. In the navigation pane on the left, choose **Agents**.

**Step 2** Download Windows Agent (Python 2), upload it to the source server, and double-click **SMS-Agent-Py2.exe** to install the SMS-Agent. Click **Finish** to complete the installation.

**Step 3** Enter the AK/SK pair and SMS domain name to start the SMS-Agent.

**Step 4** Go to the directory where the SMS-Agent was installed (typically **C:\SMS-Agent-Py2\config**).

**Step 5** In the **cloud-region.json** file, search for **"windows_ssh_image_id"** and replace the content as indicated by the arrow in the picture below with the ID of your custom image.



```
                },
                "disktype": "SAS",
                "region": [
                    {
                        "create_linux_image_id": "[redacted],
                        "linux_uefi_image_id": "[redacted],
                        "sms_domain": "sms-[redacted]",
                        "kms_address": "wi[redacted]",
                        "project_name": "cn-north-7",
                        "eps_domain": "eps.[redacted]",
                        "evs_domain": "evs.c[redacted]",
                        "windows_uefi_image_id": "[redacted]",
                        "cloud_type": "huawei",
                        "ecs_domain": "ecs.[redacted]m",
                        "linux_image_id": "[redacted]",
                        "obs_domain": "obs.cn[redacted]",
                        "vpc_domain": "vpc.[redacted]",
                        "ims_domain": "ims[redacted]om",
                        "region_name": "cn-north-7",
                        "iam_domain": "ia[redacted]com",
                        "windows_image_id": "[redacted]",
                        "windows_ssh_image_id" "[redacted]
                    }
                ]
            }
        ],
        "version_info": {
```

**----End**

### Using a Linux Agent Image

**Step 1** Log in to the SMS console. In the navigation pane on the left, choose **Agents**.

**Step 2** Download the Linux Agent installation package to the source server to be migrated.

**Step 3** On the source server, decompress the installation package.

**tar -zxvf SMS-Agent.tar.gz**

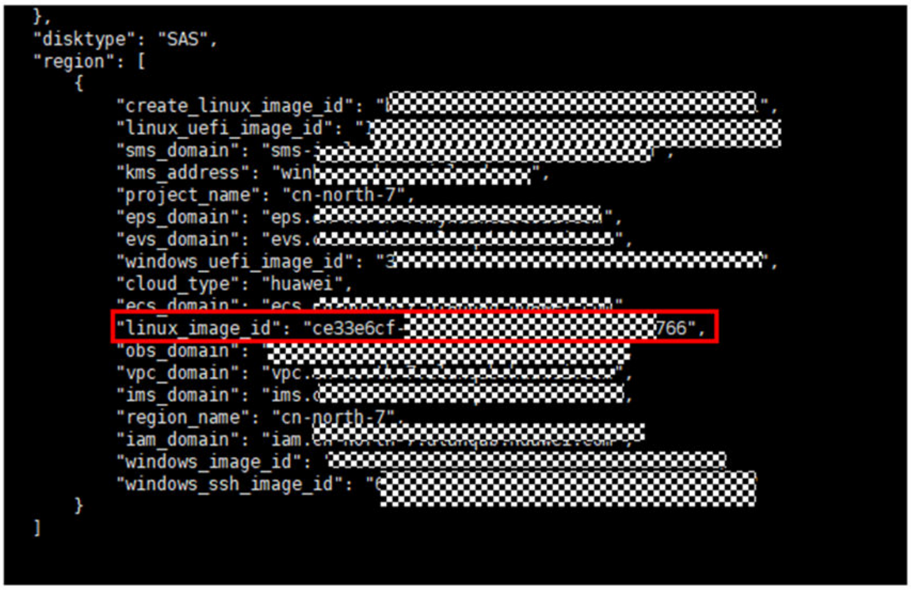
**Step 4** Start the Agent.

**./startup.sh**

**Step 5** Enter the AK/SK pair and SMS domain name to start the SMS-Agent.

**Step 6** Go to the directory where the SMS-Agent was installed (typically **~\SMS-Agent\agent\config\cloud-region.json**).

**Step 7** In the **cloud-region.json** file, search for **"linux_image_id"** and replace the content as indicated by the arrow in the picture below with the ID of your custom image.



```
},
"disktype": "SAS",
"region": [
    {
        "create_linux_image_id": "[redacted]",
        "linux_uefi_image_id": "[redacted]
        "sms_domain": "sms-[redacted]",
        "kms_address": "win[redacted]",
        "project_name": "cn-north-7",
        "eps_domain": "eps.[redacted]",
        "evs_domain": "evs.[redacted]",
        "windows_uefi_image_id": "[redacted]",
        "cloud_type": "huawei",
        "ecs_domain": "ecs.[redacted]"
        "linux_image_id": "ce33e6cf-[redacted]766",
        "obs_domain": [redacted]
        "vpc_domain": "vpc.[redacted]",
        "ims_domain": "ims.[redacted],
        "region_name": "cn-north-7",
        "iam_domain": "iam.[redacted]
        "windows_image_id": [redacted]
        "windows_ssh_image_id": "[redacted]
    }
]
```

**----End**

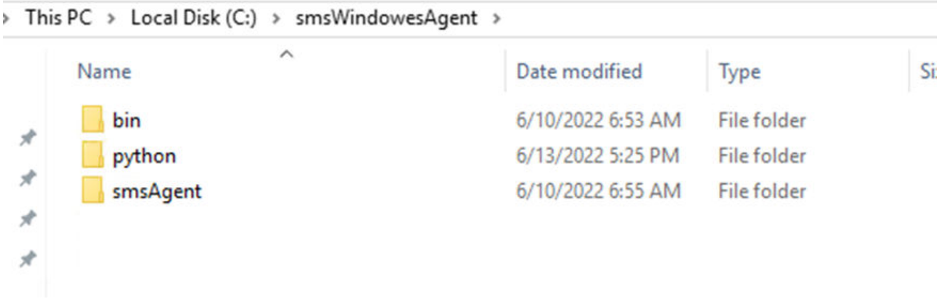
# 6.2 Creating Scripts in Agent Images

### Precautions

- You need to prepare scripts based on the OS of the servers to be migrated.
- You need to prepare required scripts on your own. If you need help, contact the Huawei Cloud migration team.
- The script examples below are only for reference.
- You can **download test scripts** from the Huawei Support website for reference.

## Windows

**Step 1** In the **C:\** directory, create a folder and name it **smsWindowesAgent**. In this folder, create three folders and name them **bin**, **Python**, and **smsAgent** respectively.



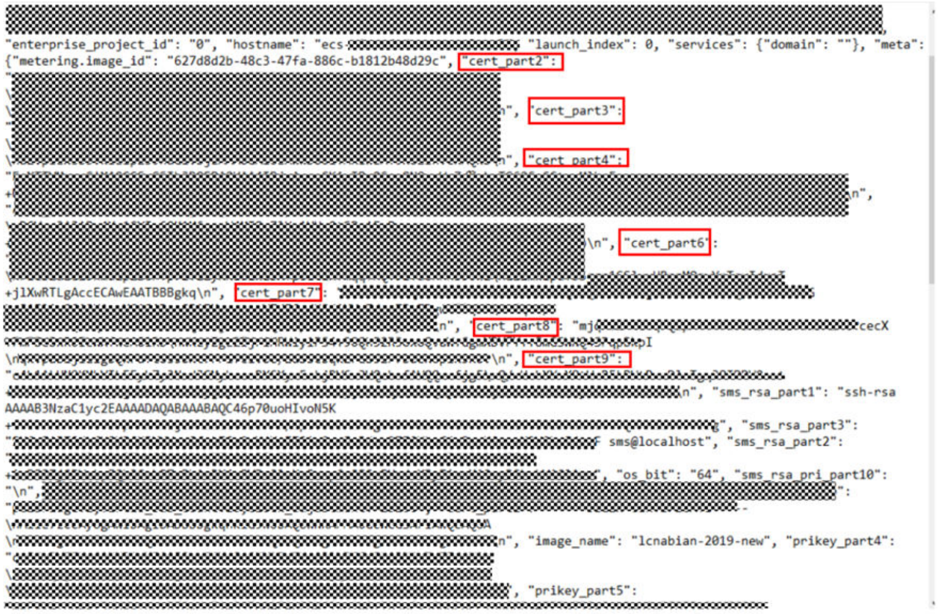
This PC › Local Disk (C:) › smsWindowesAgent ›

| Name | Date modified | Type | Si |
|---|---|---|---|
| bin | 6/10/2022 6:53 AM | File folder | |
| python | 6/13/2022 5:25 PM | File folder | |
| smsAgent | 6/10/2022 6:55 AM | File folder | |

| Folder | Function | Location |
|---|---|---|
| bin | Stores the startup scripts and the **peagent** folder. | C:\smsWiondowesAgent\bin |
| python | Installs Python. | C:\smsWiondowesAgent \python |
| smsAgent | Stores Python scripts for obtaining metadata. | C:\smsWiondowesAgent \smsAgent |
| peagent | Stores migration components transferred from source servers. | C:\smsWiondowesAgent\bin \peagnet |

**Step 2** In the **smsAgent** folder, store the scripts used for obtaining certificates and keys.

SMS-Agent uploads SSH public and private keys to metadata of target servers. The scripts you prepared here will be used to obtain the keys from the metadata. The table below shows the three types of metadata.



```
[redacted]
"enterprise_project_id": "0", "hostname": "ecs-[redacted] "launch_index": 0, "services": {"domain": ""}, "meta":
{"metering.image_id": "627d8d2b-48c3-47fa-886c-b1812b48d29c", "cert_part2":
[redacted]n", "cert_part3":
[redacted]n", "cert_part4":
[redacted]n",
[redacted]\n", "cert_part6":
[redacted]
+j1XwRTLgAccECAwEAATBBBgkq\n", "cert_part7": [redacted]
[redacted]n", "cert_part8": "mj[redacted]cecX
[redacted]I
\n[redacted]\n", "cert_part9":
[redacted]n", "sms_rsa_part1": "ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAABAQC46p70uoHIvoN5K
+[redacted]", "sms_rsa_part3":
"[redacted] sms@localhost", "sms_rsa_part2":
"[redacted]
+[redacted]", "os_bit": "64", "sms_rsa_pri_part10":
"\n", [redacted]":
"[redacted]
\[redacted]
\[redacted]n", "image_name": "lcnabian-2019-new", "prikey_part4":
"[redacted]
\[redacted]
\[redacted]", "prikey_part5":
[redacted]
```

| Script | Function | Destination File |
|---|---|---|
| sms_rsa_part (to be deprecated) | Obtains SSH public keys (for server and identity authentication). | C:\Users\Administrator\.ssh \authorized_keys,C:\ProgramData\ssh \ssh_host_rsa_key.pub |
| sms_rsa_pri_part (to be deprecated) | Obtains SSH private keys (for server and identity authentication). | C:\ProgramData\ssh\ssh_host_rsa_key |
| sms_rsa_host_old | Obtains new SSH public keys (for server authentication). | C:\ProgramData\ssh\ssh_host_rsa_key.pub |
| sms_rsa_host_old_pri | Obtains new SSH private keys (for server authentication). | C:\ProgramData\ssh\ssh_host_rsa_key |
| sms_rsa_identity | Obtains SSH public key certificates (for identity authentication). | C:\Users\Administrator.ssh\authorized_keys |
| cert_part (to be deprecated) | Obtains TSL 1.2 authentication public keys. | C:\smsWindowesAgent\bin\peAgent\config \cert.pem |
| prikey_part (to be deprecated) | Obtains TSL 1.2 authentication private keys. | C:\smsWindowesAgent\bin\peAgent\config \prikey.pem |

**sms_rsa_part** and **sms_rsa_pri_part** obtain the SSH public keys and private keys from metadata and write them to the destination files listed in the table above.

**Step 3** In the **bin** directory, add a script to check whether **peagent.exe** is running.

'tasklist /nh /fi "imagename eq peAgent.exe'

- If it is not running, add the following command to start it.

  start cmd /k "C:\smsWindowesAgent\bin\peAgent\peAgent.exe"
- If it is running, end the script.

This script should be executed after the scripts in the **smsAgent** folder are executed.

**----End**

## Linux

**Step 1** In the **~** directory, create a folder and name it **smsMetadataAgent**. In this folder, create three folders and name them **bin**, **Python**, and **smsAgent** respectively.

| Folder | Function | Location |
|---|---|---|
| bin | Stores the startup scripts and the **peagent** folder. | ~\smsMetadataAgent \bin |
| smsAgent | Stores Python scripts for obtaining metadata. | ~\smsMetadataAgent \smsAgent |

**Step 2** Prepare scripts for obtaining public and private keys from metadata by referring to the Windows section.

| Script | Function | Destination File |
|---|---|---|
| sms_rsa_part (to be deprecated) | Obtains SSH public keys (for server and identity authentication). | root/.ssh/ authorized_keys, /etc/ssh /ssh_host_rsa_key.pub |
| sms_rsa_pri_part (to be deprecated) | Obtains SSH private keys (for server and identity authentication). | /etc/ssh/ ssh_host_rsa_key |
| sms_rsa_host_old | Obtains new SSH public keys (for server authentication). | /etc/ssh/ ssh_host_rsa_key.pub |
| sms_rsa_host_old_pri | Obtains new SSH private keys (for server authentication). | /etc/ssh/ ssh_host_rsa_key |
| sms_rsa_identity | Obtains SSH public key certificates (for identity authentication). | /root/.ssh/ authorized_keys |
| cert_part (to be deprecated) | Obtains TSL 1.2 authentication public keys. | /home/config/cert.pem |
| prikey_part (to be deprecated) | Obtains TSL 1.2 authentication private keys. | /home/config/prikey.pem |

Prepare startup scripts by referring to the Windows section.

**----End**

# 6.3 Creating a Windows Agent Image

## Preparing an ECS

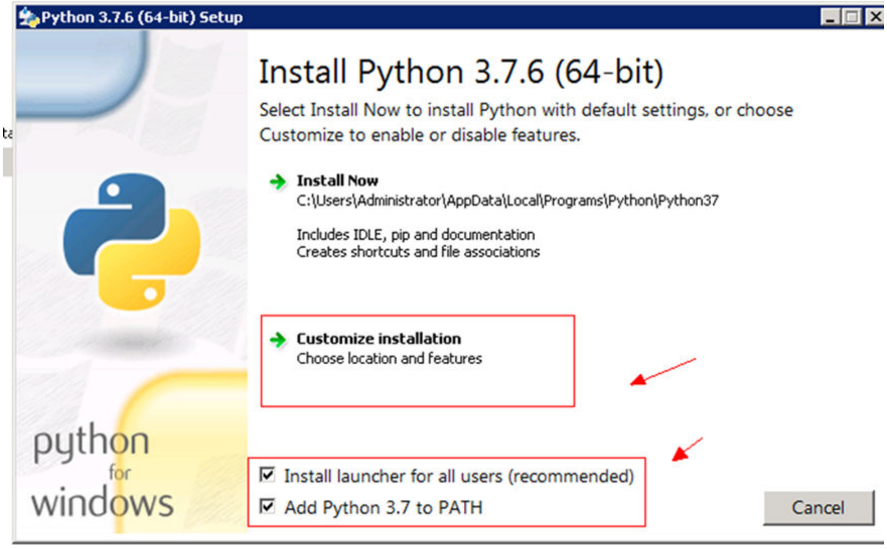
Prepare an ECS that runs Windows Server 2019 Standard 64bit English and has a 40 GB system disk. Windows Server 2019 is used as an example, and you can select another version. Specify a valid password when creating the ECS and name the ECS **SMS**. The official Microsoft image is recommended.

Ensure that the ECS can access the Internet, so that the required tools can be downloaded.

## Installing the Required Software

**Step 1** Transfer the **smsWindowesAgent** folder created in **Creating Scripts in Agent Images** to the **C:\**directory of the ECS. The folder stores the agent image scripts you prepared.

**Step 2** Install **Python 3.7.6** to **C:\smsWindowsAgent\Python**. You can select another version as required.



Python 3.7.6 (64-bit) Setup

Install Python 3.7.6 (64-bit)

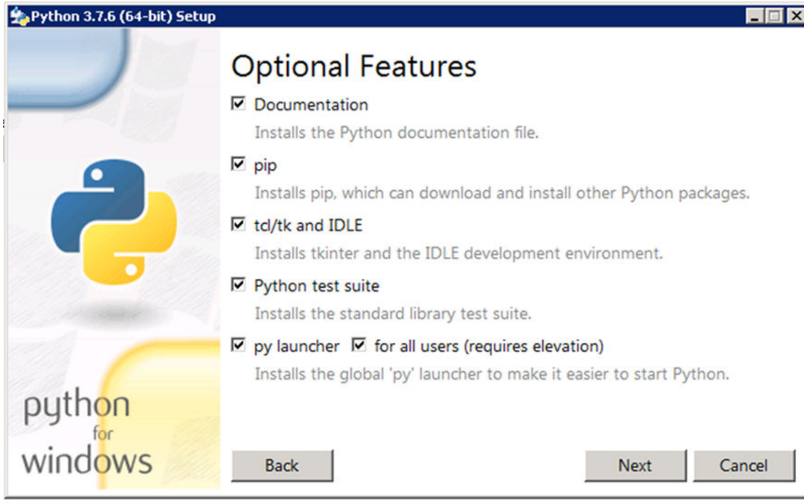
Select Install Now to install Python with default settings, or choose Customize to enable or disable features.

**Install Now**
C:\Users\Administrator\AppData\Local\Programs\Python\Python37

Includes IDLE, pip and documentation
Creates shortcuts and file associations

**Customize installation**
Choose location and features

☑ Install launcher for all users (recommended)
☑ Add Python 3.7 to PATH



Optional Features

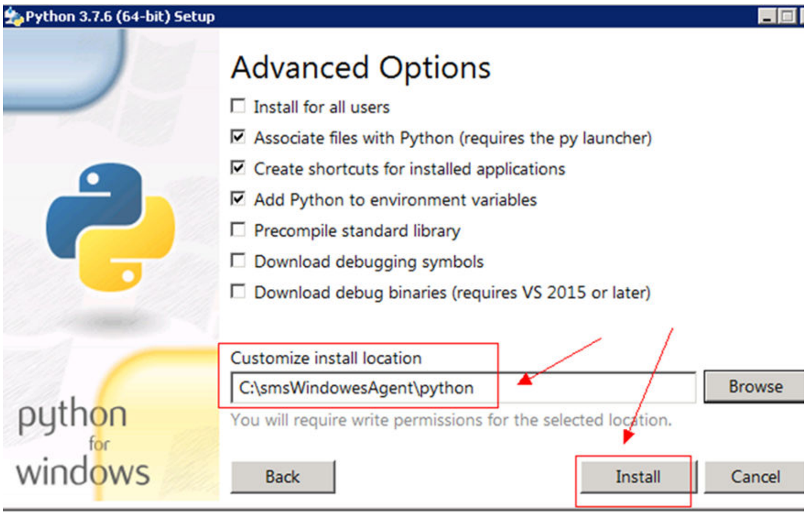
☑ Documentation
Installs the Python documentation file.

☑ pip
Installs pip, which can download and install other Python packages.

☑ tcl/tk and IDLE
Installs tkinter and the IDLE development environment.

☑ Python test suite
Installs the standard library test suite.

☑ py launcher ☑ for all users (requires elevation)
Installs the global 'py' launcher to make it easier to start Python.

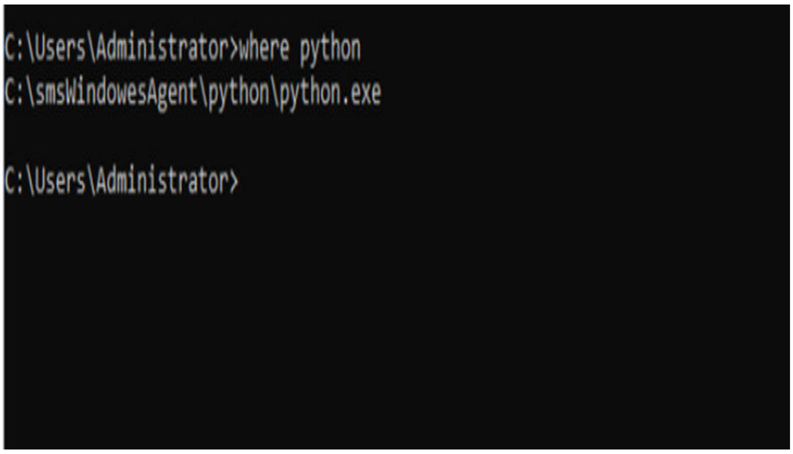


Advanced Options

☐ Install for all users
☑ Associate files with Python (requires the py launcher)
☑ Create shortcuts for installed applications
☑ Add Python to environment variables
☐ Precompile standard library
☐ Download debugging symbols
☐ Download debug binaries (requires VS 2015 or later)

Customize install location
C:\smsWindowesAgent\python
You will require write permissions for the selected location.

**Step 3** Run **where python** to check whether Python has been installed in the specified directory.



```
C:\Users\Administrator>where python
C:\smsWindowesAgent\python\python.exe

C:\Users\Administrator>
```

**----End**

## Installing requests and ConfigParser

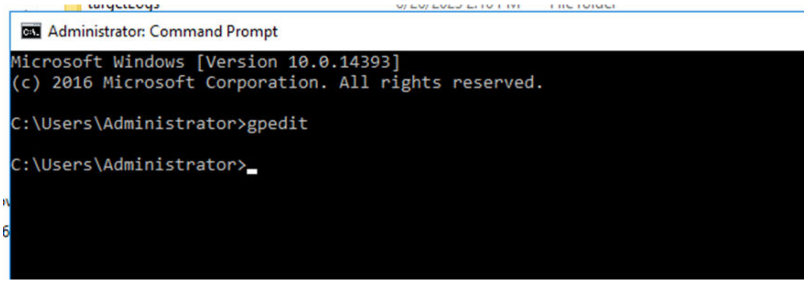
Run the following commands on the ECS to install requests and ConfigParser.

```
pip install requests
pip install configparser
```

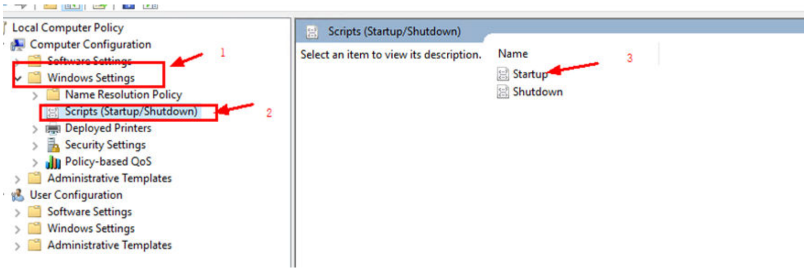
## Modifying the ECS

**Step 1** Enable scripts to automatically run upon ECS startup.

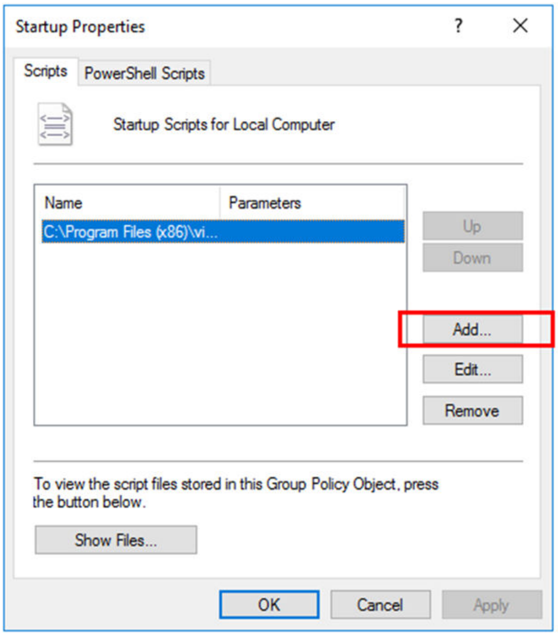
1. Open the cmd and run **gpedit**. In the displayed window, choose **Computer Configuration** > **Windows Settings** > **Scripts (Startup/Shutdown)** > **Startup**.



```
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>gpedit

C:\Users\Administrator>_
```

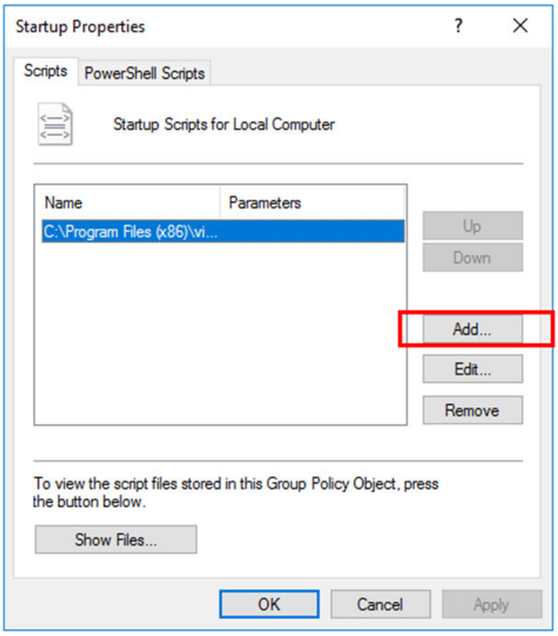


2. Click **Add** and specify **C:\smsWindowesAgent\bin\***Name of script for running Python***.bat** for **Script Name**.



C:\Program Files (x86)\vi...

To view the script files stored in this Group Policy Object, press the button below.


Startup Properties
?
Scripts
PowerShell Scripts
Startup Scripts for Local Computer
Name
Parameters
C:\Program Files (x86)\vi...
Up
Down
Add...
Edit...
Remove
To view the script files stored in this Group Policy Object, press the button below.
Show Files...
OK
Cancel
Apply

**Step 2** Install OpenSSH.

1. Right-click the **Start** icon or press **Win** and **X** keys. In the displayed menu, choose **Windows PowerShell (Administrator)**. In the displayed window, run the following command:

   ```
   Add-WindowsCapability -Online -Name OpenSSH.Server~~~~0.0.1.0
   ```

2. After the installation is complete, restart the OS for the installation to take effect. Start the sshd and ssh-agent services and set them to automatically run at startup.

   Start sshd.

   ```
   Start-Service sshd
   ```

   Enable sshd to automatically run at startup.

   ```
   Set-Service sshd  Automatic
   ```

   Start ssh-agent.

   ```
   Start-Service ssh-agent
   ```

   Enable ssh-agent to automatically run at startup.

   ```
   Set-Service ssh-agent -StartupType Automatic
   ```

3. Go to the **C:\ProgramData directory** and add the following content to the **sshd_config** file:

   PasswordAuthentication no

**Step 3** Install OpenStack.

Download the **VMTools drivers** required by SMS.

Decompress the downloaded package, double-click the extracted file, and find the required drivers in **./vmtools-windows/upgrade/windows** *XX*/**drivers**.

Copy all driver files to the specified directory.

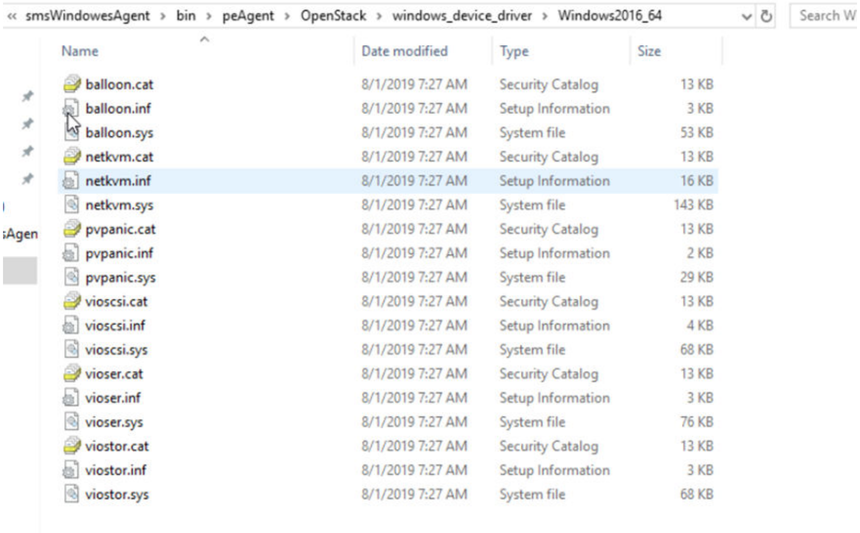
Windows Server 2016_64bit is used here as an example.

Copy all files in **upgrade\windows 2016_64\drivers\viostor** to **C:\smsWindowsAgent\bin\peAgent\OpenStack\windows_device_driver\windows2016_64**.

Copy files in the rest of folders under **upgrade\windows 2016_64\drivers** to **C:\smsWindowsAgent\bin\peAgent\OpenStack\windows_device_driver\windows2016_64**.

The picture below shows the files copied to the **C:\smsWindowsAgent\bin\peAgent\OpenStack\windows_device_driver\windows2016_64** directory.

Copy files required by other Windows versions to the corresponding directories.


« smsWindowesAgent › bin › peAgent › OpenStack › windows_device_driver › Windows2016_64
Search W
;Agen

| Name | Date modified | Type | Size |
|---|---|---|---|
| balloon.cat | 8/1/2019 7:27 AM | Security Catalog | 13 KB |
| balloon.inf | 8/1/2019 7:27 AM | Setup Information | 3 KB |
| balloon.sys | 8/1/2019 7:27 AM | System file | 53 KB |
| netkvm.cat | 8/1/2019 7:27 AM | Security Catalog | 13 KB |
| netkvm.inf | 8/1/2019 7:27 AM | Setup Information | 16 KB |
| netkvm.sys | 8/1/2019 7:27 AM | System file | 143 KB |
| pvpanic.cat | 8/1/2019 7:27 AM | Security Catalog | 13 KB |
| pvpanic.inf | 8/1/2019 7:27 AM | Setup Information | 2 KB |
| pvpanic.sys | 8/1/2019 7:27 AM | System file | 29 KB |
| vioscsi.cat | 8/1/2019 7:27 AM | Security Catalog | 13 KB |
| vioscsi.inf | 8/1/2019 7:27 AM | Setup Information | 4 KB |
| vioscsi.sys | 8/1/2019 7:27 AM | System file | 68 KB |
| vioser.cat | 8/1/2019 7:27 AM | Security Catalog | 13 KB |
| vioser.inf | 8/1/2019 7:27 AM | Setup Information | 3 KB |
| vioser.sys | 8/1/2019 7:27 AM | System file | 76 KB |
| viostor.cat | 8/1/2019 7:27 AM | Security Catalog | 13 KB |
| viostor.inf | 8/1/2019 7:27 AM | Setup Information | 3 KB |
| viostor.sys | 8/1/2019 7:27 AM | System file | 68 KB |

**Step 4** Open ports 8899 and 8900 on the ECS.

```
netsh advfirewall firewall add rule name=peagent dir=in action=allow protocol=TCP localport=8899
netsh advfirewall firewall add rule name=ntcldst dir=in action=allow protocol=TCP localport=8900
```

**Step 5** (Optional) Install the password reset plug-in if you did no use a public image to create this ECS.

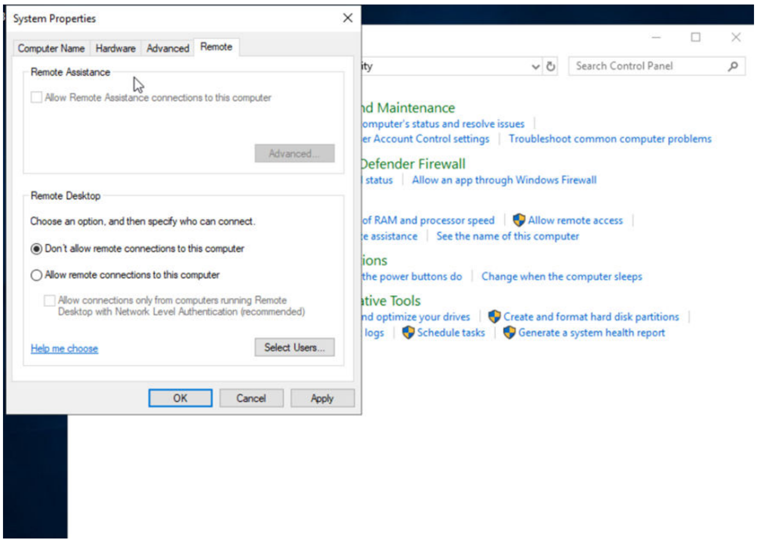
1. Download the plug-in at **https://cn-south-1-cloud-reset-pwd.obs.cn-south-1.myhuaweicloud.com/windows/reset_pwd_agent/CloudResetPwdAgent.zip**.
2. Double-click **setup.bat** in the **CloudResetPwdAgent.Windows** or **CloudResetPwdUpdateAgent.Windows** directory.
3. In the Task Manager, search for **cloudResetPwdAgent** and **cloudResetPwdUpdateAgent**.
   - If they are there, the installation is successful.
   - If they are not there, the installation fails.

**----End**

## (Optional) Hardening Security

**Step 1** Disable remote login.

Open the Control Panel, choose **System and Security** > **System** > **Allow remote access**, and select **Don't allow remote connections to this computer**.



System Properties

Computer Name | Hardware | Advanced | Remote

Remote Assistance

□ Allow Remote Assistance connections to this computer

Remote Desktop

Choose an option, and then specify who can connect.

● Don't allow remote connections to this computer

○ Allow remote connections to this computer

□ Allow connections only from computers running Remote Desktop with Network Level Authentication (recommended)

Advanced...
Help me choose
Select Users...
OK
Cancel
Apply
Search Control Panel
nd Maintenance
omputer's status and resolve issues
er Account Control settings
Troubleshoot common computer problems
Defender Firewall
status
Allow an app through Windows Firewall
of RAM and processor speed
Allow remote access
e assistance
See the name of this computer
ions
the power buttons do
Change when the computer sleeps
ative Tools
nd optimize your drives
Create and format hard disk partitions
logs
Schedule tasks
Generate a system health report

**Step 2** Disable the WinRM service.

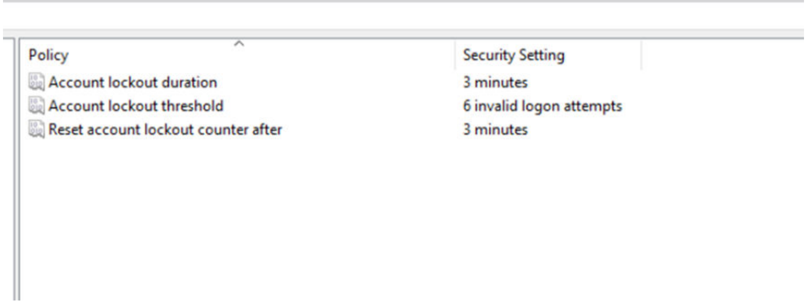
1. Open the cmd or PowerShell as an administrator.
2. Stop the WinRM service.

   net stop winrm
3. Disable the WinRM service.

   sc config winrm start= disabled

**Step 3** Set a password login policy to block brute-force attacks.

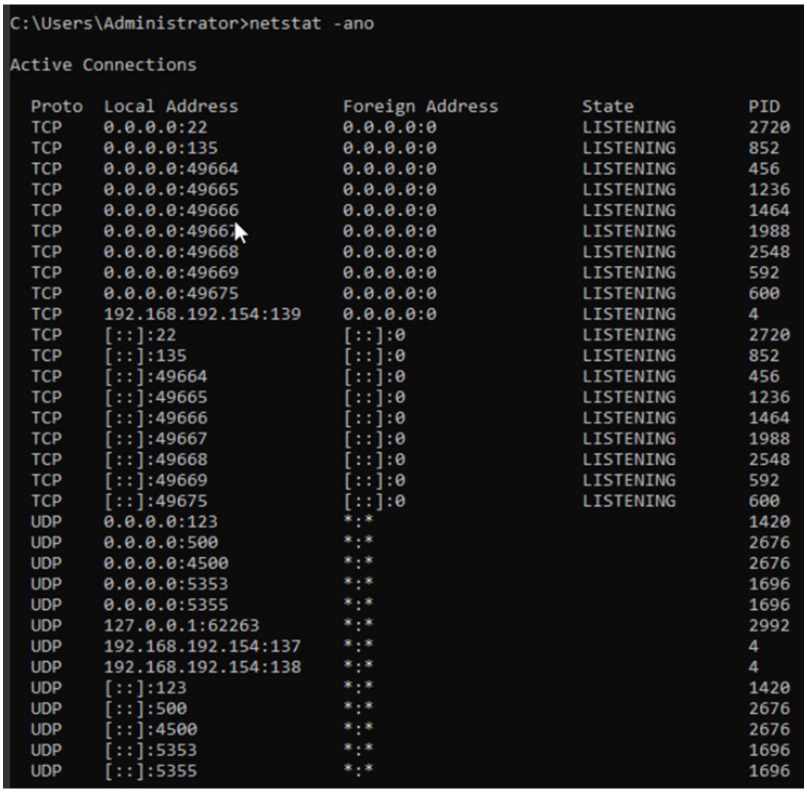
1. Open the cmd or PowerShell as an administrator.
2. Run the **gpedit.msc** command to start **Local Group Policy Editor**.
3. In the displayed window, choose **Computer Configuration** > **Windows settings** > **Security Settings** > **Account Policy** > **Account Lockout Policy**. Set the account locking policy shown in the following figure. This policy indicates that if there are 6 consecutive unsuccessful login attempts, the account will be blocked for 3 minutes.



| Policy | Security Setting |
|---|---|
| Account lockout duration | 3 minutes |
| Account lockout threshold | 6 invalid logon attempts |
| Reset account lockout counter after | 3 minutes |

**Step 4** Close listening ports in the Windows firewall.

1. Open the cmd and run the **netstat -ano** command to check all listening ports.



```
C:\Users\Administrator>netstat -ano

Active Connections

  Proto  Local Address          Foreign Address        State           PID
  TCP    0.0.0.0:22             0.0.0.0:0              LISTENING       2720
  TCP    0.0.0.0:135            0.0.0.0:0              LISTENING       852
  TCP    0.0.0.0:49664          0.0.0.0:0              LISTENING       456
  TCP    0.0.0.0:49665          0.0.0.0:0              LISTENING       1236
  TCP    0.0.0.0:49666          0.0.0.0:0              LISTENING       1464
  TCP    0.0.0.0:49667          0.0.0.0:0              LISTENING       1988
  TCP    0.0.0.0:49668          0.0.0.0:0              LISTENING       2548
  TCP    0.0.0.0:49669          0.0.0.0:0              LISTENING       592
  TCP    0.0.0.0:49675          0.0.0.0:0              LISTENING       600
  TCP    192.168.192.154:139    0.0.0.0:0              LISTENING       4
  TCP    [::]:22                [::]:0                 LISTENING       2720
  TCP    [::]:135               [::]:0                 LISTENING       852
  TCP    [::]:49664             [::]:0                 LISTENING       456
  TCP    [::]:49665             [::]:0                 LISTENING       1236
  TCP    [::]:49666             [::]:0                 LISTENING       1464
  TCP    [::]:49667             [::]:0                 LISTENING       1988
  TCP    [::]:49668             [::]:0                 LISTENING       2548
  TCP    [::]:49669             [::]:0                 LISTENING       592
  TCP    [::]:49675             [::]:0                 LISTENING       600
  UDP    0.0.0.0:123            *:*                                    1420
  UDP    0.0.0.0:500            *:*                                    2676
  UDP    0.0.0.0:4500           *:*                                    2676
  UDP    0.0.0.0:5353           *:*                                    1696
  UDP    0.0.0.0:5355           *:*                                    1696
  UDP    127.0.0.1:62263        *:*                                    2992
  UDP    192.168.192.154:137    *:*                                    4
  UDP    192.168.192.154:138    *:*                                    4
  UDP    [::]:123               *:*                                    1420
  UDP    [::]:500               *:*                                    2676
  UDP    [::]:4500              *:*                                    2676
  UDP    [::]:5353              *:*                                    1696
  UDP    [::]:5355              *:*                                    1696
```

2. Close all dynamic ports (49152-65535) and port 135 used for listening.

```
netsh advfirewall firewall add rule name=Tcp_disable dir=in action=block protocol=TCP
localport=135,3389,5985,5986,49152-65535
```

3. Close all UDP ports.

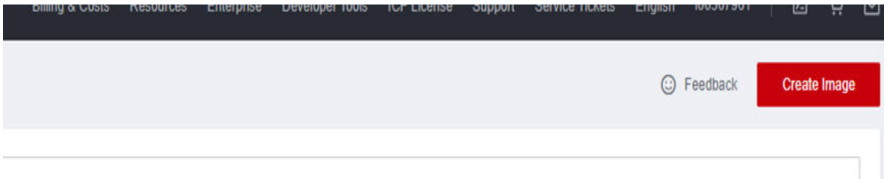
```
netsh advfirewall firewall add rule name=Tcp_disable dir=in action=block protocol=UDP localport=any
```

**----End**

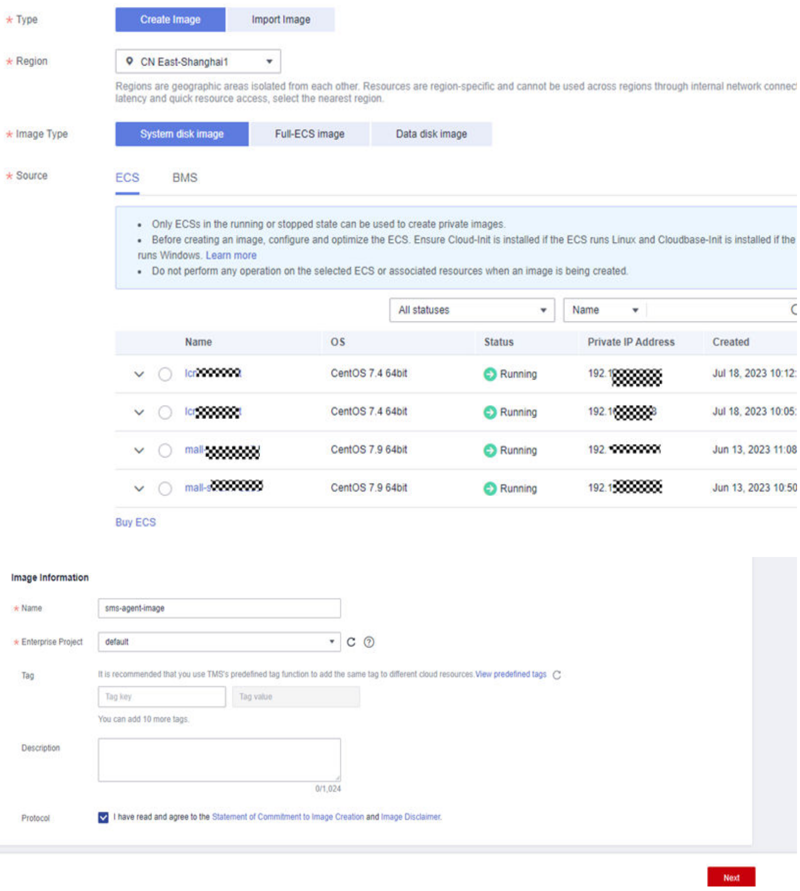
## Creating an Image

**Step 1** Log in the IMS console.

**Step 2** Click **Create Image**.



**Step 3** Create a system disk image for the ECS as prompted.



* Type: Create Image | Import Image

* Region: CN East-Shanghai1

Regions are geographic areas isolated from each other. Resources are region-specific and cannot be used across regions through internal network connec
latency and quick resource access, select the nearest region.

* Image Type: System disk image | Full-ECS image | Data disk image

* Source: ECS | BMS

- Only ECSs in the running or stopped state can be used to create private images.
- Before creating an image, configure and optimize the ECS. Ensure Cloud-Init is installed if the ECS runs Linux and Cloudbase-Init is installed if the runs Windows. Learn more
- Do not perform any operation on the selected ECS or associated resources when an image is being created.

All statuses | Name

| | Name | OS | Status | Private IP Address | Created |
|---|---|---|---|---|---|
| ○ | lcr[redacted] | CentOS 7.4 64bit | Running | 192.1[redacted] | Jul 18, 2023 10:12: |
| ○ | lcr[redacted] | CentOS 7.4 64bit | Running | 192.1[redacted] | Jul 18, 2023 10:05: |
| ○ | mall[redacted] | CentOS 7.9 64bit | Running | 192.[redacted] | Jun 13, 2023 11:08 |
| ○ | mall-s[redacted] | CentOS 7.9 64bit | Running | 192.1[redacted] | Jun 13, 2023 10:50 |

Buy ECS

**Image Information**

* Name: sms-agent-image

* Enterprise Project: default

Tag: It is recommended that you use TMS's predefined tag function to add the same tag to different cloud resources. View predefined tags

Tag key | Tag value

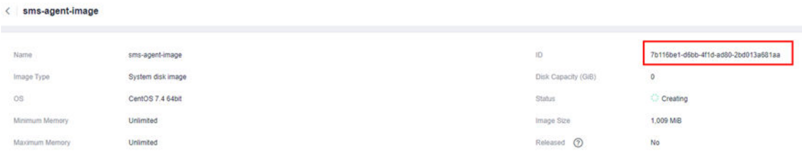
You can add 10 more tags.

Description: 0/1,024

Protocol: ☑ I have read and agree to the Statement of Commitment to Image Creation and Image Disclaimer.

Next

**Step 4** View the ID of the created image.



sms-agent-image

| | | | |
|---|---|---|---|
| Name | sms-agent-image | ID | 7b116be1-d6bb-4f1d-ad80-2bd013a681aa |
| Image Type | System disk image | Disk Capacity (GiB) | 0 |
| OS | CentOS 7.4 64bit | Status | Creating |
| Minimum Memory | Unlimited | Image Size | 1,009 MiB |
| Maximum Memory | Unlimited | Released | No |

**----End**

# 6.4 Creating a Linux Agent Image

## Preparing an ECS

Prepare a Linux ECS using a public image.

Set a password for the ECS. Install Python 3 on the ECS if it is not included in the public image.

## Preparing Scripts

For details, see **Creating Scripts in Agent Images**.

## Modifying the ECS

**Step 1** Install necessary components.

Install Python dependencies. Below is just an example. Install the latest version of Python.

```
yum install python36
ln -s /usr/bin/python36 /usr/bin/python3
yum install python36-setuptools
wget https://files.pythonhosted.org/
packages/ae/e8/2340d46ecadb1692a1e455f13f75e596d4eab3d11a57446f08259dee8f02/pip-10.0.1.tar.gz
tar xvf pip-10.0.1.tar.gz
cd pip-10.0.1
python3 setup.py install
pip3 install requests
```

**Step 2** Modify the **/etc/rc.local** file.

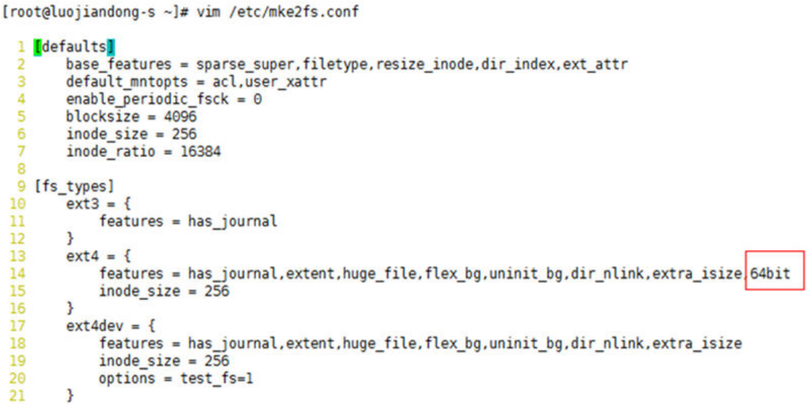
```
ln -s /etc/rc.d/rc.local /etc/rc.local     #If files /etc/rc.d/rc.local and /etc/rc.local are not linked t each other
in the public image, the scripts may not be executed at startup.
chmod 766 /etc/rc.d/rc.local
```

**Step 3** Install basic system components.

```
yum install expect
yum install lvm2
yum install dosfstools      #mkfs.vfat is supported.
rpm -ivh grub-0.97-99.el6.x86_64.rpm      #This component is only needed when the servers to be migrated
use GRUB 1. Download this component at the grub official website.
```

**Step 4** Modify **/etc/mke2fs.conf**.

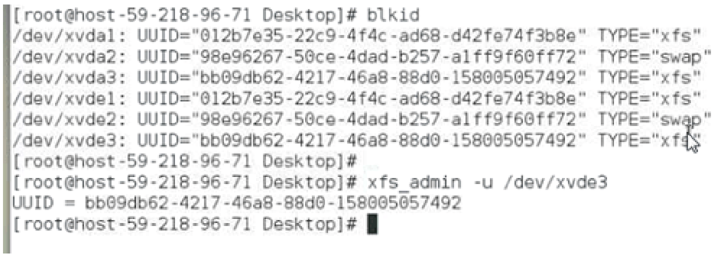
Delete **64bit** from the **ext4** item. Otherwise, GRUB 1 may fail to be installed in the Ext4 file system.



```
[root@luojiandong-s ~]# vim /etc/mke2fs.conf

[defaults]
    base_features = sparse_super,filetype,resize_inode,dir_index,ext_attr
    default_mntopts = acl,user_xattr
    enable_periodic_fsck = 0
    blocksize = 4096
    inode_size = 256
    inode_ratio = 16384

[fs_types]
    ext3 = {
        features = has_journal
    }
    ext4 = {
        features = has_journal,extent,huge_file,flex_bg,uninit_bg,dir_nlink,extra_isize,64bit
        inode_size = 256
    }
    ext4dev = {
        features = has_journal,extent,huge_file,flex_bg,uninit_bg,dir_nlink,extra_isize
        inode_size = 256
        options = test_fs=1
    }
```

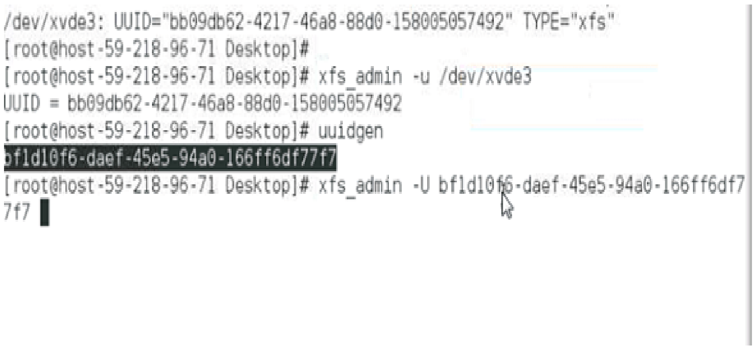
**Step 5** Change partition UUIDs.

1. Detach the system disk from the ECS and attach it to a temporary ECS as a data disk.
2. On the temporary ECS, use **uuidgen** to generate new UUIDs and use **tune2fs –U** to assign new UUIDs to partitions.
   a. Run the **blkid** command on the temporary ECS to query the UUID of each partition.



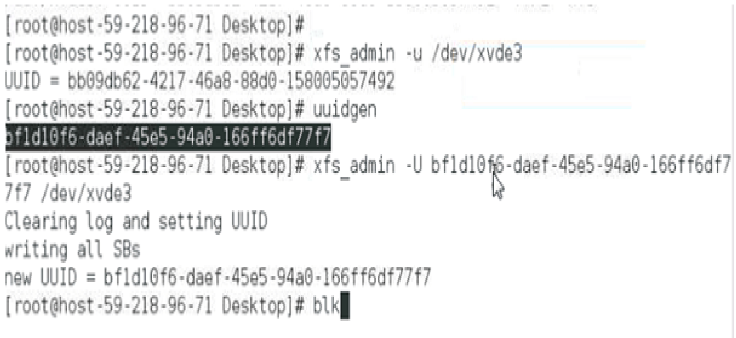
```
[root@host-59-218-96-71 Desktop]# blkid
/dev/xvda1: UUID="012b7e35-22c9-4f4c-ad68-d42fe74f3b8e" TYPE="xfs"
/dev/xvda2: UUID="98e96267-50ce-4dad-b257-a1ff9f60ff72" TYPE="swap"
/dev/xvda3: UUID="bb09db62-4217-46a8-88d0-158005057492" TYPE="xfs"
/dev/xvde1: UUID="012b7e35-22c9-4f4c-ad68-d42fe74f3b8e" TYPE="xfs"
/dev/xvde2: UUID="98e96267-50ce-4dad-b257-a1ff9f60ff72" TYPE="swap"
/dev/xvde3: UUID="bb09db62-4217-46a8-88d0-158005057492" TYPE="xfs"
[root@host-59-218-96-71 Desktop]#
[root@host-59-218-96-71 Desktop]# xfs_admin -u /dev/xvde3
UUID = bb09db62-4217-46a8-88d0-158005057492
[root@host-59-218-96-71 Desktop]#
```

b. Run the **uuidgen** command to generate a new UUID.



```
/dev/xvde3: UUID="bb09db62-4217-46a8-88d0-158005057492" TYPE="xfs"
[root@host-59-218-96-71 Desktop]#
[root@host-59-218-96-71 Desktop]# xfs_admin -u /dev/xvde3
UUID = bb09db62-4217-46a8-88d0-158005057492
[root@host-59-218-96-71 Desktop]# uuidgen
bf1d10f6-daef-45e5-94a0-166ff6df77f7
[root@host-59-218-96-71 Desktop]# xfs_admin -U bf1d10f6-daef-45e5-94a0-166ff6df7
7f7
```

c. Run the **tune2fs -U** <New_UUID> <Device> or **xfs_admin -U** <New_UUID> <Device> command to assign the new UUID to the partition on the data disk.



```
[root@host-59-218-96-71 Desktop]#
[root@host-59-218-96-71 Desktop]# xfs_admin -u /dev/xvde3
UUID = bb09db62-4217-46a8-88d0-158005057492
[root@host-59-218-96-71 Desktop]# uuidgen
bf1d10f6-daef-45e5-94a0-166ff6df77f7
[root@host-59-218-96-71 Desktop]# xfs_admin -U bf1d10f6-daef-45e5-94a0-166ff6df7
7f7 /dev/xvde3
Clearing log and setting UUID
writing all SBs
new UUID = bf1d10f6-daef-45e5-94a0-166ff6df77f7
[root@host-59-218-96-71 Desktop]# blk
```

d. Change the UUID of the partition in **/etc/fstab** and **/boot/grub2/grub.cfg** to the newly assigned UUID.

   This is to ensure that OS in the agent image disk can be started.

e. Attach the disk back to the original ECS as the system disk and test whether the OS can start up.

**Step 6** Transfer the **smsMetadataAgent** folder where stores the necessary scripts to the ECS and enable these scripts to automatically run at startup. For details, see **Creating Scripts in Agent Images**.

**Step 7** Modify the sshd configuration file to disable password login.

**Step 8** Delete residual settings. Ensure that there is no **/data** directory, there are no SMS log files in the **/root** directory, and there are no residual certificates in the **/etc/ssh** directory.

**----End**

## (Optional) Hardening Security

**Step 1** Add the following content to the **sshd_config** file.

```
MaxAuthTries 6
LoginGraceTime 60
PasswordAuthentication no
```

**Step 2** Disable history.

1. Start the Shell and run the following command:
   ```
   sudo nano ~/.bashrc
   ```
2. Add the following content to the end of the file:
   ```
   unset HISTFILE
   ```
3. Save the file and exit. Run the following command for the modification to take effect:
   ```
   source ~/.bashrc
   ```

**Step 3** Prevent brute-force attacks.

Add the content below to the **/etc/pam.d/password-auth** file. The content is contained in Huawei Cloud EulerOS by default.

```
auth sufficient pam_faillock.so authsucc audit deny=3 even_deny_root unlock_time=60
```

This can prevent any user from login for 30 seconds after 3 failed login attempts.

**Step 4** Set the password complexity requirements.

In the **/etc/pam.d/system-auth** file, append **enforce_for_root minlen=8 ucredit=-1 lcredit=-1 dcredit=-1 ocredit=-1** to the end of the row that starts with **password requisite pam_pwquality.so try_first_pass**.

```
password requisite pam_pwquality.so try_first_pass local_users_only enforce_for_root minlen=8 ucredit=-1
lcredit=-1 dcredit=-1 ocredit=-1
```

**Step 5** Change the umask value. Change the value of umask to **027**. The **umask** command is used to set the default permissions on files and directories.

1. Open the Shell and run the following command to open the **.bashrc** file:
   ```
   nano ~/.bashrc
   ```
2. Add the following content to the end of the file:
   ```
   umask 027
   ```
3. Save and close the file. Run the following command to make the change take effect:
   ```
   source ~/.bashrc
   ```

**Step 6** Delete residual system tools because keeping them only increases the attack surface of the system and mislead security software.

Delete the following residual tools:

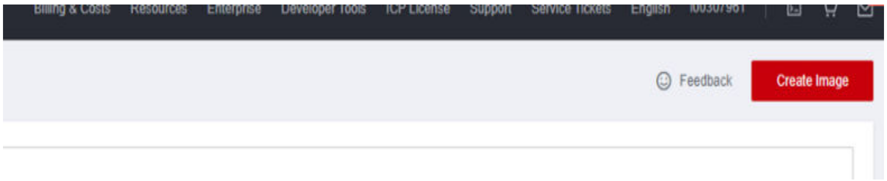
- tcpdump, sniffer, Wireshark, Netcat, and other WinPcap-based sniffing tools
- gdb, strace, readelf, cpp, gcc, dexdump, mirror, JDK, and other self-developed tools or scripts used only in the development and debugging phase

**----End**

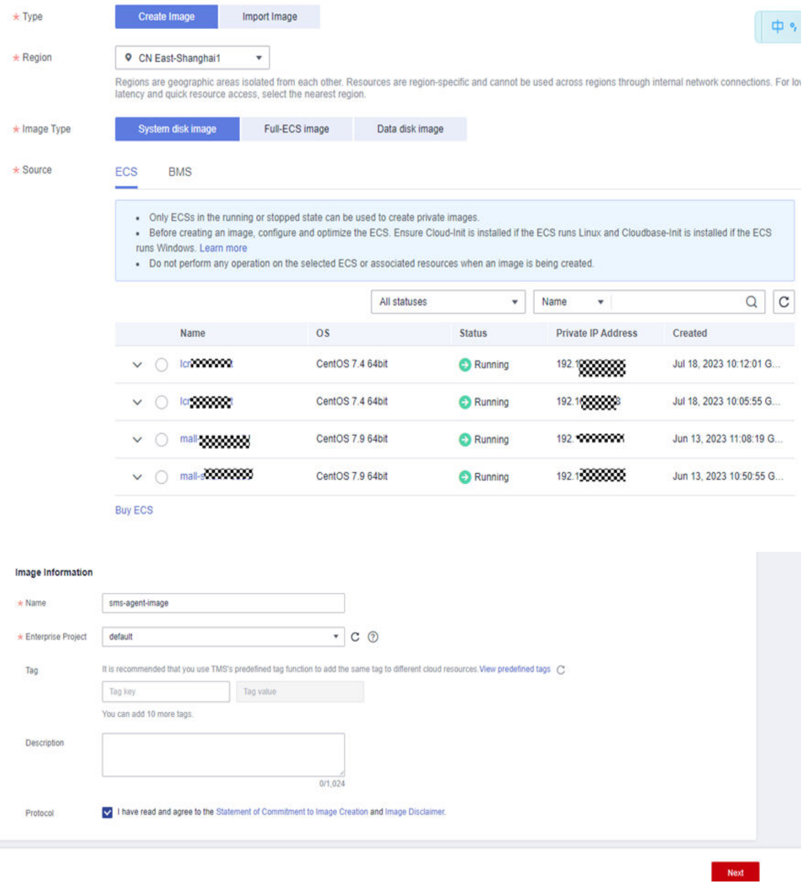
## Creating an Image

**Step 1** Log in the IMS console.

**Step 2** Click **Create Image**.



**Step 3** Create a system disk image for the ECS as prompted.



* Type: Create Image | Import Image

* Region: CN East-Shanghai1

Regions are geographic areas isolated from each other. Resources are region-specific and cannot be used across regions through internal network connections. For lo latency and quick resource access, select the nearest region.

* Image Type: System disk image | Full-ECS image | Data disk image

* Source: ECS | BMS

- Only ECSs in the running or stopped state can be used to create private images.
- Before creating an image, configure and optimize the ECS. Ensure Cloud-Init is installed if the ECS runs Linux and Cloudbase-Init is installed if the ECS runs Windows. Learn more
- Do not perform any operation on the selected ECS or associated resources when an image is being created.

All statuses | Name

| | Name | OS | Status | Private IP Address | Created |
|---|---|---|---|---|---|
| ○ | lc[redacted] | CentOS 7.4 64bit | Running | 192.1[redacted] | Jul 18, 2023 10:12:01 G... |
| ○ | lc[redacted] | CentOS 7.4 64bit | Running | 192.1[redacted] | Jul 18, 2023 10:05:55 G... |
| ○ | mall[redacted] | CentOS 7.9 64bit | Running | 192.[redacted] | Jun 13, 2023 11:08:19 G... |
| ○ | mall-s[redacted] | CentOS 7.9 64bit | Running | 192.1[redacted] | Jun 13, 2023 10:50:55 G... |

Buy ECS

**Image Information**

* Name: sms-agent-image

* Enterprise Project: default

Tag: It is recommended that you use TMS's predefined tag function to add the same tag to different cloud resources. View predefined tags

Tag key | Tag value

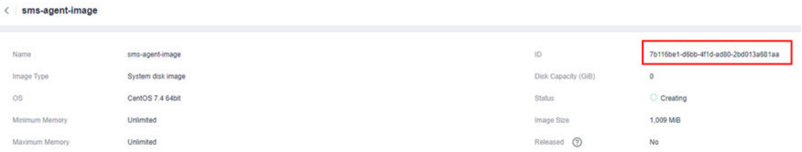
You can add 10 more tags.

Description: 0/1,024

Protocol: ☑ I have read and agree to the Statement of Commitment to Image Creation and Image Disclaimer.

Next

**Step 4** View the ID of the created image.



sms-agent-image

| | | | |
|---|---|---|---|
| Name | sms-agent-image | ID | 7b116be1-d6bb-4f1d-ad80-2bd013a681aa |
| Image Type | System disk image | Disk Capacity (GiB) | 0 |
| OS | CentOS 7.4 64bit | Status | Creating |
| Minimum Memory | Unlimited | Image Size | 1,009 MiB |
| Maximum Memory | Unlimited | Released | No |

**----End**

# 7 Migrating Servers over an IPv6 Network

## 7.1 Preparing for Migration

Before using SMS, make the following preparations:

1. **Register a HUAWEI ID and enable Huawei Cloud services**.

   NOTE

   **Real-name authentication** is required for migrating servers to regions within the Chinese mainland.

2. Obtain the required permissions.

   If you use an account for migration, you have the required permissions by default. If you use an IAM user for migration, you need to obtain the required permissions. For more information, see **Creating a User Group and Assigning Permissions**.

3. Obtain an AK/SK pair for your target account.

   The AK/SK pair is used for authentication during the migration. To learn how to obtain an AK/SK pair, 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?**

   CAUTION

   SMS does not support AK/SK-based authentication for federated users (virtual users).

4. Ensure that the source server OS is supported by SMS.

   See **Supported Windows OSs** or **Supported Linux OSs**.

5. Ensure that the following network requirements are met:

   a. The source server can connect to the Huawei Cloud API Gateway over TCP port 443. For more information, see **Connecting Source Servers to Huawei Cloud API Gateway**.

      NOTE

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

b. If you want to migrate over an IPv6 network, the source environment must support IPv4/IPv6 dual-stack networks.

c. The source server can connect to the target server. For more information, see **Connecting Source Servers to Target Servers**.

- For a migration over the Internet, purchase EIPs in the region you are migrating to.
- For a migration over a private network, request a Direct Connect or VPN connection.

d. The following ports are enabled in the security group associated with the target server to allow traffic to these ports:

- 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

- For security purposes, you are advised to only allow traffic from the source server to the ECS over these ports.
- The firewall of the target server must allow traffic to these ports.

To learn how to open the ports, see **How Do I Configure Security Group Rules for Target Servers?**

6. Ensure that the following source server requirements are met:

Available Space

– Windows

- At least 320 MB of available space on a partition not smaller than 600 MB
- At least 40 MB of available space on a partition smaller than 600 MB

– Linux

At least 200 MB of available space on the root partition

Source Environment

– The system time of the source server must be consistent with the local standard time to avoid Agent registration failures.

– If the source server runs Linux, **rsync** must be installed on it. You can run the **rsync -v** command to check whether **rsync** is installed.

If it is not, install it by running the following command:

- CentOS: **yum -y install rsync**
- Ubuntu: **apt-get -y install rsync**
- Debian: **apt-get -y install rsync**
- SUSE: **zypper install rsync**

- For other distributions, refer to the official website documentation.

  NOTE

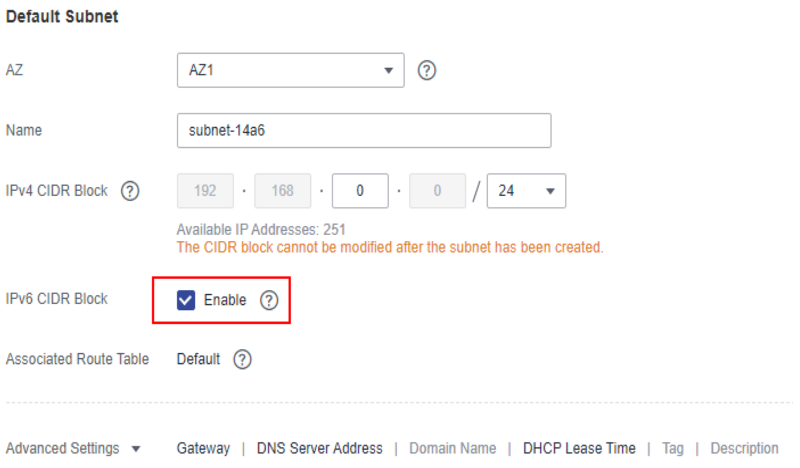
  **rsync** comes preinstalled on most distributions by default.

# 7.2 Setting Up an IPv6 Network and Creating a Target Server

Before migrating a server over an IPv6 network, you need to set up an IPv6 VPC and create an ECS as the target server in it. For details, see **Setting Up an IPv6 Network**.

## Precautions

- The source server must be able to access the IPv6 network. If your source server is an ECS on Huawei Cloud, DHCPv6 must be enabled for it. For details, see **Dynamically Assigning IPv6 Addresses**.
- When configuring a subnet, you need to select **Enable** for **IPv6 CIDR Block** so that the system will automatically allocate an IPv6 CIDR block to the subnet.



**Default Subnet**

AZ: AZ1

Name: subnet-14a6

IPv4 CIDR Block: 192 . 168 . 0 . 0 / 24

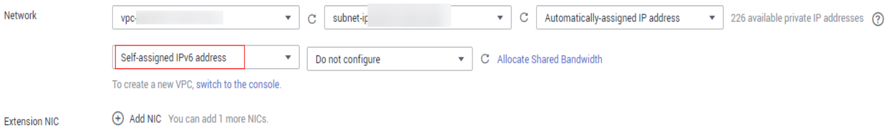
Available IP Addresses: 251
The CIDR block cannot be modified after the subnet has been created.

IPv6 CIDR Block: ☑ Enable

Associated Route Table: Default

Advanced Settings
Gateway | DNS Server Address | Domain Name | DHCP Lease Time | Tag | Description

- Only some ECS specifications support IPv6 networks. To use an IPv4/IPv6 dual-stack network, you need to create an ECS that supports IPv6 in a supported region. For details about the supported ECS specifications, see **ECS Specifications List**.
- When configuring the network, you must select **Self-assigned IPv6 address**. **Allocate Shared Bandwidth** is optional.



Network: vpc-[redacted] | subnet-ip[redacted] | Automatically-assigned IP address | 226 available private IP addresses

Self-assigned IPv6 address | Do not configure | Allocate Shared Bandwidth

To create a new VPC, switch to the console.

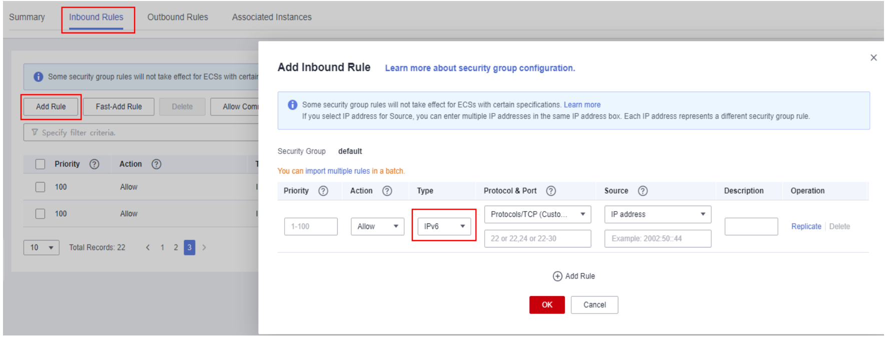
Extension NIC: Add NIC You can add 1 more NICs.

- The security group of the ECS must allow traffic from IPv6 addresses over the following required ports:
  - 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

For security purposes, you are advised to only allow traffic from the source server to the ECS over these ports.



Some security group rules will not take effect for ECSs with certai

| Priority | Action |
|---|---|
| 100 | Allow |
| 100 | Allow |

Add Inbound Rule   Learn more about security group configuration.

Some security group rules will not take effect for ECSs with certain specifications. Learn more
If you select IP address for Source, you can enter multiple IP addresses in the same IP address box. Each IP address represents a different security group rule.

Security Group   default

You can import multiple rules in a batch.

| Priority | Action | Type | Protocol & Port | Source | Description | Operation |
|---|---|---|---|---|---|---|
| 1-100 | Allow | IPv6 | Protocols/TCP (Custo...<br>22 or 22,24 or 22-30 | IP address<br>Example: 2002:50::44 | | Replicate \| Delete |

## 7.3 Creating a Migration Task

SMS supports data migration over an IPv4/IPv6 dual-stack network.

### Prerequisites

- You have completed operations in **Preparing for Migration**.
- You have completed operations in **Setting Up an IPv6 Network and Creating a Target Server**.

### Constraints

- The account used for migration must have sufficient balance.
- For a migration over an IPv6 network, **Migration Rate Limit**, **Continuous Synchronization**, **Measure Network Performance**, and **Proxy Servers** are unavailable.

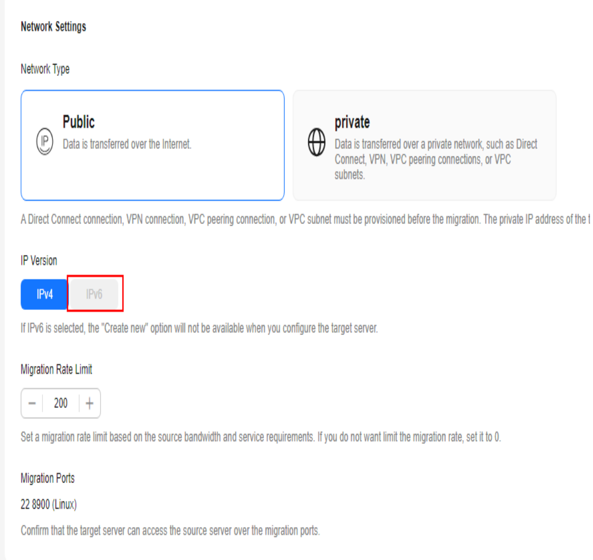
### Procedure

**Step 1** Install the Agent that matches the source server OS.

- **Install the Linux Agent**.
- **Install the Windows Agent**.

**Step 2** **Configure the target server**.

On the **Configure Basic Settings** page, in the **Network Settings** area, set **IP Version** to **IPv6**.



Network Settings

Network Type

Public
Data is transferred over the Internet.

private
Data is transferred over a private network, such as Direct Connect, VPN, VPC peering connections, or VPC subnets.

A Direct Connect connection, VPN connection, VPC peering connection, or VPC subnet must be provisioned before the migration. The private IP address of the t

IP Version

IPv4 IPv6

If IPv6 is selected, the "Create new" option will not be available when you configure the target server.

Migration Rate Limit

− 200 +

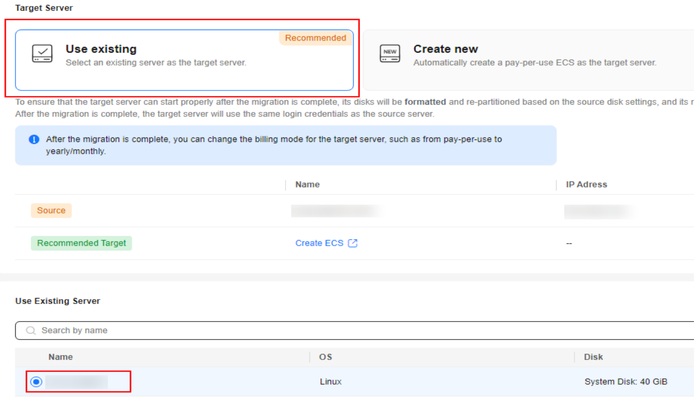
Set a migration rate limit based on the source bandwidth and service requirements. If you do not want limit the migration rate, set it to 0.

Migration Ports

22 8900 (Linux)

Confirm that the target server can access the source server over the migration ports.

On the **Configure Target** page, select **Use existing** for **Target Server** and select the server created in **Setting Up an IPv6 Network and Creating a Target Server**.



Target Server

Use existing
Select an existing server as the target server.
Recommended

Create new
Automatically create a pay-per-use ECS as the target server.

To ensure that the target server can start properly after the migration is complete, its disks will be **formatted** and re-partitioned based on the source disk settings, and its r
After the migration is complete, the target server will use the same login credentials as the source server.

After the migration is complete, you can change the billing mode for the target server, such as from pay-per-use to yearly/monthly.

| | Name | IP Adress |
|---|---|---|
| Source | [redacted] | [redacted] |
| Recommended Target | Create ECS | -- |

Use Existing Server

Search by name

| Name | OS | Disk |
|---|---|---|
| ● [redacted] | Linux | System Disk: 40 GiB |

**Step 3** **Start the full replication**, and **launch the target server**.

**Step 4** (Optional) Synchronize incremental data from the source server to the target server by using the **Sync** option on the SMS console.

**----End**

# 8 Using MgC to Migrate Servers Without Internet Access over Private Lines

## Overview

This section explains how to use Migration Center (MgC) to migrate servers without Internet access to the LA-Sao Paulo1 region.

⚠ CAUTION

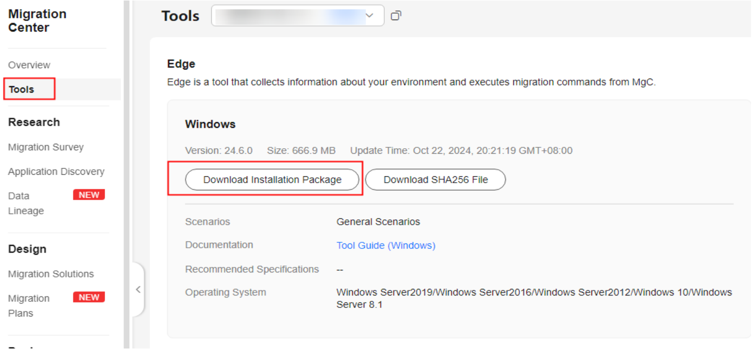
This solution only applies to migration to the LA-Sao Paulo1 region.

## Step 1: Install Edge, an MgC Tool

**Step 1** Log in to the **Huawei Cloud console** and enable MgC in the LA-Sao Paulo1 region.

**Step 2** On the MgC console, choose **Tools** in the navigation pane. **Download and install the Edge for Windows**.

**Figure 8-1** Downloading Edge



Edge

Edge is a tool that collects information about your environment and executes migration commands from MgC.

Windows

Version: 24.6.0 Size: 666.9 MB Update Time: Oct 22, 2024, 20:21:19 GMT+08:00

| | |
|---|---|
| Scenarios | General Scenarios |
| Documentation | Tool Guide (Windows) |
| Recommended Specifications | -- |
| Operating System | Windows Server2019/Windows Server2016/Windows Server2012/Windows 10/Windows Server 8.1 |

**Step 3** After the Edge is installed, register an account and **connect Edge to MgC**.

**----End**

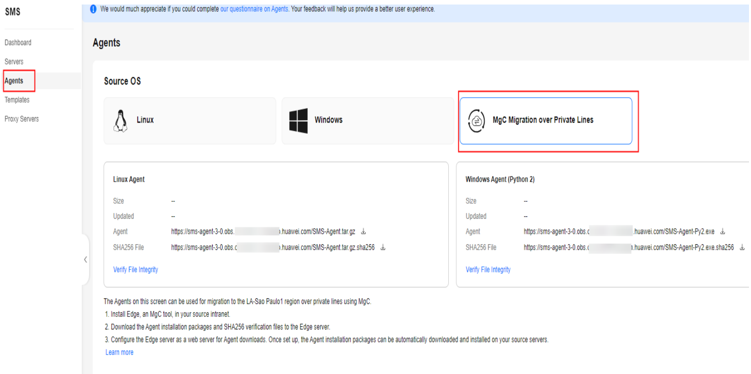
## Step 2: Download the SMS-Agent Installation Packages

**Step 1** Log in to the **SMS console** and switch to the LA-Sao Paulo1 region.

**Step 2** In the navigation pane, choose **Agents**.

**Step 3** Choose the **MgC Migration over Private Lines** card and download the SMS-Agent installation packages and SHA256 verification files for Linux and Windows.

**Figure 8-2** Downloading the Agent



We would much appreciate if you could complete our questionnaire on Agents. Your feedback will help us provide a better user experience.

Agents

Linux Agent

| | |
|---|---|
| Size | -- |
| Updated | -- |
| Agent | https://sms-agent-3-0.obs.[redacted].huawei.com/SMS-Agent.tar.gz |
| SHA256 File | https://sms-agent-3-0.obs.[redacted].huawei.com/SMS-Agent.tar.gz.sha256 |

Verify File Integrity

Windows Agent (Python 2)

| | |
|---|---|
| Size | -- |
| Updated | -- |
| Agent | https://sms-agent-3-0.obs.[redacted].huawei.com/SMS-Agent-Py2.exe |
| SHA256 File | https://sms-agent-3-0.obs.[redacted].huawei.com/SMS-Agent-Py2.exe.sha256 |

Verify File Integrity

The Agents on this screen can be used for migration to the LA-Sao Paulo1 region over private lines using MgC.
1. Install Edge, an MgC tool, in your source intranet.
2. Download the Agent installation packages and SHA256 verification files to the Edge server.
3. Configure the Edge server as a web server for Agent downloads. Once set up, the Agent installation packages can be automatically downloaded and installed on your source servers.
Learn more

**Step 4** Save all the downloaded SMS-Agent installation packages and verification files into the same directory on the server where Edge is installed.

**----End**

## Step 3: Configure the Server with Edge Installed as a Web Server

**Step 1** On the server with Edge installed, open PowerShell ISE, and copy and paste the following script content. Then modify the script as follows:

- Replace **127.0.0.1** in the first line with the internal IP address of the server with Edge installed.
- Replace the value of **sitePath** in the second line with the directory where the SMS-Agent installation packages are stored from **step 2**.

```
$SMSAgentServerEndpoint = "127.0.0.1:443"
$sitePath = "C:\Users\Administrator\Downloads\SMS-Agent"

# Instal IIS
Install-WindowsFeature -name Web-Server -IncludeManagementTools

# Create Website content
if (-Not (Test-Path $sitePath)) {
    New-Item -Path $sitePath -ItemType Directory
}

# Add IIS website
Import-Module WebAdministration
New-Item "IIS:\Sites\SMSAgentServer" -bindings
@{protocol="http";bindingInformation="$SMSAgentServerEndpoint" + ":"} -physicalPath $sitePath

# Enable content browse
Set-WebConfigurationProperty -filter "system.webServer/directoryBrowse" -name "enabled" -value
"true" -PSPath "IIS:\Sites\SMSAgentServer"

# Set folder permissions
$acl = Get-Acl $sitePath
$acl.SetAccessRule((New-Object
System.Security.AccessControl.FileSystemAccessRule("IUSR","ReadAndExecute","ContainerInherit,Objec
tInherit","None","Allow")))
$acl.SetAccessRule((New-Object
System.Security.AccessControl.FileSystemAccessRule("IIS_IUSRS","ReadAndExecute","ContainerInherit,O
bjectInherit","None","Allow")))
Add-WebConfigurationProperty -PSPath 'IIS:\Sites\SMSAgentServer' -filter 'system.webServer/
staticContent' -name '.' -value @{fileExtension='.sha256'; mimeType='application/sha256'}

Set-Acl $sitePath $acl

# Restart IIS service
Restart-Service -Name "W3SVC"
$response = Invoke-WebRequest -Uri $SMSAgentServerEndpoint -UseBasicParsing
if ($response.StatusCode -eq 200) {
   Write-Output "Construct SMS agent server successfully!"
}

#Replace Edge SMS download url
$filePath = "C:\Edge\tools\SecAs-1.2.29\webmanagementapps\edge-server-0.0.1\WEB-INF\classes
\application.yml"
$urlPattern = "sms-agent-url:.*"
$newUrl = "sms-agent-url: http://" + $SMSAgentServerEndpoint
$fileContent = Get-Content -Path $filePath -Encoding UTF8
$fileContent = $fileContent -replace $urlPattern, $newUrl
Set-Content -Path $filePath -Value $fileContent -Encoding UTF8

#Restart Edge
Write-Output "Restart Edge server, please wait for a while..."
Restart-Service -Name "Edge_tomcat"
$edgeProcessStatus = Get-Service -Name "Edge_tomcat" | Select-Object Status
if ($edgeProcessStatus.Status -eq "Running") {
   Write-Output "Restart edge successfully"
}
```

**Step 2** Run the script and wait until the script execution is complete. If the message "Restart edge successfully" is displayed, the configuration is successful.

**----End**

## Step 4: Create a Server Migration Workflow on MgC

Go to the MgC console and create a server migration workflow by referring to **Migrating On-premises Servers to Huawei Cloud**.