## **Elastic Cloud Server**

# FAQs

 Issue
 01

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# Common FAQ

### **Remote Logins**

- Can I Troubleshoot ECSs By Myself?
- Why Can't I Log In to My Windows ECS?
- Why Can't I Log In to My Linux ECS?
- What Are the Username and Password for Remote Logins?
- Troubleshooting Multi-User Logins
- Applying for a License for Authenticating Multi-User Sessions and Activating the ECS

### **ECS Failures or Slow ECS Responses**

- Why Is My Windows ECS Running Slowly?
- Why Is My Linux ECS Running Slowly?
- How Do I Know If My EIP Bandwidth Limit Has Been Exceeded?

### Website or Application Access Failures

- How Do I Troubleshoot an Unresponsive Website Hosted on My ECS?
- How Do I Troubleshoot Slow Connections to a Website Hosted on My ECS?
- Why Am I Unable to Connect to a Port on an ECS?

### **Internet Access Failures**

- Why Cannot My Windows ECS Access the Internet?
- Why Does My Linux ECS Fail to Access the Internet?
- Can an ECS Without an EIP Bound Access the Internet?
- Why Accessing a Website Outside the Chinese Mainland Is Slow on an ECS?
- How Do I Troubleshoot a Ping Failure or Packet Loss Using a Link Test?

### **Passwords and Key Pairs**

• Resetting the Password for Logging In to an ECS on the Management Console

### **Ping Failures**

- What Should I Do If an EIP Cannot Be Pinged?
- Why Can I Remotely Access an ECS But Cannot Ping It?
- How Do I Troubleshoot a Ping Failure or Packet Loss Using a Link Test?

# **2** Product Consulting

# 2.1 What Are the Precautions for Using ECSs?

- Do not upgrade ECS kernel or OS versions. If you want to upgrade the main OS version, for example, from CentOS 7.2 to Cent OS 7.3, use the provided OS changing function.
- Do not uninstall the performance optimization software pre-installed on your ECSs.
- Do not change NIC MAC addresses. Otherwise, the network connection will fail.

# 2.2 What Can I Do with ECSs?

You can use ECSs just like traditional physical servers. On an ECS, you can deploy any service application, such as an email system, web system, and Enterprise Resource Planning (ERP) system.

After creating an ECS, you can use it like using your local computer or physical server.

# 2.3 What Are Kunpeng and x86 CPU Architectures?

ECS supports the following architectures:

• x86 architecture

The x86 architecture uses the complex Instruction Set Computer (CISC). CISC has a large collection of complex instructions that range from simple to very complex and specialized in the assembly language level, which takes a long time to execute the instructions.

• Kunpeng architecture

The Kunpeng architecture uses the reduced Instruction Set Computer (RISC). RISC a microprocessor architecture with a simple collection and highly customized set of instructions. It is built to minimize the instruction execution time by optimizing and limiting the number of instructions. The Kunpeng architecture delivers more balanced performance/power consumption than the x86 architecture.

# **3**<sub>ECS Creation</sub>

# 3.1 What Do I Do If I Cannot Find My ECSs?

### Symptom

You cannot find your purchased ECSs after logging in to the console.

### **Possible Causes**

The ECS is not in the current region.

### Solution

### Method 1

- 1. Log in to the management console.
- 2. Select the region in which you created your ECS.

### Figure 3-1 Changing a region on the management console homepage



### Method 2

- 1. Log in to the management console.
- 2. On the right of the top navigation bar of the management console, choose **Resources** > **My Resources**.





- 3. On the My Resources page, view resource details.
  - Click a resource type to display all resources of the resource type in the list.
  - Click a region to view all resources in the region.

Figure 3-3 Resource list

ources	My Resources												
005 20 20	0	My Resources may no To view your resource After you add, update	of list all of your resources. Suppo is and their billing details, go to Bi , or delete resources, there is som	rted Ser ling Cer e delay i	vices and Regions ther IC before the changes are displayed. Please i	check ag	gain later.						
Tests 🖸 ery 🖸		Only display cloud	services and regions that contain	resouro	as 💩 Supported Services and Regions								
	Ser	vice	All (128) Simple Message Notification (	(3)	Virtual Private Cloud (VPC) (88) Host Security Service (2)	Dome Funct	iin Name Service (DNS) (13) IonGraph (1)	Data Encryption Workst Log Tank Service (LTS)	iop (D (7) (1)	VPC Endpoint (7)	Cloud Trace Service (CTS) (6)		
	Rej	gion	All CN East-Qingdoo (4) AP-Bangliok (4) AF-Johannesburg (2)		CN North-Beijing1 (11) CN East2 (4) AP-Singapore (4) TR-Istanbul (2)	CN N CN S AP-JI LA-M	orth-Beijing4 (26) outh-Guangzhou (8) akarta (2) axico City1 (4)	CN North-Ulanqab1 (5) CN South-Guangzhou-I AP-Manila (4) LA-Mexico City2 (2)	nvitati (7)	CN East-Shanghai1 (6) CN Southwest-Gulyang1 (6) ME-Riyadh (4) LA-Sao Paulo1 (2)	CN East-Shanghai2 (7) CN-Hong Kong (7) AF-Cairo (4) LA-Santiago (3)		
<	Sei	ecled	Service: All		Region: All								
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		system		CN E	ist-Shanghai2		Cloud Trace Service (CTS)		Trackers		View Details		
		default		LA-Se	ntago		Virtual Private Cloud (VPC)		Security Group	35	Wew Details		
		vpc-		CN S	outh-Guangzhou-InvitationOnly		Virtual Private Cloud (VPC)		VPCs		Vew Details		
		sg-		CN N	orth-Beijing4		Virtual Private Cloud (VPC)		Security Group	26	View Details		
		default		CN S	outh-Guangzhou		Virtual Private Cloud (VPC)		Security Group	25	View Details		

# 3.2 What Should I Do If the ECS Resources to Be Purchased Are Sold Out?

When you are purchasing ECSs, the selected specifications may be sold out. In this case, the specifications cannot be purchased in the current region or AZ.

Instance specifications vary in different regions and AZs. For sold-out resources, you are advised to:

- Switch to another AZ to purchase the resources.
- In the specifications list, click the region where the sold-out resources are available and switch to the target region to purchase resources.

# 3.3 How Can I Set Sequential ECS Names When Creating Multiple ECSs?

### Scenarios

When creating multiple ECSs at the same time, you can use either of the following methods to sequentially name the ECSs:

- Automatic naming: The system automatically adds a hyphen followed by a four-digit incremental number to the end of each ECS name.
- Customizable naming: You can customize a naming rule in the format "name\_prefix[begin\_number,bits]name\_suffix". The system will automatically name the ECSs according to naming rule you specify.

This section describes how to use the two methods to name ECSs.

### **Automatic Naming**

You can customize the name according to the following naming rules: The name must contain 1 to 64 characters that can be only letters, digits, underscores (\_), and hyphens (-).

When you create multiple ECSs at the same time, the system automatically adds a hyphen followed by a four-digit incremental number to the end of each ECS name. In this case, the customized name is 1 to 59 characters long. For example, if you are creating multiple ECSs and enter **ecs** for the ECS name, the created ECSs will be named **ecs-0001**, **ecs-0002**, and so on. If you create multiple ECSs again, the values in the new ECS names increase from the existing maximum value. For example, the existing ECS with the maximum number in name is **ecs-0010**. If you enter **ecs**, the names of the new ECSs will be **ecs-0011**, **ecs-0012**, .... When the value reaches **9999**, it will start from **0001**.

**Allow duplicate name**: allows ECS names to be duplicate. If you select **Allow duplicate name** and create multiple ECSs in a batch, the created ECSs will have the same name.

- Example 1: If there is no existing ECS and you enter **ecs-f526**, the ECSs will be named **ecs-f526-0001**, **ecs-f526-0002**, **ecs-f526-0003**, ....
- Example 2: If there is an ECS named ecs-f526-0010 and you enter ecs-f526, the ECSs will be named ecs-f526-0011, ecs-f526-0012, ecs-f526-0013, ....
- Example 3: If there is an ECS named **ecs-0010** and you select **Allow duplicate ECS name**, all the ECSs will be named **ecs-0010**.

### Customizable Naming

You can customize a naming rule in the format "name\_prefix[begin\_number,bits]name\_suffix". The system will automatically name the ECSs according to naming rule you specify.

### Field Description for a Customizable Naming Rule

Figure 3-4 shows the format of a customizable naming rule.





 Table 3-1 describes these parameters.

Table 3-1	Parameters	in a	customizable	naming rule
	ralameters	iii a	customizable	nanning rule

Field	Mandatory	Description	Example
name_prefix	Yes	ECS name prefix The name prefix can contain only letters, digits, underscores (_), and hyphens (-).	ecs
[begin_number,bi ts]	Yes	Sequence numbers that increase in ascending order to differentiate multiple ECSs.	[0,4]
name_suffix	No	ECS name suffix The name suffix can contain only letters, digits, underscores (_), and hyphens (-).	f526

 Table 3-2 [begin\_number,bits] parameters

Field	Mandatory	Description	Example
begin_number	No	Begin number of ECS names.	0
		The begin number ranges from 0 to 9999. The default value is <b>0</b> .	
bits	No	Number of bits for the sequential numbers in ECS names.	4
		The value ranges from 1 to 4. The default value is <b>4</b> .	

### Notes on Using Customizable Naming

- Customized names cannot be duplicate.
- No space is allowed in [begin\_number,bits].
- If the bits of "Begin number + Number of ECSs to be created 1" is greater than the specified bits, the bits of "Begin number + Number of ECSs to be created - 1" will be used.

For example, if [begin\_number,bits] is set to [8,1] and the number of ECSs to be created is 2, the bits of "Begin number + Number of ECSs to be created - 1" is the same as the specified bits (1). Then, the ECSs will be named *name\_prefix*8*name\_suffix* and *name\_prefix*9*name\_suffix*.

If [begin\_number,bits] is set to [8,1] and the number of ECSs to be created is 3, the specified bits is 1, the bits of "Begin number + Number of ECSs to be created - 1" (value 10, bits 2) is different from the specified bits (1). Therefore, the bits of "Begin number + Number of ECSs to be created - 1" will be used, which is 2.

The ECSs will be named *name\_prefix***08***name\_suffix*, *name\_prefix***09***name\_suffix*, and *name\_prefix***10***name\_suffix*.

- If the value of "Begin number + Number of ECSs to be created" is greater than the maximum value **9999**, the sequential numbers that exceed **9999** will consistently to be **9999**.
- If [begin\_number,bits] is set to [] or [,], the begin number starts from **0**, and the number of bits is **4** by default.
- If [begin\_number,bits] is set to [99] or [99,], the begin number starts from **99**, and the number of bits is **4** by default.

### Customizable Naming Examples

- Example 1: If you select customizable naming and enter name\_prefix[,] name\_suffix,
   The ECSs will be named name\_prefix0000name\_suffix, name\_prefix0001name\_suffix, name\_prefix0002name\_suffix, ....
- Example 2: If you select customizable naming and enter name\_prefix[] name\_suffix,
   The ECSs will be named name\_prefix0000name\_suffix, name\_prefix0001name\_suffix, name\_prefix0002name\_suffix, ....
- Example 3: If you select customizable naming and enter name\_prefix[9,] name\_suffix,
   The ECSs will be named name\_prefix0009name\_suffix, name\_prefix0010name\_suffix, name\_prefix0011name\_suffix, ....
- Example 4: If you select customizable naming and enter name\_prefix[,3] name\_suffix,
   The ECSs will be named name\_prefix000 name\_suffix, name\_prefix001 name\_suffix, name\_prefix002 name\_suffix, ....
- Example 5: If you select customizable naming and enter name\_prefix[8] name\_suffix,
   The ECSs will be named name\_prefix0008 name\_suffix, name\_prefix0009 name\_suffix, name\_prefix0010 name\_suffix, ....
- Example 6: If you select customizable naming and enter name\_prefix[9999] name\_suffix,

All the ECSs will be named *name\_prefix*9999*name\_suffix*.

• Example 7: If you select customizable naming and enter *name\_prefix*[8], The ECSs will be named *name\_prefix*0008, *name\_prefix*0009, *name\_prefix*0010, ....

# 3.4 What Is the Creation Time and Launch Time of an ECS?

Creation time: time when the ECS is created on the cloud platform.

Launch time: time when the ECS is launched for the first time.

After purchasing an ECS, you can click the ECS name on the list page and view the creation time and launch time in the **ECS Information** area.

# 3.5 Why Does the Failures Area Show an ECS Creation Failure But the ECS List Displays the Created ECS?

### Symptom

When you attempt to create an ECS with an EIP bound on the management console, the ECS creation was successful but the EIP binding failed due to insufficient EIPs. Although the **Failures** area showed that the ECS creation failed, the ECS was displayed in the ECS list. The results of the ECS creation task were inconsistent.

### Root Cause

- The ECS list displays created ECSs.
- The **Failures** area shows the ECS creation status, including the statuses of subtasks, such as creating ECS resources and binding an EIP. Only when all subtasks are successful, the ECS is created.

If the ECS is created but EIP binding failed, the task failed. However, the ECS you created is temporarily displayed in the list. After the system rolls back, the ECS is removed from the list.

## 3.6 When Does an ECS Become Provisioned?

Yearly/Monthly ECS: After you pay for an ECS and the system successfully deducts incurred fees from your account balance, the ECS is automatically provisioned.

Pay-per-use ECS: The ECS is automatically provisioned after it is created.

# 3.7 Why Cannot I View the ECSs Being Created Immediately After I Pay for Them?

You can view the ECSs being created only after the system disks attached to the ECSs are created. This requires a period of time.

# 3.8 What Should I Do If the ECS Fails to Be Provisioned After I Have Paid the Order?

After you have paid the order, if an SMS message is sent to your mobile phone indicating that the ECS fails to be provisioned, contact customer service of HUAWEI CLOUD at 4000-955-988. The customer service team will help you rectify the failure and provision the required ECS for you. If the failure cannot be rectified within the required time period, you can cancel the order and the customer service will refund the price you have paid to your account.

# 3.9 Why Does It Take Longer to Create ECSs When I Use a Full-ECS Image?

### Symptom

When you use a full-ECS image that was created using a CSBS backup to create ECSs, the process is time-consuming or the system displays a message indicating that the image cannot be used to rapidly create ECSs.

### **Cause Analysis**

If your full-ECS image is in the old backup format provided by CSBS, this issue occurs.

### **NOTE**

• CSBS has a new backup format. You can rapidly create ECSs if the full-ECS image is in this format.

### Solution

If you want to use a full-ECS image to rapidly create ECSs, ensure that the full-ECS image is created using a CSBS backup in the new format. The procedure is as follows:

Scenario 1: The ECS based on which the target CSBS backup is created is available.

Back up the original ECS on the **Cloud Server Backup Service** page and use the new format to create a full-ECS image. You can use the full-ECS image to rapidly create ECSs.

For instructions about how to back up an ECS, see *Cloud Server Backup* Service User Guide.

- For instructions about how create a full-ECS image, see *Image* Management Service User Guide.
- Scenario 2: The ECS based on which the target CSBS backup is created is unavailable.
  - a. Use the full-ECS image to create a new ECS.
  - Back up the newly created ECS.
     For details, see *Cloud Server Backup Service User Guide*.
  - c. Use the CSBS backup to create a full-ECS image. For details, see *Image Management Service User Guide*.

You can use the full-ECS image to rapidly create ECSs.

# 3.10 What Do I Do If I Selected an Incorrect Image for My ECS?

You can change the image for your ECS on the ECS console.

- 1. Select the target ECS and click **Stop** in the upper left corner of the ECS list.
- Locate the row that contains the target ECS, choose More > Manage Image > Change OS in the Operation column.

The **Change OS** dialog box is displayed.

3. Select the target image type and image.

D NOTE

- Only changes between free OSs are supported.
- If an ECS is created from a private image in KooGallery and is billed on a yearly/ monthly basis, the OS cannot be changed.
- OS change between Windows and Linux is supported only in the Chinese mainland regions.
- 4. Set the login mode. You can select **Password** or **Key pair**.
- 5. Set the other parameters and click **OK**.

After the application is submitted, the ECS status changes to **Changing OS**. When this status disappears, the OS change is complete.

For details, see Changing the OS.

# 3.11 Should I Choose Windows OS or Linux OS for My ECS?

### **Difference Between Windows OS and Linux OS**

The following table shows the difference between Windows OS and Linux OS. Select an OS based on your service requirements.

### Table 3-3 Differences

OS	Developer Language	Database	
Windows	ASP.NET, MFC and C#	ACCESS and SQL Server	
Linux Shell MySQL and SQLite			
Both Windows and Linux support developer languages HTML, C, Java, and PHP.			

### Windows OS

Huawei Cloud supports five versions of Windows OS, each of which is available in 32-bit and 64-bit.

Microsoft has ended support for Microsoft Windows Server 2008 and it is not recommended.

Windows Server 2012, Windows Server 2016, and Windows Server 2019 have some advanced features, such as network performance and system compatibility optimization. For the best performance, Windows Server 2019 is recommended.

### Difference Between 32-bit and 64-bit OSs

A 32-bit OS allows you to use up to 4 GB of RAM, while a 64-bit OS supports more.

A 32-bit CPU can process 32-bit data at a time, while a 64-bit CPU can process 64bit data at a time. Theoretically, the processing speed of a 64-bit CPU is faster than that of a 32-bit CPU, but the actual speed is also affected by the RAM size.

### Linux OS

There are a variety of Linux versions. You can select an appropriate version based on your service requirements.

### **OS Change**

If you want to change the OS of your ECS, perform the following operations:

- 1. Select the target ECS and click **Stop** in the upper left corner of the ECS list.
- 2. Locate the row that contains the target ECS, choose **More** > **Manage Image** > **Change OS** in the **Operation** column.

The Change OS dialog box is displayed.

3. Select the target image type and image.

### **NOTE**

- Only changes between free OSs are supported.
- If an ECS is created from a private image in KooGallery and is billed on a yearly/ monthly basis, the OS cannot be changed.
- OS change between Windows and Linux is supported only in the Chinese mainland regions.

- 4. Set the login mode. You can select **Password** or **Key pair**.
- 5. Set the other parameters and click **OK**.

After the application is submitted, the ECS status changes to **Changing OS**. When this status disappears, the OS change is complete.

For details, see Changing the OS.

# 3.12 How Quickly Can I Obtain an ECS?

Obtaining an ECS can take as little as a few minutes.

The time it takes to obtain an ECS depends on ECS specifications, available resources (such as EVS disks and EIPs), and system load.

**NOTE** 

If it takes a long time to obtain your ECS, contact customer service.

# 3.13 How Can I Manage ECSs by Group?

You cannot manage ECSs by folders or groups, but you can use tags to organize your ECSs

Tags help you group your ECSs by usage or user.

For more information, see Tag Management.

# 3.14 Why Did I Fail to Configure an Anti-Affinity ECS Group?

When you configure an anti-affinity ECS group during ECS purchase, an error occurred. This may be caused by insufficient resources.

In this case, you can try the following measures:

- Wait for a while and try again.
- Purchase ECSs in small batches.
- Select another AZ with sufficient resources to purchase ECSs.

# **4** ECS Deletion and Unsubscription

# 4.1 What Happens After I Click the Delete Button?

After you click **Delete**, the selected ECSs will be deleted. You can also choose to delete the EVS disks and EIPs together with the selected ECSs. If you do not delete them, they will be retained. If necessary, you can manually delete them later.

To delete selected ECSs, perform the following operations:

- 1. Log in to the management console.
- 2. Click = . Under Compute, click Elastic Cloud Server.
- 3. Select the ECSs to be deleted.
- 4. Above the ECS list, choose **More** > **Delete**.

Figure 4-1 Deleting selected ECSs

Start Stop Reset Password	More 🔺							С 🛞 🕻	88 =
Searched by Name by default.	Restart								@ Q
Name1D ↓≣	Delete Chappe Billing Mode	AZ 🟹	Status 🖓	Specifications/Image	IP Address	Billing Mode 7	Tag	Operation	
CCs-aaab 1906d73-be61-4d73-96c2-4f3de233d8d8	Renew Change ECS Name	A23	Running	1 vCPUs   2 GiB   s6 medium.2 CentOS 7.4 64bit	192.168.3.67 (Private IP)	Pay-per-use Created on Aug 04, 2022 10:5	-	Remote Login	More +

# 4.2 Can a Deleted ECS Be Provisioned Again?

No. ECSs in the **Deleted** state cannot provide services and are soon removed from the system.

A deleted ECS is retained in the ECS list on the management console only for a short period of time before it is permanently removed from the system.

You can purchase another ECS of the same specifications.

## 4.3 Can a Deleted ECS Be Restored?

Whether a deleted ECS can be restored depends on whether data backup was enabled for it.

- If backup was enabled, you can use the backup files to restore data.
- If backup was not enabled, data cannot be restored.

Therefore, before deleting an ECS, ensure that the data on the ECS has been backed up or migrated.

## 4.4 How Do I Delete or Restart an ECS?

### **Deleting an ECS**

- 1. Log in to the management console.
- 2. Select the region where the ECS is located.
- 3. Under Compute, choose Elastic Cloud Server.
- 4. Locate the row containing the target ECS and choose **More** > **Delete** in the **Operation** column.

### **NOTE**

If you choose to delete the EIP and data disks associated with the ECS when deleting it, no charges will apply for the EIP and data disks. However, if they are not deleted, they will continue to incur fees.

### **Restarting an ECS**

- 1. Log in to the management console.
- 2. Select the region where the ECS is located.
- 3. Under Compute, choose Elastic Cloud Server.
- 4. Locate the row containing the target ECS and choose **More** > **Restart** in the **Operation** column.

## 4.5 Can I Forcibly Restart or Stop an ECS?

Yes. If an ECS remains in the **Restarting** or **Stopping** state for over 30 minutes after it is restarted, you can forcibly restart or stop the ECS as follows:

- 1. Log in to the management console.
- 2. Click 🔍 in the upper left corner and select your region and project.
- 3. Under Compute, click Elastic Cloud Server.
- 4. Select the target ECS and click **Restart** or **Stop**.

A dialog box is displayed to confirm whether you want to restart or stop the ECS.

- 5. Select Forcibly restart the preceding ECSs or Forcibly stop the preceding ECSs.
- 6. Click OK.

## 4.6 How Do I Unsubscribe from ECSs?

A yearly/monthly ECS can be unsubscribed, including the renewed resources and the resources that are being used. After the unsubscription, the ECS can no longer be used. A handling fee will be charged for unsubscribing from a resource.

### Notes

- Unsubscribing from an ECS involves the renewed resources and the resources that are being used. After the unsubscription, the ECS is unavailable.
- Solution product portfolios can only be unsubscribed from as a whole.
- If an order contains resources in a primary-secondary relationship, you need to unsubscribe from the resources separately.
- For details about how to unsubscribe from a resource, see **Unsubscription Rules**.

### Procedure

### NOTICE

Before requesting an unsubscription, ensure that you have migrated or backed up any data saved on the ECS that will be unsubscribed from. After the unsubscription is complete, the ECS and any data it contains will be permanently deleted.

- 1. Go to the **Unsubscriptions** page.
- 2. Click the Unsubscribe from In-Use Resources tab.
- 3. Unsubscribe from a single resource or from resources in a batch.
  - To unsubscribe from a single resource, click **Unsubscribe** for the target resource.
  - To unsubscribe from resources in a batch, select the target resources from the resource list and click **Batch Unsubscribe** in the upper part of the resource list.
- 4. View the unsubscription information, select I have confirmed that a handling fee will be charged for this unsubscription, and click Unsubscribe.

# **5** Remote Login

# 5.1 Login Preparations

### 5.1.1 What Are the Login Requirements for ECSs?

### Windows

• Obtain the login password.

ECSs created using a public image have the one-click password reset plug-in installed by default. If you forgot your password or it has expired, reset the password on the ECS console to obtain a new password for logging in to the ECS.

- Ensure that the ECS has an EIP bound (only required for MSTSC logins). For details, see Assigning an EIP.
- Make sure that the remote desktop protocol has been enabled on the ECS (only required for MSTSC logins).

If MSTSC-based remote desktop connection is used, log in to the ECS using VNC and enable the remote desktop protocol.

For details, see Remotely Logging In to a Windows ECS (Using MSTSC)

### More information:

- If you created your ECS by using an external image file and the ECS does not have the password reset plug-in installed, reset the ECS login password by attaching a disk to the ECS. For details, see Resetting the Password for Logging In to a Windows ECS Without the Password Reset Plug-in Installed.
- If your ECS is authenticated using a key pair, parse the private key file to a password before you log in to the ECS.
  - a. In the **Operation** column of ECS whose password is to be obtained, click **More** and choose **Get Password**.
  - b. Copy the content of the private key file and paste it into the text box. Click **Get Password** to obtain a new random password.

### Figure 5-1 Get Password

Get Password	
This operation will obtain the initial password generated after the OS installation. If you have changed the password, use the new password to log in to the ECS.	
Use private key KeyPair-111.pem stored in your local directory to retrieve the password.	
Select Private Key Select File No file selected. Alternatively, copy the content of the private key file and paste it below.	
0T k1bf8HUAcuFdsdg2mu20iGDS5YW1jDS81UKHKBzyjB3h9wyz0cv0gF0= END RSA PRIVATE KEY	
Get Password	
Cancel	

### Linux

• Obtain the login password.

ECSs created using a public image have the one-click password reset plug-in installed by default. If you forgot your password or it has expired, reset the password on the ECS console to obtain a new password for logging in to the ECS.

• Ensure that the ECS has an EIP bound (only required for SSH logins).

SSH logins are available for Linux ECSs only. You can use a remote login tool to log in to your ECS. Ensure that the ECS has an EIP bound. For example, **use PuTTY to log in to the ECS**.

- Check whether an ECS has an EIP bound.

For details, see Assigning an EIP.

- Check whether an EIP can be pinged.
  - If you use a public IP address, see What Should I Do If an EIP Cannot Be Pinged? for troubleshooting.
  - If you use a private IP address, see Why Does Communication Fail Between Two ECSs in the Same VPC or Packet Loss Occur When They Communicate?

### More information:

 If you created your ECS by using an external image file and the ECS does not have the password reset plug-in installed, reset the ECS login password by attaching a disk to the ECS. For details, see Resetting the Password for Logging In to a Linux ECS Without the Password Reset Plug-in Installed.

- For a Linux ECS authenticated using a key pair:
  - For the first login, use an SSH key. For details, see Remotely Logging In to a Linux ECS (Using an SSH Key Pair).
  - For a non-first login, if you want to use the remote login function (VNC) provided by the management console, log in to the ECS using the SSH key and set the password.
- For an ECS purchased using a key pair, if you fail to log in to the ECS using a private key file, the possible cause is that the password fails to be injected using Cloud-Init.

# 5.1.2 What Are the Username and Password for Remote Logins?

Username for logging in to an ECS:

- For Windows: Administrator
- For Linux: root

If you forgot the login password or did not set a password when creating the ECS, you can **reset the password**.

If you still cannot remotely log in to the ECS after resetting the password, the oneclick password reset plug-in may become invalid. You can resolve this issue by performing the following operations:

- Resetting the Password for Logging In to a Windows ECS Without the Password Reset Plug-in Installed
- Resetting the Password for Logging In to a Linux ECS Without the Password Reset Plug-in Installed

### 5.1.3 Can I Retrieve My Remote Login Password?

No. If you did not set a password when creating an ECS, or you forgot your password or it has expired, reset the password by following the instructions provided in **Resetting the Password for Logging In to an ECS on the Management Console**.

### **NOTE**

Keep your password secure.

If you still cannot remotely log in to the ECS after resetting the password, the one-click password reset plug-in may become invalid. You can resolve this issue by performing the following operations:

- Resetting the Password for Logging In to a Windows ECS Without the Password Reset Plug-in Installed
- Resetting the Password for Logging In to a Linux ECS Without the Password Reset Plug-in Installed

### 5.1.4 Why Cannot I Use the Username and Password Configured During the Creation of a GPU-accelerated ECS to Log In to the ECS Through SSH?

### Solution

Log in to the ECS using VNC, modify the configuration file, and log in to the ECS through SSH.

- 1. On the ECS console, locate the ECS and click **Remote Login**.
- 2. On the login page, enter user **root** and its password.

### D NOTE

The password is the one you set during the ECS creation.



3. In the **/etc/ssh/** directory, modify the three configuration items in the **sshd\_config** file, as shown in the following figure.



4. Save the modification and exit. Then, run the following command to restart SSH:

### service sshd restart

- 5. After the restart, use the SSH password to log in again.
- 6. If the fault persists, contact customer service.

### 5.1.5 What Should I Do If Starting an ECS Remains in "Waiting for cloudResetPwdAgent" State?

### Symptom

During ECS startup, it remains in "Waiting for cloudResetPwdAgent" state for 20 to 30 seconds.

#### Figure 5-2 Starting cloudResetPwdAgent

otarting reportation to the second se	. U	UK	1
Starting NFS statd:	- 0	DK	]
Starting cloudResetPwdAgent			
Waiting for cloudResetPwdAgent			

### **Possible Causes**

This issue is caused by the intranet DNS and user-defined DNS configurations.

### Solution

- 1. Log in to the ECS as user **root**.
- 2. Run the following command to modify the **/etc/cloud/cloud.cfg** configuration file:

vi /etc/cloud/cloud.cfg

3. Add the following statement to the configuration file:

manage\_etc\_hosts: true

### Figure 5-3 Editing the configuration file



## 5.2 Remote Logins

### 5.2.1 Can I Troubleshoot ECSs By Myself?

Yes. ECS provides self-service tools to help you diagnose your ECSs. You can check the performance, networks, and disks of your ECSs as well as account status in a few clicks, and detect and fix problems based on the professional suggestions from Huawei Cloud.

The following describes how to use the ECS self-service tools.

### **Starting a Diagnosis**

- 1. Log in to the management console.
- 2. Click  $\equiv$  . Under Compute, click Elastic Cloud Server.
- 3. In the left navigation pane, choose **Troubleshooting**.
- 4. On the displayed **Self-Service Tools** page, select a self-service tool.

×

### Figure 5-4 Self-service tools

Diagnosing Elastic Cloud Server (Trial) To carded be polymous, release, and data of your CS3 as well as account status is a four cloud, and detect and for polymous based on the professional suggestions from National Cloud. 1 Sect CC3 - 3 Diagnose CC3 - 3 Very Results							
OBM Monitoring for example of the status of your account and ECS resources, took to VPCs. EVS datas, to help you learn about how your ECS are running.	Login Troubleshooting Creck the hots, security group, reamon, and data of your ECSs, to help you locate and rectify faults.	Network Check Check the initiation connectivity of ECSs. Try Name					

- O&M Monitoring: Check the statuses of your account and ECS resources, such as VPCs, EVS disks, to help you learn about your ECS running status.
  - i. In the **O&M Monitoring** card, click **Try Now**.
  - ii. Select the region where the target ECS resides, select the ECS, and click **OK**.

#### Figure 5-5 Selecting an ECS

#### O&M Monitoring | Select ECS One-click diagnosis is only available for ECS. More self-service tools will be available soon CN-Hong Kong Q Region \* Name Enter an ECS name, ID, or EIP EIP ID Name O test1-74204 ÷. 3162cd3b-5830-4f19 test1-61678 8bc83db7-069d-4ab \* Total Records: 2 < 1 > 5 OK Cancel

In the right slide-out panel, a diagnosis report is generated for the ECS. You can rectify the faults based on the suggestions in the report.

- Login Troubleshooting: Check the hosts, security groups, memory, and disks of your ECSs, to help you locate and rectify faults.
  - i. In the Login Troubleshooting card, click Try Now.
  - ii. Select the region where the target ECS resides.
  - iii. On the Login Failures tab, click Diagnose.
  - iv. Select the ECS to be diagnosed and click OK.

### Figure 5-6 Selecting an ECS

#### Login Failures | Select ECS

 $\times$ 

() Region	One-click diagnosis	is only available for E Name 🔹   En	CS. More self-service t ter an ECS name or ID	ools will be available soon. Q
	Name	EIP	Remote Login Port	ID
0	test1-74204		22	3162cd3b-5830-4f19-
0	test1-61678		22	8bc83db7-069d-4abf
5	▼ Total Records	s: 2 < 1 >		_
			OK Cancel	

### **NOTE**

The remote login port uses the default port. If you have changed the default port, enter the new one.

Default ports: 22 (Linux ECS) and 3389 (Windows ECS)

In the right slide-out panel, a diagnosis report is generated for the ECS. You can rectify the faults based on the suggestions in the report.

If the login failure persists after the faults are rectified, record the resource details and login failure occurred time and **submit a service ticket** for technical support.

- Network Check: Check the network connectivity of your ECSs.
  - i. In the Network Check card, click Try Now.
  - ii. Select the region where the target ECS resides.
  - iii. On the Network Check tab, click Diagnose.
  - iv. In the displayed dialog box, specify the parameters and click OK.

 $\times$ 

### Figure 5-7 Specifying parameters

Network Check

One-click diag available soo	gnosis is only available for ECS. More self-service tools will be n.
Report Name	Network CheckSep 26, 2023 20:13:38 GMT+08:00
Region	CN-Hong Kong
* Source ECS	
* Destination ECS	
* Destination Port	22
* Protocol	TCP UDP ICMP
	OK Cancel

In the right slide-out panel, a diagnosis report is generated for the ECS. You can rectify the faults based on the suggestions in the report.

### **Follow-up Operations**

- Click Diagnosis Records on the top of the Self-Service Tools page. On the displayed page, select the target region, locate the target ECS, and click View Report in the Operation column to view the historical diagnosis report.
- After the fault is rectified according to the handling suggestions, you can click **Re-diagnose** in the **Operation** column of the target ECS to start a diagnosis again.

The re-diagnosis will generate a new diagnosis record and will not overwrite the historical records.

### Helpful Links

- Why Can't I Log In to My Linux ECS?
- Why Can't I Log In to My Windows ECS?

### 5.2.2 How Do I Log In to My ECS?

### Logging In to a Windows ECS

Figure 5-8 shows the modes in which a Windows ECS can be logged in to.
#### Figure 5-8 Windows ECS login modes



1. (Optional) Retrieve your password from the key file.

To log in to a key-pair-authenticated ECS, use the password obtaining function provided by the management console to decrypt the key file used during ECS creation to obtain a password.

For details, see **Obtaining the Password for Logging In to a Windows ECS**.

- 2. Select a login method and log in to the ECS.
  - Using VNC on the management console
    The login username is Administrator.

For details, see Logging In to a Windows ECS Using VNC.

Using MSTSC

The login username is **Administrator**, and the ECS must have an EIP bound.

For details, see Logging In to a Windows ECS Using MSTSC.

- From a mobile terminal

The login username is **Administrator**, and the ECS must have an EIP bound.

For details, see Logging In to a Windows ECS from a Mobile Terminal.

From a Mac
 The login username is Administrator, and the ECS must have an EIP bound.

For details, see Logging In to a Windows ECS from a Mac.

## Logging In to a Linux ECS

The method of logging in to an ECS varies depending on the login authentication configured during ECS creation.



- To log in to a password-authenticated ECS for the first time, use one of the following methods:
  - Using VNC on the management console with login username root
    For details, see Logging In to a Linux ECS Using VNC.
  - Using an SSH password

The login username is **root**, and the ECS must have an EIP bound.

For details, see Logging In to a Linux ECS Using an SSH Password.

From a mobile terminal

The login username is **root**, and the ECS must have an EIP bound.

For details, see Logging In to a Linux ECS from a Mobile Terminal.

• To log in to a key-pair-authenticated ECS for the first time, use a tool, such as PuTTY or Xshell, and the desired SSH key as user **root**. Ensure that the ECS has an EIP bound.

For instructions about how to log in to a Linux ECS using an SSH key, see **Logging In to a Linux ECS Using an SSH Key Pair**.

#### **NOTE**

If you want to log in to an ECS using VNC provided on the management console, log in to the ECS using an SSH key, configure the login password, and use the password for login.

## **Follow-up Procedure**

• If you have added a data disk during ECS creation, you must initialize the data disk after logging in to the ECS.

For details, see Initialization Overview.

• Certain ECSs require the installation of a driver after you log in to them. For details about available ECS types and functions, see ECS Types. For details about constraints on using different types of ECSs, see their notes.

## 5.2.3 Why Can't I Log In to My Windows ECS?

## Symptom

A Windows ECS cannot be logged in to due to some reasons. For example, the network is abnormal, the firewall does not allow access to the local port for accessing the remote desktop, or the ECS vCPUs are overloaded.

This section describes how to troubleshoot login failures on a Windows ECS.

If you cannot log in to your Windows ECS, follow the instructions provided in **Checking the VNC Login**. Then, locate the login fault by referring to **Fault Locating**.

## Checking the VNC Login

Check whether you can log in to the ECS using VNC on the management console.

#### **NOTE**

See **What Are the Login Requirements for ECSs?** to learn the requirements for logging in to an ECS.

- 1. Log in to the management console.
- 2. Under Compute, choose Elastic Cloud Server.
- 3. In the **Operation** column of the target ECS, click **Remote Login**.

#### Figure 5-10 Remote Login

	C	
		Q
Enterprise Project	Operation	
	Remote Login	More 🔻

4. (Optional) When the system displays "Press Ctrl+Alt+Delete to unlock", click **Ctrl+Alt+Del** in the upper part of the remote login page to log in to the ECS.

#### Figure 5-11 Ctrl+Alt+Del

🔁 Send Remote Command 🗸	Ctrl+Alt+Del	Local Cursor	🖻 Paste & Send	Full Screen 💿

For details about common VNC login issues, see VNC Login.

If the VNC login still fails, record the resource details and fault occurred time. Then, choose **Service Tickets** > **Create Service Ticket** in the upper right corner of the management console to submit a ticket.

## Self-Service Troubleshooting

ECS provides self-service tools to help you diagnose and troubleshoot your ECSs. If you cannot log in to your ECS, you can use self-service tools to check the host, security group, memory, and disk status of the ECS for troubleshooting.

For details, see Can I Troubleshoot ECSs By Myself?

If the fault persists, record the abnormal items in the diagnosis report and submit a service ticket (in the upper right corner of the management console) for technical support.

## Fault Locating

If you can log in to the ECS using VNC but cannot log in to the ECS using a remote desktop connection, locate the fault as follows.

The following fault causes are sequenced based on their occurrence probability.

If the fault persists after you have ruled out a cause, check other causes.

Possible Cause	Solution
The ECS is frozen or stopped.	Make sure that the ECS is in the <b>Running</b> state. For details, see <b>Checking the ECS Status</b> .
The entered username or password is incorrect.	The default username for Windows ECSs is <b>Administrator</b> . If the password is incorrect, reset the password on the management console. For details, see <b>Checking the Login Mode</b> .
The ECS is overloaded.	If the bandwidth or CPU usage of the ECS is excessively high, login failures may occur. For details, see <b>Checking Whether the ECS Is Overloaded</b> .
The ECS has no EIP bound.	To log in to an ECS using RDP or MSTSC, ensure that the ECS has an EIP bound. For details, see <b>Checking Whether an ECS Has an EIP Bound</b> .
The access is blocked by the Internet service provider (ISP).	Check whether you can access the ECS using another hotspot or network. For details, see <b>Checking Whether the Network Is Normal</b> .
The access is blocked by the firewall.	Disable the firewall and try again. For details, see Checking Whether the Firewall Is Correctly Configured.

Table 5-1 Possible causes and solutions

Possible Cause	Solution
The remote login port has been disabled in the security group or on the ECS.	Check whether the security group and the ECS allow traffic on the remote login port. For details, see Checking Whether the Remote Access Port Is Correctly Configured.
An IP address whitelist for SSH logins has been configured.	Check whether an SSH login IP address whitelist is configured after HSS is enabled. For details, see Checking the IP Address Whitelist for SSH Logins (with HSS Enabled).
The remote desktop protocol has been disabled on the ECS.	Make sure that the remote desktop protocol has been enabled on the ECS (only required for RDP and MSTSC logins). For details, see <b>Checking the Remote Desktop</b> <b>Protocol on the ECS</b> .
The access is blocked by third- party antivirus software.	Disable or uninstall the third-party antivirus software and try again. For details, see Checking Whether the Access Is Blocked by Antivirus Software.
The cause is displayed in the error message.	If an error message is displayed during remote login, check the operation guide based on the error information. For details, see <b>Checking Whether an Error</b> <b>Occurred During a Remote Login</b> .

## Checking the ECS Status

Check whether the ECS is in the **Running** state on the management console. If the ECS is stopped, start it and try to log in to the ECS again.

Figure 5-12 Checking the ECS status

Elastic Cloud Server ⑦				
We would much appreciate if you could complete ou	r questionnaire on El	lastic Cloud Server. Y	our feedback will help us provid	le a better user experience.
Start Stop Reset Password	More 💌			
Searched by name by default.				
Name/ID	Monitoring	AZ 🏹	Status 🏹	Specifications/Image
ecs-edc2 456cd9a2-3b33-4fba-aa58-94562ce66ac5		AZ2	Running	2 vCPUs   4 GB   c6.large.2 Windows Server 2012 R2 Stand

## Checking the Login Mode

Check the login mode you set when you created the ECS.

Login Mode	Password	Key pair	Set password later
Username	Administrator		
Password	Keep the password secure. If y	you forget the password, you c	an log in to the ECS console a
	•••••		
Confirm Decouverd			
Confirm Password			

- **Password**: Check whether the login password is correct. If you forgot your password, reset the password. After you reset the password, restart the ECS for the new password to take effect.
- **Key pair**: If your ECS is authenticated using a key pair, parse the private key file to obtain a password.
  - a. In the **Operation** column of ECS whose password is to be obtained, click **More** and choose **Get Password**.
  - b. Copy the content of the private key file and paste it into the text box. Click **Get Password** to obtain a new random password.
- Set password later: If you did not set a login mode when you create an ECS, you can reset the password on the ECS console by choosing More > Reset
  Password in the Operation column of the target ECS. After you reset the password, restart the ECS for the new password to take effect.

## **Checking Whether the ECS Is Overloaded**

Figure 5-13 Login Mode

If the bandwidth or CPU usage of the ECS is excessively high, login failures may occur.

If you have created an alarm rule in Cloud Eye, the system automatically sends an alarm notification to you when the bandwidth or CPU usage reaches the threshold specified in the rule.

To resolve this issue, perform the operations described in **Why Is My Windows ECS Running Slowly?** 

- If the login failure is caused by high CPU usage, perform the following operations to reduce the CPU usage:
  - Stop certain processes that are not used temporarily and try again.
  - Verify that the Windows Update process is not running on the backend.
  - Restart the ECS.
  - Reinstall the ECS OS. Back up important data before the reinstallation.
  - If the ECS OS cannot be reinstalled due to important data, replace the disk attached to the ECS. To do so, back up data on the original disk, detach the disk from the ECS, attach the new disk to the ECS, and copy data to the new disk.

You can also upgrade the vCPUs and memory by **modifying ECS specifications**.

• If the login fails because the bandwidth exceeds the limit, perform the following operations:

Check whether the bandwidth exceeds the configured bandwidth size. For details, see **How Do I Know If My EIP Bandwidth Limit Has Been Exceeded?** 

If the bandwidth exceeds the limit, increase the bandwidth. For details, see **Changing an EIP Bandwidth**.

#### D NOTE

If network jitter or packet loss occurs frequently, dynamic BGP may be used in crossborder access. In this case, you are advised to use premium BGP.

For details, see **Why Is There Network Jitter or Packet Loss During Cross-Border Communications**?

After you perform the preceding operations, try to remotely log in to the ECS again.

## Checking Whether an ECS Has an EIP Bound

An ECS can access the Internet only after it has an EIP bound.

Before logging in to an ECS using RDP or MSTSC, make sure that an EIP has been bound to the ECS. For details, see **Assigning an EIP**.

**NOTE** 

If you log in to an ECS over an intranet, for example, using VPN or Direct Connect, you do not need to bind an EIP to the ECS.

## **Checking Whether the Network Is Normal**

Use a local PC in another network or use another hotspot to access the ECS. Check whether the fault occurs on the local network. If so, contact the carrier to resolve this issue.

After you perform the preceding operations, try to remotely log in to the ECS again.

## Checking Whether the Firewall Is Correctly Configured

Check whether the firewall is enabled.

- 1. Log in to the Windows ECS.
- Click the Windows icon in the lower left corner of the desktop and choose Control Panel > System and Security > Windows Firewall.

#### Figure 5-14 Windows Firewall



3. Click **Check firewall status** and select **Turn on Windows Firewall** or **Turn off Windows Firewall**.

View and set the firewall status.

#### Figure 5-15 Turn off Windows Firewall

	Customize Settings	X
0.	↑ 🔐 « Windows Firewall ト Customize Settings v ৫ Search Control Panel	P
	Customize settings for each type of network	
	You can modify the firewall settings for each type of network that you use.	
	Private network settings	
	👔 🔿 Turn on Windows Firewall	
	Block all incoming connections, including those in the list of allowed apps	
	Notify me when Windows Firewall blocks a new app	
	Turn off Windows Firewall (not recommended)	
	Public network settings	
	📎 🔿 Turn on Windows Firewall	
	Block all incoming connections, including those in the list of allowed apps	
	Notify me when Windows Firewall blocks a new app	
	Turn off Windows Firewall (not recommended)	

Ensure that the remote access port on the local end is allowed on the firewall. The default port is TCP 3389.

If the port configured in the inbound rule of the firewall is different from that configured on the remote server, the remote login will fail. If this occurs, add the port configured on the remote server in the inbound rule of the firewall.

For details, see How Do I Disable a Windows ECS Firewall and Add a Port Exception on a Windows ECS Firewall?

#### **NOTE**

The default port is 3389. If you use another port, add that port in the inbound rule of the firewall.

After you perform the preceding operations, try to remotely log in to the ECS again.

## Checking Whether the Remote Access Port Is Correctly Configured

1. Check whether port 3389 (used by default) on the ECS is accessible.

Ensure that port 3389 has been added in the inbound rule.

On the ECS details page, click the **Security Groups** tab and check port 3389 in the inbound rule of the security group.

#### Figure 5-16 Checking remote access ports

Summary Disks Network In	terfaces Security	Groups	Ps Monitoring	Tags	
Change Security Group					
∧ Sys-default					
Outbound Rules 2	Inbound Rules 20	ID			
Transfer Direction		Туре		Protocol	Port Range/ICMP Type
Inbound		IPw4		TCP	3389

If you need to modify security group rules, see **Modifying a Security Group Rule**.

- 2. Check whether the remote connection port is changed.
  - a. Choose **Start** > **Run**, enter **cmd**, and press **Enter**. In the CLI, enter **regedit** to open **Registry Editor**.
  - b. In HKEY\_LOCAL\_MACHINE\System\CurrentControlSet\Control \TerminalServer\WinStations\RDP Tcp\PortNumber, check whether the port is the default port 3389. If not, change the port to port 3389.

WinStations	80 OutBufLength	REG_DWORD	0x00000212 (530)
🗈 🍌 Console	ab Password	REG_SZ	
RDP-Tcp	88 PdClass	REG_DWORD	0x00000002 (2)
TimeZoneInformation	PdClass 1	REG_DWORD	0x000000b (11)
👃 Ubpm	ab PdDLL	REG_SZ	tdtcp
usbflags	ab PdDLL1	REG_SZ	tssecsrv
usbstor	<b>PdFlag</b>	REG_DWORD	0x0000004e (78)
A VAN	PdFlag1	REG DWORD	0x00000000 (0)
Video	ab PdName	REG_SZ	tcp
Watchdog	ab PdName 1	REG SZ	tssecsrv
WDI	PortNumber	REG_DWORD	0x00000d3d (3389)
Windows	SecurityLayer	REG_DWORD	0x00000001(1)
Winlogon	38 Shadow	REG_DWORD	0x00000001 (1)
Winresume	30 User Authentication	REG_DWORD	0x00000000 (0)
WMI	abUsername	REG_SZ	

3. Check whether the number of connections is limited.

Check the internal remote desktop configuration of the ECS.

a. Choose **Start** > **Run**, enter **cmd**, and press **Enter**. In the CLI, enter **gpedit.msc** to open **Local Group Policy Editor**.

 b. Choose Computer Configuration > Administrative Templates > Windows Components > Remote Desktop Services > Remote Desktop Session Host > Connections. Then, in the Limit number of connections dialog box, check whether the number of connections is limited.



**NOTE** 

If **Limit number of connections** is set to **Enabled**, a remote connection to the Windows ECS may fail when the number of connections exceeds the limit. In such a case, disable **Limit number of connections** or set a larger limit for connections.

After you perform the preceding operations, try to remotely log in to the ECS again.

## Checking the IP Address Whitelist for SSH Logins (with HSS Enabled)

After HSS is enabled, you can configure an IP address whitelist for SSH logins as required. The IP address whitelist controls SSH access to ECSs, effectively preventing account cracking.

After you configure the allowlist, SSH logins will be allowed only from IP addresses in the allowlist.

- 1. On the **Events** page, check whether a local host IP address is intercepted due to brute force cracking.
- 2. Check whether the IP address whitelist for SSH logins has been enabled. If it has been enabled, ensure that the IP address of the local host has been added to the IP address whitelist.

#### 

- Before enabling this function, ensure that all IP addresses that need to initiate SSH logins are added to the allowlist. Otherwise, you cannot remotely log in to your ECS through SSH.
- Exercise caution when adding a local IP address to the allowlist. This will make HSS no longer restrict access from this IP address to your ECSs.

For more details, see **Configuring Server Login Protection**.

## Checking the Remote Desktop Protocol on the ECS

Make sure that the remote desktop protocol has been enabled on the ECS (only required for RDP and MSTSC logins).

Log in to the ECS using VNC and enable the remote desktop protocol.

For details, see **Enabling RDP**.

#### Checking Whether the Access Is Blocked by Antivirus Software

Third-party antivirus software may lead to a failure in accessing the ECS.

If third-party antivirus software is running, check whether the remote connection is blocked by the software. If the remote connection is blocked, add the EIP bound to the ECS to the whitelist of the antivirus software and try to access the ECS again.

You can also disable or uninstall the third-party antivirus software and try to remotely log in to the ECS again.

## Checking Whether an Error Occurred During a Remote Login

If an error message is displayed during remote login, check the operation guide based on the error information.

For details, see Remote Login Errors on Windows.

If the fault persists, record the resource details and fault occurred time, and contact technical support for assistance

If the fault persists after the preceding operations are performed, record the resource details and fault occurred time. Then, choose **Service Tickets** > **Create Service Ticket** in the upper right corner of the management console to submit a ticket.

## 5.2.4 Why Can't I Log In to My Linux ECS?

## Symptom

A Linux ECS cannot be logged in to due to some reasons. For example, the network is abnormal, the firewall does not allow access to the local port for accessing the remote desktop, or the ECS vCPUs are overloaded.

This section describes how to troubleshoot login failures on a Linux ECS.

If you cannot log in to your Linux ECS, follow the instructions provided in **Checking the VNC Login**. Then, locate the login fault by referring to **Fault Locating**.

## Checking the VNC Login

Check whether you can log in to the ECS using VNC on the management console.

#### D NOTE

See **What Are the Login Requirements for ECSs?** to learn the requirements for logging in to an ECS.

- 1. Log in to the management console.
- 2. Under Compute, choose Elastic Cloud Server.
- 3. In the **Operation** column of the target ECS, click **Remote Login**.

#### Figure 5-17 Remote Login

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		Q
Enterprise Project	Operation	
	Remote Login	More 🔻

4. (Optional) When the system displays "Press CTRL+ALT+DELETE to log on", click **Ctrl+Alt+Del** in the upper part of the remote login page to log in to the ECS.

#### **NOTE**

Do not press **CTRL+ALT+DELETE** on the physical keyboard because this operation does not take effect.

If the VNC login still fails, record the resource details and fault occurred time. Then, choose **Service Tickets** > **Create Service Ticket** in the upper right corner of the management console to submit a ticket.

## Self-Service Troubleshooting

ECS provides self-service tools to help you diagnose and troubleshoot your ECSs. If you cannot log in to your ECS, you can use self-service tools to check the host, security group, memory, and disk status of the ECS for troubleshooting.

For details, see Can I Troubleshoot ECSs By Myself?

If the fault persists, record the abnormal items in the diagnosis report and submit a service ticket (in the upper right corner of the management console) for technical support.

## Fault Locating

If you can log in to the ECS using VNC but cannot log in to the ECS using a remote desktop connection, locate the fault as follows.

The following fault causes are sequenced based on their occurrence probability.

If the fault persists after you have ruled out a cause, check other causes.

Table 5-2 Possible causes and solutions

Possible Cause	Solution
The ECS is frozen or stopped.	Make sure that the ECS is in the <b>Running</b> state. For details, see <b>Checking the ECS Status</b> .
The entered username or password is incorrect.	The default username for Linux ECSs is <b>root</b> . If the password is incorrect, reset the password on the management console. For details, see <b>Checking the Login Mode</b> .
The ECS is overloaded.	If the bandwidth or CPU usage of the ECS is excessively high, login failures may occur. For details, see <b>Checking Whether the ECS Is Overloaded</b> .
The ECS has no EIP bound.	To log in to an ECS using RDP or MSTSC, ensure that the ECS has an EIP bound. For details, see <b>Checking Whether an ECS Has an EIP Bound</b> .
The access is blocked by the ISP.	Check whether you can access the ECS using another hotspot or network. For details, see <b>Checking Whether the Network Is Normal</b> .
The security group of the ECS denies inbound traffic on the remote login port.	Check whether the security group allows inbound traffic on the remote login port. For details, see Checking Whether the Security Group Is Correctly Configured.
The remote access port is incorrectly configured.	Check whether the remote access port is correctly configured on the local computer and the ECS. For details, see Checking Whether the Remote Access Port Is Correctly Configured.
An IP address whitelist for SSH logins has been configured.	Check whether an SSH login IP address whitelist is configured after HSS is enabled. For details, see Checking the IP Address Whitelist for SSH Logins (with HSS Enabled).
An OS fault has occurred.	The file system is damaged. For details, see <b>Checking</b> Whether an OS Fault Has Occurred.
The access is blocked by third- party antivirus software.	Disable or uninstall the third-party antivirus software and try again. For details, see <b>Checking Whether the</b> <b>Access Is Blocked by Antivirus Software</b> .

Possible Cause	Solution
The cause is displayed in the error message.	If an error message is displayed during remote login, check the operation guide based on the error information. For details, see <b>Checking Whether an Error</b> <b>Occurred During a Remote Login</b> .

## Checking the ECS Status

Check whether the ECS is in the **Running** state on the management console. If the ECS is stopped, start it and try to log in to the ECS again.

Figure 5-18 Checking the ECS status

Elastic Cloud Server ⑦				
• We would much appreciate if you could complete our o	juestionnaire o	n Elastic Clou	d Server. Your feedba	ack will help us provide a better user e
Start Stop Reset Password Mo	ere 🔻			
Name/ID	Monitori	AZ 🏹	Status 7	Specifications/Image
ecs-7751 df774eeb-6040-4053-9a43-d8cc652fe010	<u>困</u>	AZ2	Running	2 vCPUs   4 GB   c6.large.2 CentOS 8.0 64bit

## Checking the Login Mode

Check the login mode you set when you created the ECS.

#### Figure 5-19 Login Mode

Login Mode	Password	Key pair	Set password later
Username	root		
Password	Keep the password secure. If y	you forget the password, you c	an log in to the ECS console a
	•••••		
Confirm Docoword	·		

- **Password**: Check whether the login password is correct. If you forgot your password, reset the password. After you reset the password, restart the ECS for the new password to take effect.
- Key pair
  - For the first login, use an SSH key. For details, see Remotely Logging In to a Linux ECS (Using an SSH Key Pair).
  - For a non-first login, if you want to use the remote login function (VNC) provided by the management console, log in to the ECS using the SSH key and set the password.

Set password later: If you did not set a login mode when you create an ECS, you can reset the password on the ECS console by choosing More > Reset
 Password in the Operation column of the target ECS. After you reset the password, restart the ECS for the new password to take effect.

## Checking Whether the ECS Is Overloaded

If the bandwidth or CPU usage of the ECS is excessively high, login failures may occur.

If you have created an alarm rule in Cloud Eye, the system automatically sends an alarm notification to you when the bandwidth or CPU usage reaches the threshold specified in the rule.

To resolve this issue, perform the operations described in **Why Is My Linux ECS Running Slowly?** 

- If the login failure is caused by high CPU usage, perform the following operations to reduce the CPU usage:
  - Stop certain processes that are not used temporarily and try again.
  - Restart the ECS.
  - Reinstall the ECS OS. Back up important data before the reinstallation.
  - If the ECS OS cannot be reinstalled due to important data, replace the disk attached to the ECS. To do so, back up data on the original disk, detach the disk from the ECS, attach the new disk to the ECS, and copy data to the new disk.

You can also upgrade the vCPUs and memory by **modifying ECS specifications**.

• If the login fails because the bandwidth exceeds the limit, perform the following operations:

Check whether the bandwidth exceeds the configured bandwidth size. For details, see **How Do I Know If My EIP Bandwidth Limit Has Been Exceeded?** 

If the bandwidth exceeds the limit, increase the bandwidth. For details, see **Changing an EIP Bandwidth**.

#### **NOTE**

If network jitter or packet loss occurs frequently, dynamic BGP may be used in crossborder access. In this case, you are advised to use premium BGP.

For details, see **Why Is There Network Jitter or Packet Loss During Cross-Border Communications**?

After you perform the preceding operations, try to remotely log in to the ECS again.

#### Checking Whether an ECS Has an EIP Bound

If you need to use a remote login tool (such as PuTTY or Xshell) to access the ECS, bind an EIP to the ECS.

For details, see Assigning an EIP.

## **Checking Whether the Network Is Normal**

Use a local PC in another network or use another hotspot to access the ECS. Check whether the fault occurs on the local network. If so, contact the carrier to resolve this issue.

After you perform the preceding operations, try to remotely log in to the ECS again.

## Checking Whether the Security Group Is Correctly Configured

Check whether the local host can access port 22 on the ECS.

Run the following command to check whether port 22 is accessible:

#### telnet ECS private IP address

If port 22 is inaccessible, check whether port 22 is opened in the security group rule.

On the ECS details page, click the **Security Groups** tab and check that port 22 is configured in the inbound rule of the security group.

#### Figure 5-20 Checking remote access ports

< ecs-edc2			
Summary Disks NICs	Security Groups	EIPs Monitoring	Tags
Change Security Group			
∧ Sys-WebServer			
Outbound Rules 1	Inbound Rules 2	ID 0d0a0462-2df9-4795-98	Ba8-6d65d2025ed6
Transfer Direction	Туре	Protocol	Port Range/ICMP Type
Inbound	IPv4	тср	3389
Inbound	IPv4	ТСР	22
Outbound	IPv4	Any	Any

For details about how to modify a security group rule, see **Modifying a Security Group Rule**.

After you perform the preceding operations, try to remotely log in to the ECS again.

## Checking Whether the Remote Access Port Is Correctly Configured

Check ECS settings.

- 1. Check whether the sshd process is running.
- 2. Check whether your local PC is denied by the ECS.
  - a. Log in to the ECS and run the following command:

#### vi /etc/hosts.deny

b. If the IP address of the local PC is in the **hosts.deny** file, the ECS denies connection attempts from the local PC. In such a case, delete the IP address from the file.

3. Open the **/etc/ssh/ssh\_config** file in the local PC and view the default login port. Then, open the **/etc/ssh/sshd\_config** file in the ECS and check whether the SSH port is the default port 22.



After you perform the preceding operations, try to remotely log in to the ECS again.

## Checking the IP Address Whitelist for SSH Logins (with HSS Enabled)

After HSS is enabled, you can configure an IP address whitelist for SSH logins as required. The IP address whitelist controls SSH access to ECSs, effectively preventing account cracking.

After you configure the allowlist, SSH logins will be allowed only from IP addresses in the allowlist.

- 1. On the **Events** page, check whether a local host IP address is intercepted due to brute force cracking.
- 2. Check whether the IP address whitelist for SSH logins has been enabled. If it has been enabled, ensure that the IP address of the local host has been added to the IP address whitelist.

## 

- Before enabling this function, ensure that all IP addresses that need to initiate SSH logins are added to the allowlist. Otherwise, you cannot remotely log in to your ECS through SSH.
- Exercise caution when adding a local IP address to the allowlist. This will make HSS no longer restrict access from this IP address to your ECSs.

For more details, see Configuring Server Login Protection.

## Checking Whether an OS Fault Has Occurred

• Password injection failure

The password failed to be injected using Cloud-Init.

• File system damaged after a forcible stop

There is a low probability that the file system is damaged after a forcible stop, which causes the ECS fails to be restarted. For details, see **Why Does a Forcibly-Stopped Linux ECS Fail to Be Restarted?** 

After you perform the preceding operations, try to remotely log in to the ECS again.

## Checking Whether the Access Is Blocked by Antivirus Software

Third-party antivirus software may lead to a failure in accessing the ECS.

If third-party antivirus software is running, check whether the remote connection is blocked by the software. If the remote connection is blocked, add the EIP bound to the ECS to the whitelist of the antivirus software and try to access the ECS again.

You can also disable or uninstall the third-party antivirus software and try to remotely log in to the ECS again.

## Checking Whether an Error Occurred During a Remote Login

If an error message is displayed during remote login, check the operation guide based on the error information.

For details, see Remote Login Errors on Linux.

If the fault persists, record the resource details and fault occurred time, and contact technical support for assistance.

If the fault persists after the preceding operations are performed, record the resource details and fault occurred time. Then, click **Service Tickets** in the upper right corner of the management console, choose **Create Service Ticket**, and submit a ticket for technical support.

## 5.2.5 What Should I Do If I Cannot Use MSTSC to Log In to an ECS Running the Windows Server 2012 OS?

## Symptom

An ECS running the Windows Server 2012 OS has password authentication configured during ECS creation. When a user used the initial password and MSTSC to log in to the ECS, the login failed and the system displayed the message "You must change your password before logging on for the first time. Please update your password or contact your system administrator or technical support."

## **Possible Causes**

The local computer used by the user is running the Windows 10 OS.

Due to limitations, the Windows 10 OS does not support remote logins to an ECS running the Windows Server 2012 OS using the initial password.

## Solutions

Solution 1

Use a local computer running the Windows 7 OS to remotely log in to the ECS running the Windows Server 2012 OS.

• Solution 2 Retain the original local computer and change the initial login password.

- a. Use VNC to log in to the ECS running the Windows Server 2012 OS for the first time.
- b. Change the login password as prompted.
- c. Use the changed password and MSTSC to log in to the ECS again.
- Solution 3:

Retain the original local computer and initial login password.

a. Choose **Start**. In the **Search programs and files** text box, enter **mstsc** and press **Enter**.

The **Remote Desktop Connection** page is displayed.

- Enter the EIP and click **Connect**. Then, use username **administrator** and the login password configured during ECS creation for connection.
   The connection fails, and the system displays the message "You must change your password before logging on for the first time. Please update your password or contact your system administrator or technical support."
- c. Click **Options** in the lower left corner of the **Remote Desktop Connection** page.
- d. On the **General** tab, click **Save As** in the **Connection settings** pane and save the remote desktop file in .rdp format.
- e. Open the .rdp file saved in **d**.
- f. Add the following statement to the last line of the .rdp file and save the file.

#### enablecredsspsupport:i:0

- g. Double-click the edited .rdp file to set up the remote desktop connection.
- h. Click **Connect** to connect to the ECS running the Windows Server 2012 OS again.

## 5.2.6 How Can I Change a Remote Login Port?

## Scenarios

This section describes how to change a port for remote logins.

## Windows

The following procedure uses an ECS running Windows Server 2012 as an example. The default login port of a Windows ECS is 3389. To change it to port 2020, for example, do as follows:

- 1. Modify the security group rule.
  - a. Log in to the management console.
  - b. Click 🕺 in the upper left corner and select your region and project.
  - c. Click = . Under **Compute**, click **Elastic Cloud Server**.
  - d. On the ECS list, click the name of an ECS for which you want to modify the security group rule.

- e. On the ECS details page, click the security group in the **Security Groups** area to go to the security group details page.
- f. On the **Inbound Rules** tab, click **Add Rule**. In the displayed dialog box, set **Protocol & Port** as follows:
  - Protocols: TCP (Custom ports)
  - Port: 2020

For details, see Adding a Security Group Rule.

- 2. Log in to the ECS.
- 3. In the **Run** dialog box, enter **regedit** to access the registry editor.
- In Registry Editor, choose HKEY\_LOCAL\_MACHINE > SYSTEM > CurrentControlSet > Control > Terminal Server > Wds > rdpwd > Tds > tcp and double-click PortNumber.
  - a. In the dialog box that is displayed, set **Base** to **Decimal**.
  - b. Change the value in **Value data** to the new port number, which is **2020** in this example.

Figure 5-21 Changing the port number to 2020

Edit DWORD	(32-bit) Value
Value name: PortNumber	
Value data: 2020	Base O Hexadecimal O Decimal
	OK Cancel

- In Registry Editor, choose HKEY\_LOCAL\_MACHINE > SYSTEM > CurrentControlSet > Control > Terminal Server > WinStations > RDP-Tcp and double-click PortNumber.
  - a. In the dialog box that is displayed, set **Base** to **Decimal**.
  - b. Change the value in **Value data** to the new port number, which is **2020** in this example.

Figure 5-22 Changing the port number to 2020

Edit DV	VORD (32-bit) Value
Value name: PortNumber Value data: 2020	Base O Hexadecimal O Decimal

6. (Skip this step if the firewall is disabled.) Modify the inbound rules of the firewall.

Choose Control Panel > Windows Firewall > Advanced Settings > Inbound Rules > New Rule.

- Rule Type: Port
- Protocol in Protocol and Ports: TCP
- Port in Protocol and Ports: Specific local ports, 2020 in this example
- Action: Allow the connection
- **Profile**: Default settings
- Name: RDP-2020

After the configuration, refresh the page to view the new rule.

7. Open the Windows search box, enter **services**, and select **Services**.

#### Figure 5-23 Selecting Services



- 8. In the Services window, restart Remote Desktop Services or the ECS.
- 9. Use "IP address:Port" to remotely access the ECS.

#### Figure 5-24 Remote Desktop Connection

퉣 Remote	Desktop Connection	_		$\times$
<b>N</b>	Remote Desktop Connection			
Computer:	2020	~		
Username: You will be a	None specified sked for credentials when you conn	ect.		
Show Q	ptions	Connect	He	elp

## Linux

The following procedure uses an ECS running CentOS 7.3 as an example. The default login port of a Linux ECS is 22. To change it to port 2020, for example, do as follows:

- 1. Modify the security group rule.
  - a. Log in to the management console.
  - b. Click 💿 in the upper left corner and select your region and project.
  - c. Click  $\equiv$  . Under Compute, click Elastic Cloud Server.
  - d. On the ECS list, click the name of an ECS for which you want to modify the security group rule.
  - e. On the ECS details page, click the security group in the **Security Groups** area to go to the security group details page.
  - f. On the **Inbound Rules** tab, click **Add Rule**. In the displayed dialog box, set **Protocol & Port** as follows:
    - Protocols: TCP (Custom ports)
    - Port: 2020

For details, see Adding a Security Group Rule.

- 2. Log in to the ECS.
- 3. Run the following command to edit the sshd configuration file:

## vi /etc/ssh/sshd\_config

4. Delete the comment tag (#) from the **#port 22** line and change **22** to **2020**.

Figure 5-25 Changing the port number to 2020



- 5. Press **Esc** to exit Insert mode and enter :wq! to save the settings and exit.
- 6. Run either of the following commands to restart sshd:

service sshd restart

Or

#### systemctl restart sshd

7. Skip this step if the firewall is disabled. Configure the firewall.

The firewall varies depending on the CentOS version. CentOS 7 uses firewalld, and CentOS 6 uses iptables. The following operations use CentOS 7 as an example.

Run the **firewall-cmd --state** command to check the firewall status.

- (Recommended) Method 1: Add information about a new port to firewalld.
  - i. Run the following commands to add a rule for port 2020:

firewall-cmd --zone=public --add-port=2020/tcp --permanent firewall-cmd --reload

ii. View the added port. The TCP connection of port 2020 will have been added.

#### firewall-cmd --list-all

iii. Restart firewalld.

#### systemctl restart firewalld.service

 Method 2: Disable the firewall and the function of automatically enabling the firewall upon ECS startup.

#### systemctl stop firewalld

#### systemctl disable firewalld

8. Run the following command to check whether the port is open:

#### telnet EIP port

For example: telnet xx.xx.xx.xx 2020

## 5.2.7 Why Cannot I Use a Non-Default SSH Port to Log In to My Linux ECS?

## Symptom

After changing the default SSH port, you could not use the new port to log in to the ECS.

## **Possible Causes**

- The access to the new port is not allowed in the security group.
- The new port is not enabled on the firewall.
- The new port is not added to the SSH configuration file.
- The hosts configuration file is incorrectly configured.

## **Checking Security Group Rules**

Check whether the security group is correctly configured.

For example, if the new SSH port number is 2020, ensure that there is a security group rule without restriction in the outbound direction and allowing access to this port in the inbound direction.

## **Checking Firewall Rules**

Run the **iptables** command to check whether the new SSH port, for example, port 2020 is enabled on the firewall.

- 1. Log in to the Linux ECS.
- 2. Take CentOS 7.5 as an example. Run the following command to edit the iptables file:

#### vi /etc/sysconfig/iptables

- 3. Add a rule for port 2020. -A INPUT -m state -state NEW -m tcp -p tcp -dport 2020 -j ACCEPT
- Restart iptables.
  systemctl restart iptables

## **Checking the SSH Configuration File**

Log in to the ECS and check the SSH configuration file.

- Run the following command to check whether port 2020 has been configured: vi /etc/ssh/sshd config
- 2. If the port has not been configured, replace **#Port 22** with **Port 2020**.
- 3. Run the following command to restart SSH:

service sshd restart

## Checking the hosts Configuration File

The **/etc/hosts.allow** and **/etc/hosts.deny** files of a Linux ECS are used to permit or deny an IP address or an IP address segment, respectively, to remotely access the ECS using SSH.

- 1. Add the following statement to **/etc/hosts.allow** to allow the IP address 192.168.1.3 to access the ECS using SSH: sshd: 192.168.1.3
- 2. Check /etc/hosts.deny. If sshd:all:deny is contained, comment it out.

#### D NOTE

If a rule is set in both **hosts.allow** and **hosts.deny**, the rule in **hosts.allow** takes precedence. For example, if "sshd: 192.168.1.3" is set in **hosts.allow** and "sshd:all:deny" is set in **hosts.deny**, the ECS allows only the SSH login from IP address 192.168.1.3.

## 5.2.8 Why Can't I Obtain the Password for Logging In to My Windows ECS Authenticated Using a Key Pair?

## Symptom

A private key cannot be used to obtain the password for logging in to a Windows ECS that is authenticated using a key pair.

## **Possible Causes**

The password fails to inject using Cloudbase-Init due to:

- A network fault, leading to the failure of the connection from the ECS to the Cloudbase-Init server.
- No configuration on the image for Cloudbase-Init to obtain the password.
- Other reasons.

## Solution

If logging in to an ECS with Cloudbase-Init enabled failed, perform the following operations to locate the fault:

- 1. Ensure that Cloudbase-Init has been correctly configured on the image that was used to create the ECS.
  - If Cloudbase-Init has not been configured, your ECS will not allow customized configurations, and you can log in to it only by using the original image password.
  - The ECSs created using a public image have Cloudbase-Init installed by default. You do not need to install and configure Cloudbase-Init anymore.
  - If you created your ECS by using an external image file, install and configure Cloudbase-Init.

For details, see Installing and Configuring Cloudbase-Init.

2. Ensure that the key pair for logging in to the ECS is correct.

The key used for obtaining the password must be the key used during the ECS creation.

3. Ensure that DHCP is enabled in the VPC to which the ECS belongs.

On the management console, check whether DHCP has been enabled in the target subnet.

#### Figure 5-26 DHCP

< subnet-01	( subnet-01			
Summary IP Ad	dresses Tags			
Subnet Information				
Name	subnet-01 🖉	Network ID	a9cf6d24-ad43-4f75-94d1-	
AZ	AZ1	IPv4 Subnet ID	8ebed57c-da93-4b01-bc1d-	
Status	Available	IPv6 Subnet ID	5652b65a-96e6-4248-9d2e	
VPC	vpc-01			
Available IP Addresses	207			
IPv4 CIDR Block				
IPv6 CIDR Block	2407:c080:1200			
Gateway and DNS In	formation			
DHCP	Enabled	Gateway	192.168.10.1	
DNS Server Address	100.125.1.250, 100.125.129.250 🖉 🕥	DHCP Lease Tim	e 1day 🖉 🕜	

- 4. Ensure that the ECS has an EIP bound.
- 5. Ensure that traffic to and from port 80 is allowed in security group rules.

#### Figure 5-27 Security group rules for port 80

Sys-WebServer		
mmary Inbound Rules Outbound Rules Associated Instance	es	
Add Rule Fast-Add Rule Delete Allow Common Ports	bound Rules: 13 Learn more a	about security group configuration.
Protocol & Port 🖓 (?)	Туре	Source ③
All	IPv4	0.0.0/0 ⑦
All	IPv4	Sys-WebServer ②
TCP:80	IPv4	0.0.0.0/0 ⑦
TCP:21	IPv4	0.0.0/0 ⑦

- 6. Check Cloudbase-Init logs to identify the cause.
  - a. Stop the affected ECS and detach the system disk from it.

#### Figure 5-28 Detaching the system disk

< ecs-13e5-5e7c	Start      Stop      Restart      Remote LogIn      More ▼
Summary Disks NICs Security Groups EIPs Monitoring Tags	
If new disks or disk additional capacities cannot be viewed on the server, restart the server to update disk information.   Ope Add Disk Attach Disk You can attach 23 more VBD disks or 58 more SCSI disks.	rations on disks after attachment   Operations on disks after capacity expansion
ecs-13e5-5e7c   System Disk   40GB	View Monitoring Data Expand Capacity Detach
pvc-a5913043-9793-4bcd-b567-cff7773da274   Data Disk   20GB	View Monitoring Data Expand Capacity Detach

- b. Use a public image to create a temporary Windows ECS and attach the system disk detached in **6.a** to the ECS.
- c. Log in to the temporary ECS, open the Server Manager page, choose File and Storage Services > Volumes > Disks, right-click the offline disk, and choose Online from the shortcut menu.

#### Figure 5-29 Setting disk online

Number Virtual Disk	Status	Capacity Unallocated	Partition
▲ ecs-1d6c (2)			
0	Offline	10.0 CP 10.0 CP	Unknown
1	Online	New Volume	MBR
		Bring Online	
		Take Offline	
		Reset Disk	

d. Switch to the **cloudbase-init** file in **/Program Files/Cloudbase Solution/ Cloudbase-Init/log** of this disk to view the log for fault locating.

#### Figure 5-30 cloudbase-init



## 5.2.9 What Browser Version Is Required to Remotely Log In to an ECS?

When you use a browser to remotely log in to an ECS, ensure that the browser version meets the requirements listed in **Table 5-3**.

Browser	Version
Google Chrome	31.0-75.0
Mozilla Firefox	27.0-62.0
Internet Explorer	10.0-11.0

Table 5-3 Browser version requirements

## 5.2.10 What Should I Do If I Cannot Access a Windows Server 2012 OS After Uninstalling Some Software?

## **Issue Description**

Installing applications on a Windows Server 2012 OS requires .net framework 3.5, and .net framework 4.5 delivered with the OS must be uninstalled. However, after the uninstallation, blank screen occurs or OS login fails.

## **Possible Causes**

After .net framework 4.5 is uninstalled, the system mode is changed from full to core, and the system desktop is not enabled.

## Handling Method

To handle this issue, perform the following operations to change the core mode back to full:

- 1. Log in to the ECS.
- 2. In the upper right corner, click **Send CtrlAltDel** and start the task manager.
- 3. Choose File > Run new task.

The **Create new task** page is displayed.

#### Figure 5-31 Creating a new task

	Create new task
	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	This task will be created with administrative privileges.
	OK Cancel Browse

- 4. In the **Open** text box, type **cmd** and press **Enter**.
- 5. Run the following command to change the system mode from core to full:

Dism /online /enable-feature /all /featurename:Server-Gui-Mgmt / featurename:Server-Gui-Shell /featurename:ServerCore-FullServer

6. After about 10 minutes, the system displays a message, asking you whether to restart the system. In such a case, press **Y** to restart the system.

You can access the desktop after logging in to the ECS again.

## 5.2.11 How Can I Log In to an ECS After It Exchanged the System Disk with Another ECS Running the Same OS?

## Symptom

Two pay-per-use ECSs run the same OS, for example, both run Windows or Linux. The system disks attached to the two stopped ECSs are exchanged. After the exchange, the passwords or keys used to log in to the ECSs may change. In this case, how do I log in to the ECS whose system disk has been replaced?

#### **NOTE**

Before stopping an ECS for disk detachment, release the IP address assigned to the ECS using DHCP so that ECS can correctly obtain an IP address later. To do so, perform the following operations:

- 1. Log in to the Windows ECS.
- 2. Run the following command to release the IP address:

#### ipconfig /release

This operation will interrupt network connections and affect the use of the ECS. After the ECS is restarted, network connections will automatically recover.

#### Windows

Login methods vary according to the login authentication used on the ECSs. Assume that there are three Windows ECSs and they are configured as shown in Table 5-4.

ECS	System Disk	Login Authenticati on	Password/Key Pair
ecs_01	vol_01	Password or key pair	If a password is used for login authentication, take <b>Ecs@01</b> as an example.
			If a key pair is used for login authentication, take private key file <b>Keypair_01</b> as an example.
ecs_02	vol_02	Password	Ecs@02
ecs_03	vol_03	Key pair	Keypair_03

Table 5-4 ECS configurations

• Scenario 1: System disk vol\_01 is detached from ecs\_01 offline and then attached to ecs\_02 as the system disk. How can I log in to ecs\_02?

After ecs\_02 starts up, use its initial password **Ecs@02** to log in to the ECS.

• Scenario 2: System disk vol\_01 is detached from ecs\_01 offline and then attached to ecs\_03 as the system disk. How can I log in to ecs\_03?

The random password for logging in to ecs\_03 must be resolved again. The procedure is as follows:

a. Delete the initial password for logging in to ecs\_03.

Locate the row containing ecs\_03, click **More** in the **Operation** column, and select **Delete Password** from the drop-down list. Then, click **OK**.

**NOTE** 

The ecs\_03 must be stopped.

b. Start ecs\_03.

Locate the row containing ecs\_03, click **More** in the **Operation** column, and select **Start** from the drop-down list. Then, in the **Start ECS** dialog box, click **OK**.

- c. Obtain the password for logging in to ecs\_03.
  - i. Locate the row that contains **ecs\_03**, click **More** in the **Operation** column and choose **Get Password**.
  - ii. Click **Select File** and upload private key file **Keypair\_03** of ecs\_03.
  - iii. Click **Get Password** to obtain a new random password.
- d. Use the random password obtained in step **c** to log in to ecs\_03 with the system disk replaced.

#### Linux

Login methods vary according to the login authentication used on the ECSs. Assume that there are three Linux ECSs and they are configured as shown in **Table 5-5**.

Table	5-5	ECS	configuratio	ns

ECS	System Disk	Login Authenticatio n	Password/Key Pair
ecs_01	vol_01	Password or key pair	If a password is used for login authentication, take <b>Ecs@01</b> as an example.
			If a key pair is used for login authentication, take private key file <b>Keypair_01</b> as an example.
ecs_02	vol_02	Password	Ecs@02
ecs_03	vol_03	Key pair	Keypair_03

• Scenario 1: System disk vol\_01 is detached from ecs\_01 offline and then attached to ecs\_02 as the system disk. How can I log in to ecs\_02?

Use either of the following methods to log in to ecs\_02:

- Use private key file **Keypair\_01** (if available) of ecs\_01.
- Use the original password **Ecs@02** of ecs\_02.
- Scenario 2: System disk vol\_01 is detached from ecs\_01 offline and then attached to ecs\_03 as the system disk. How can I log in to ecs\_03?

Use one of the following methods to log in to ecs\_03:

- Use the password **Ecs@01** (if available) of ecs\_01.
- Use private key file **Keypair\_01** (if available) of ecs\_01.
- Use private key file **Keypair\_03** of ecs\_03.

# 5.2.12 Why Does the System Display a Message Indicating that the Password for Logging In to an ECS Cannot Be Obtained?

## Symptom

Password authentication is required to log in to a Windows ECS. Therefore, you require a key file to obtain the initial password for logging in to the ECS. However, after you click **Get Password**, the system displays a message indicating that the password could not be obtained, resulting in an ECS login failure.

## **Possible Causes**

Possible causes vary depending on the image used to create the Windows ECS.

- Cause 1: The image used to create the Windows ECS is a private image, on which Cloudbase-Init has not been installed.
- Cause 2: Cloudbase-Init has been installed on the image, but the key pair has not been obtained when the Windows ECS was created.

## Solution

• If the issue is a result of cause 1, proceed as follows:

If a private image is created without Cloudbase-Init installed, the ECS configuration cannot be customized. As a result, you can log in to the ECS only using the original image password.

The original image password is the OS password configured when the private image was created.

If the original image password has been forgotten, reset the password on the ECS console.

- If the issue is a result of cause 2, proceed as follows:
  - a. Locate the row containing the target ECS, click **More** in the **Operation** column, and select **Restart**.
  - b. After the reset, click **More** in the **Operation** column and choose **Get Password** to check whether the password can be obtained.
    - If you can obtain the password, no further action is required.
    - If you cannot obtain the password, contact customer service.

## 5.2.13 How Can I Change the Resolution of a Windows ECS?

## Scenarios

You can change the resolution of Windows ECSs.

## Solution 1: Using VNC

The operations of changing an ECS resolution vary according to the Windows OS. This section uses the Windows Server 2016 Standard 64-bit edition as an example to describe how to change the resolution of a Windows ECS.

- Log in to the ECS using VNC. 1.
- Right-click the desktop and choose **Display settings** from the shortcut menu. 2.

Figure 5-32 Display settings

Ver Son by Afreha Paits	
View Set by Adrea Patts	
Ver Sot ty Refresh Pate Pate abetout Ner > © Display rettings € Penenalize	
Pate Pate helicot Nee Oligidy retrings ✔ Perionskie	
New > © Diply settings © Personalize	

On the **Settings** page, click the **Display** tab and then **Advanced display** 3. settings.

**NOTE** 

If the remote desktop is not fully displayed, set Change the size of text, apps, and other items to 100%.

Settir	ngs	- D ×
ŝ	Home	Customize your display
Fir	nd a setting $\wp$	The display settings can't be changed from a remote session.
Syst	em	
ı 🖵	Display	1
	Apps & features	
i=	Default apps	
	Notifications & actions	Identify Detect
Ċ	Power & sleep	Change the size of text, apps, and other items:
	Storage	Orientation
굔	Tablet mode	Landscape $\vee$
(□)	Multitasking	Apply Cancel
Lt.	Apps for websites	Advanced display settings

Figure 5-33 Settings

In the **Resolution** drop-down list, select the desired resolution. 4.

#### Figure 5-34 Setting a resolution

÷	Settings	_	×
ŝ	Advanced display settings		
Cu	ustomize your display		
	1		
lde	ntify Detect		
Res	solution		
	024 × 768 ~		
	Apply Cancel		

5. Click Apply.

## Solution 2: Using MSTSC

Before remotely logging in to your ECS using MSTSC, change the resolution of the Windows ECS.

- 1. On your local computer (client), click **Start**.
- 2. In the Search programs and files text box, enter mstsc.
- 3. In the **Remote Desktop Connection** window, click **Show Options** in the lower left corner.

Figure 5-35 Remote Desktop Connection

퉣 Remote	Desktop Connection	<u>, 199</u>		×
<b>N</b>	Remote Desktop Connection			
Computer:	Example: computer fabrikam.com	v	3	
User name:	None specified			
The compute name.	r name field is blank. Enter a full remote	computer		
Show O	ptions	Connect	в	elp

4. Click the **Display** tab. Then, in the **Display configuration** pane, set the resolution.

#### Figure 5-36 Display

퉣 Remo	ote Deskt	op Connection				×
<b>A</b>	Rei Co	mote Desk Danectio	top n			
General	Display	Local Resources	Experience	Advanced		
Display	configura	tion				
	Choos	se the size of your re	emote desktop	. Drag the sli	der all th	e
	Small	Full Scree se all my monitors for	Ear En	ge ession		
Colors	Choose	se the color depth o	f the remote s	ession		
-	High	est Quality (32 bit)	~			
🗹 Displa	y the con	nection bar when I	use the full sci	reen		
🔿 Hide (	Options			Connect	Н	elp

5. Use MSTSC to log in to the ECS.

## 5.3 VNC Login

## 5.3.1 Why Are Garbled Characters Displayed When I Log In to My ECS Using VNC?

## Symptom

After I attempt to log in to my Linux ECS using VNC, garbled characters are displayed, as shown in **Figure 5-37**.

-r <sub>T</sub> [r- r-  1 roo  roo	Apr 29	9:57 🛛 ±e+ -
-r 1 roo roo	6 Apr 29	9:57 cesA±e++.pid
-r_ r- r-  1 roo  roo	58 Apr 29	9:57 co+° ces.Jso+
-rtr-r-1 roof roof	199 Apr 29	9:57 co+°.Jso+
$-\mathbf{r}_{T}  \mathbf{r}_{T} -  \mathbf{r}_{T} $ 1 roo roo	483 Apr 29	9:57 co+° r+s.Jso+
-rtr-r-1 roof roof	147 Apr 29	9:57 rots cof°it. Lr r
-rrr 1 roo roo	27 Apr 29	9:58 to p.ot
-rt r- r-  1 roo- roo-	3 Apr 29	9:58 record. so
$-\mathbf{r}_{T}  \mathbf{r}_{T} -  \mathbf{r}_{T} $ 1 roo roo	Apr 29	9:57 e escope
[roo]@ecs-4d bi+]#		
[roo @ecs-4 bi+]#		
[roo @ecs-4 bi+]#		
[roo @ecs-4 bi+]#		
[roo @ecs-4 bi+]#		
[roo_@ecs-4 bi+]#		
[roo @ecs-4 bi+]# rr		

Figure 5-37 Garbled characters on the VNC-based login page

## **Possible Causes**

The **cat** command was executed to display a large binary file, leading to garbled characters.

## Solution

Log in to the ECS as user **root** and run the following command for recovery:

reset

**NOTE** 

The **reset** command is used to re-initialize the ECS and refresh the terminal display. After the **reset** command is executed, the garbled characters are cleared and the fault is rectified.

## 5.3.2 What Should I Do If the Page Does not Respond After I Log In to an ECS Using VNC and Do Not Perform Any Operation for a Long Period of Time?

If you log in to an ECS running Windows 7 through VNC using Internet Explorer 10 or 11 and do not perform any operation for a long time, the VNC page may not respond.

In this case, you can click **AltGr** twice on the VNC page to activate the page.

If the fault persists, contact technical support.

## 5.3.3 What Should I Do If I Cannot View Data After Logging In to an ECS Using VNC?

After you log in to an ECS using VNC and view data, for example, play videos or run the **cat** command to view large files in Linux OSs, VNC may become unavailable due to the high memory usage of the browser.

In such a case, use another browser and log in to the ECS again.

If the fault persists, contact technical support.

## 5.3.4 Why Does a Blank Screen Appear After I Attempted to Log In to an ECS Using VNC?

The blank screen means that another user has logged in to this ECS using VNC, so you were logged out.

Only one user can be logged in to an ECS using VNC at a time. If you are already logged in and another user logs in to the same ECS, you will be automatically logged out.

You can log back in, but that will kick the other user out.

## 5.3.5 What Should I Do If Error Code 1006 or 1000 Is Displayed When I Log In to an ECS Through the Management Console?

## Symptom

When I attempted to remotely log in to an ECS using VNC, the system displayed error code 1006, as shown in **Figure 5-38**.

Figure 5-38 Error message displayed in a VNC-based remote login

Server disconnected (code: 1006)

#### **Possible Causes**

- The ECS is abnormal.
- Another user has logged in to the ECS.
- No operations are performed on the ECS and it is automatically disconnected.

## Troubleshooting

- 1. Log in to the ECS again using VNC.
  - If the login is successful, no further action is required.
  - If the fault persists, go to 2.
- 2. Check whether the ECS is normal.

Error code 1006 is displayed if the ECS is stopped, deleted, being migrated or restarted, or encounters a connection timeout.

3. Check whether another user has logged in to the ECS.

If yes, you can log in to the ECS only after that user logs out.

## 5.3.6 Why No Audio File Can Be Properly Played on My Windows ECS Logged In Using VNC?

## Symptom

When I logged in to my Windows ECS using MSTSC, audio files can be properly played. However, when I logged in to that ECS using VNC, audio files failed to be played.

## **Possible Causes**

VNC does not support audio playing.

## Solution

Use your local PC (running Windows 7, for example) to play the audio files.
1. Start your local PC.

**NOTE** 

Start your local PC, instead of logging in to your Windows ECS.

- 2. Press **Win+R** to start the **Run** text box.
- 3. Enter **mstsc** and click **OK**.

The **Remote Desktop Connection** window is displayed.

Figure 5-39 Remote Desktop Connection

nemote D	Desktop Connection			
	Remote Desktop Connection			
<u>C</u> omputer:	Example: computer fabrikam.com			
User name:	None specified			
The computer name field is blank. Enter a full remote computer name.				
Options	Connect Help			

4. Click **Options** in the lower left corner and click the **Local Resources** tab.

Figure 5-40 Local Resources

퉋 Remote D	esktop Connection
	Remote Desktop Connection
General Di	splay Local Resources Programs Experience Advanced
Ellot a	Configure remote audio settings.
Keyboard	Apply Windows <u>key</u> combinations: Only when using the full screen Example: ALT+TAB
Local device	ces and resources Choose the devices and resources that you want to use in your remote session.
	✓ Printers     ✓ Clipboard       More
( <u>O</u> ptions	Connect Help

5. In the **Remote audio** pane, click **Settings**.



Figure 5-41 Setting remote audio playback

6. In the Remote audio playback pane, select Play on this computer.

# 5.4 Remote Login Errors on Windows

# 5.4.1 Why Does an Authentication Failure Occurs After I Attempt to Remotely Log In to a Windows ECS?

### Symptom

When a local computer running Windows attempts to access a Windows ECS using RDP (for example, MSTSC), an identity authentication failure occurs and the desired function is not supported.

- If the error message contains only the information that an identity • authentication failure occurs and that the desired function is not supported, rectify the fault by following the instructions provided in **Solution**.
- If the error message shows that the fault was caused by "CredSSP Encryption • Oracle Remediation", as shown in Figure 5-42, the fault may be caused by a security patch released by Microsoft in March 2018. This patch may affect RDP-based CredSSP connections. As a result, setting up RDP-based connections to ECSs failed. Rectify the fault by following the instructions provided in the official Microsoft document CredSSP updates for CVE-2018-0886.

×

### Figure 5-42 Failed to set up a remote desktop connection

Remote Desktop Connection



An authentication error has occurred. The function requested is not supported

Remote computer: 23.100.90.18 This could be due to CredSSP encryption oracle remediation. For more information, see https://go.microsoft.com/fwlink/?linkid=866660



# Solution

Modify the remote desktop connection settings on the Windows ECS:

- 1. Log in to the ECS.
- 2. Click **Start** in the lower left corner, right-click **Computer**, and choose **Properties** from the shortcut menu.
- 3. In the left navigation pane, choose **Remote settings**.
- 4. Click the **Remote** tab. In the **Remote Desktop** pane, select **Allow connections from computers running any version of Remote Desktop (less secure)**.

### Figure 5-43 Remote settings

ystem Properties				×			
Computer Name	Hardware	Advanced	System Protection	Remote			
Remote Assistance							
Allow Remo	ote Assistant	ce connectio	ns to this computer				
What happens when I enable Remote Assistance?							
			Ad	l <u>v</u> anced			
Pamata Dadit							
Remote Desktop							
Click an option, and then specify who can connect, if needed.							
Don't allow connections to this computer							
Allow connections from computers running any version of     Remote Desktop (less secure)							
Allow connections only from computers running Remote Desktop with <u>N</u> etwork Level Authentication (more secure)							
Help me choos	<u>se</u>		Sel	ect Users			
2							
		ОК	Cancel	Apply			

5. Click OK.

# 5.4.2 Why Can't I Use the Local Computer to Connect to My Windows ECS?

## Symptom

An error message is displayed indicating that your local computer cannot connect to the remote computer.

Figure 5-44 Cannot connect to the remote computer



## **Possible Causes**

- Port 3389 of the security group on the ECS is disabled. For details, see **Checking Port Configuration on the ECS**.
- The firewall on the ECS is disabled. For details, see Checking Whether the Firewall Is Correctly Configured.
- The remote desktop connection is not correctly configured. For details, see Checking Remote Desktop Connection Settings.
- Remote Desktop Services are not started. For solution, see Checking Remote Desktop Services.
- Remote Desktop Session Host is not correctly configured. For details, see Checking Remote Desktop Session Host Configuration.

# **Checking Port Configuration on the ECS**

Check whether port 3389 (used by default) on the ECS is accessible.

Ensure that port 3389 has been added in the inbound rule.

On the ECS details page, click the **Security Groups** tab and check port 3389 in the inbound rule of the security group.

# **Checking Whether the Firewall Is Correctly Configured**

Check whether the firewall is enabled on the ECS.

- 1. Log in to the ECS using VNC available on the management console.
- 2. Click the Windows icon in the lower left corner of the desktop and choose **Control Panel > Windows Firewall**.

### Figure 5-45 Windows Firewall

🕒 🐵 🔻 🕇 📴 🕨 Control Panel 🕨 A	Il Control Panel Items 🕨		v C	Search (	Control Pane		
Adjust your computer's settings				View by:	Small icons	•	
🏲 Action Center	administrative Tools	📑 AutoPlay					
💶 Color Management	Credential Manager	🔮 Date and Time					
😼 Default Programs	着 Device Manager	📾 Devices and Printers					
🖳 Display	Ease of Access Center	Folder Options					
🗼 Fonts	🔂 Internet Options	🄩 iSCSI Initiator					
🕮 Keyboard	🗫 Language	Mouse					
👯 Network and Sharing Center	📟 Notification Area Icons	🔛 Phone and Modem					
Power Options	Programs and Features	🔗 Region					
log RemoteApp and Desktop Connections	🛋 Sound	I型 System					
Taskbar and Navigation	👰 Text to Speech	📧 Troubleshooting					
& User Accounts	Pindows Firewall	🐼 Windows Update					

 Click Turn Windows Firewall on or off. View and set the firewall status.

		Wind	lows Firewall				
¢	ⓒ 🏵 ▼ ↑ 💣 > Control Panel > All Control Panel Items > Windows Firewall v ♂ Search Control Panel						
	Control Panel Home	Help protect your PC with Wir	ndows Firewall				
	Allow an app or feature through Windows Firewall	Windows Firewall can help prevent hac Internet or a network.	kers or malicious software from gaining access to your PC through the				
0	Change notification settings	🔮 Private networks	Not connected 📀				
9	Turn Windows Firewall on or off	Guest or public netwo	orks Connected 📀				
0	Restore defaults	Networks in public places such as airports or coffee shops					
8	Advanced settings						
	Troubleshoot my network	Windows Firewall state:	On				
		Incoming connections:	Block all connections to apps that are not on the list of allowed apps				
		Active public networks:	Network				
		Notification state:	Do not notify me when Windows Firewall blocks a new app				
	See also						
	Action Center						
	Network and Sharing Center						

Figure 5-46 Checking firewall status

To enable Windows firewall, perform the following steps:

- 4. Click Advanced settings.
- 5. Check **Inbound Rules** and ensure that the following rules are enabled:
  - Remote Desktop User Mode (TCP-In), Public
  - Remote Desktop User Mode (TCP-In), Domain, Private

### Figure 5-47 Inbound Rules

<i>a</i>	Windows Fi	rewall with Advanced Sec	urity			_ <b>D</b> X
File Action View Help						
🗢 🄿 🙇 🖬 🗟 🖬						
💣 Windows Firewall with Advance	Inbound Rules					Actions
🇱 Inbound Rules	Name	Group	Profile	Enabled	Action /	Inhound Rules
🌠 Outbound Rules	Network Discovery (WSD EventsSecure-In)	Network Discovery	Public	No	Allow	May Dula
Connection Security Rules	Network Discovery (WSD EventsSecure-In)	Network Discovery	Domain	No	Allow	New Rule
Monitoring	Network Discovery (WSD EventsSecure-In)	Network Discovery	Private	Yes	Allow	🝸 Filter by Profile 🔹 🕨
	Network Discovery (WSD-In)	Network Discovery	Public	No	Allow	🕎 Filter by State 🔹 🕨
	Network Discovery (WSD-In)	Network Discovery	Domain	No	Allow	Filter by Group
	🕢 Network Discovery (WSD-In)	Network Discovery	Private	Yes	Allow	
	Performance Logs and Alerts (DCOM-In)	Performance Logs and Alerts	Private, Public	No	Allow	View
	Performance Logs and Alerts (DCOM-In)	Performance Logs and Alerts	Domain	No	Allow	🔕 Refresh
	Performance Logs and Alerts (TCP-In)	Performance Logs and Alerts	Private, Public	No	Allow	🔒 Export List
	Performance Logs and Alerts (TCP-In)	Performance Logs and Alerts	Domain	No	Allow	
	🖉 Remote Desktop - Shadow (TCP-In)	Remote Desktop	Public	Yes	Allow	- Help
	🕜 Remote Desktop - Shadow (TCP-In)	Remote Desktop	Domain, Private	Yes	Allow	Remote Desktop 🔺
	🖉 Remote Desktop - User Mode (TCP-In)	Remote Desktop	Public	Yes	Allow	Disable Rule
	🖉 Remote Desktop - User Mode (TCP-In)	Remote Desktop	Domain, Private	Yes	Allow	
	🖉 Remote Desktop - User Mode (UDP-In)	Remote Desktop	Domain, Private	Yes	Allow	🦂 Cut
	🕑 Remote Desktop - User Mode (UDP-In)	Remote Desktop	Public	Yes	Allow	🔖 Сору
	🔘 Remote Event Log Management (NP-In)	Remote Event Log Manage	All	No	Allow	🗙 Delete
	🕘 Remote Event Log Management (RPC)	Remote Event Log Manage	All	No	Allow	Properties
	Remote Event Log Management (RPC-EPMAP)	Remote Event Log Manage	All	No	Allow	
	💿 Remote Event Monitor (RPC)	Remote Event Monitor	All	No	Allow	Help
	Remote Event Monitor (RDC_EDMAD)	Remote Event Monitor	All	No	Allow	<u></u>
× m 7	<u> </u>					

If the port configured in the inbound rule of the firewall is different from that configured on the remote server, the remote login will fail. If this occurs, add the port configured on the remote server in the inbound rule of the firewall.

For details, see How Do I Disable a Windows ECS Firewall and Add a Port Exception on a Windows ECS Firewall?

### D NOTE

The default port is 3389. If you use another port, add that port in the inbound rule of the firewall.

After you perform the preceding operations, try to remotely log in to the ECS again.

## **Checking Remote Desktop Connection Settings**

Modify the remote desktop connection settings of the Windows ECS: Select **Allow remote connections to this computer**. The procedure is as follows:

- 1. Log in to the ECS.
- 2. Click **Start** in the lower left corner, right-click **Computer**, and choose **Properties** from the shortcut menu.
- 3. In the left navigation pane, choose **Remote settings**.
- 4. Click the **Remote** tab. In the **Remote Desktop** pane, select **Allow remote connections to this computer**.

Figure 5-48 Remote settings

System Properties					
Computer Name Hardware Advanced Remote					
Remote Assistance					
Allow Remote Assistance connections to this computer					
Advanced					
Remote Desktop					
Choose an option, and then specify who can connect.					
O 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)					
Help me choose Select Users					
OK Cancel Apply					

5. Click OK.

# **Checking Remote Desktop Services**

1. Open the Windows search box, enter **services**, and select **Services**.

2. In the Services window, restart Remote Desktop Services. Ensure that Remote Desktop Services is in the Running status.

	Services			x		
File Action View Help						
Services (Local)	-					
Remote Desktop Services	Name 📩	Description Status	s Startup Type	L ^		
	🔍 Remote Access Auto Conne	Creates a co	Manual	L		
Stop the service	🔍 Remote Access Connection	Manages di	Manual	L		
Restart the service	🔍 Remote Desktop Configurat	Remote Des Runni	ing Manual	L		
	🧠 Remote Desktop Services	Allows user Runni	ing Manual	P		
Description:	🤹 Remote Desktop Services U	Allows the r Runni	ing Manual	L		
Allows users to connect interactively	🕐 🔍 Remote Procedure Call (RPC)	The RPCSS Runni	ing Automatic	Ν		
to a remote computer. Remote Deskton and Remote Deskton Sessio	, 🧠 Remote Procedure Call (RP	In Windows	Manual	Ν		
Host Server depend on this service.	🔍 🤍 Remote Registry	Enables rem	Automatic (T	L		
To prevent remote use of this	🔍 Resultant Set of Policy Provi	Provides a n	Manual	L		
computer, clear the checkboxes on	🔍 Routing and Remote Access	Offers routi	Disabled	L		
properties control panel item.	🧠 RPC Endpoint Mapper	Resolves RP Runni	ing Automatic	Δ		
properties control particular	🤍 Secondary Logon	Enables star	Manual	L		
	🤍 Secure Socket Tunneling Pr	Provides su	Manual	L		
	🔍 Security Accounts Manager	The startup Runni	ing Automatic	L		
	🔍 Server	Supports fil Runni	ing Automatic	L		
	🧠 Shell Hardware Detection	Provides no Runni	ing Automatic	L		
	🤍 Smart Card	Manages ac	Disabled	L		
	🔍 Smart Card Device Enumera	Creates soft Runni	ing 🚽 Manual (Trig	L		
	🧠 Smart Card Removal Policy	Allows the s	Manual	L		
	🔍 SNMP Trap	Receives tra	Manual	L		
	🔍 Software Protection	Enables the	Automatic (D	. N 🗸		
	<	ш		>		
Extended Standard						

<b>FIGURE 3-49</b> REFIDLE DESKLOD SERVICE	Figure	5-49	Remote	Desktop	Services
--	--------	------	--------	---------	----------

# **Checking Remote Desktop Session Host Configuration**

- 1. Open the **cmd** window and enter **gpedit.msc**.
- 2. Click **OK** to start Local Group Policy Editor.
- 3. Choose Computer Configuration > Administrative Templates > Windows Components > Remote Desktop Services.
- 4. Choose Remote Desktop Session Host > Security > Require use of specific security layer for remote (RDP) connections.

**Figure 5-50** Require use of specific security layer for remote (RDP) connections

	Local Group	Policy Editor	- 🗆 X
File Action View Help Image: Second seco	Security	Setting	State
Portable Operating System     Presentation Settings     Diston Settings     Ro Licensing     Ro Licensing     Remote Desktop Connection Client     Remote Desktop Session Host     Operation Compatibility     Connections     Device and Resource Redirection     Licensing     Printer Redirection     Profiles     RO Connection Broker     Remote Session Environment     Security     Session Environment	hequire use of specific security       kayer for remote (RDP) connections       Edit policy setting       Requirements:       At least Windows Vista       Description:       This policy setting specifies       whether to require the use of a specific security layer to secure       and RD Security layer to secure       during Remote Desktop Protocol       (ROP) connections.       If you enable this policy setting, all communications between clients       and RD Secure to how servers	Server authentication certificate template Server authentication encryption level Anways prompt for password upon connection Require secure RPC communication Define out of specific security layer for remote (RDP) connections Do not allow local administrators to customize permissions Require user authentication for remote connections by using Network .	Not configure Not configure Not configure Not configure Not configure Not configure
RSS Feeds     Security Center     Security Center     Secure for NIS     Security Center     Security	use the security method specified in this setting. The following security methods are available: Extended (Standard /	< III	>

5. Set **Require use of specific security layer for remote (RDP) connections** to **Enabled** and **Security layer** to **RDP**.



Figure 5-51 Setting security layer to RDP

# 5.4.3 How Can I Obtain the Permission to Remotely Log In to a Windows ECS?

# Symptom

When you connect a remote desktop to a Windows ECS, the system prompts that you need to be granted the right to sign in through Remote Desktop Services.



Figure 5-52 Remote login right missing.

# Solution

- 1. Open the **cmd** window and enter **gpedit.msc**.
- 2. Click **OK** to start Local Group Policy Editor.
- 3. Choose Computer Configuration > Windows Settings > Security Settings > Local Policies > User Rights Assignment.

a. Locate and double-click **Allow log on through Remote Desktop Services**. Ensure that **Administrators** and **Remote Desktop Users** have been added.



Figure 5-53 Allow log on through Remote Desktop Services properties

b. Locate and double-click **Deny log on through Remote Desktop Services**. If the administrator account exists, delete it.



Figure 5-54 Deny log on through Remote Desktop Services properties

# 5.4.4 Why Does the System Display No Remote Desktop License Servers Available to Provide a License When I Log In to a Windows ECS?

# Symptom

An error message is displayed indicating that there are no Remote Desktop License Servers available to provide a license and asks you to contact the administrator.

Figure 5-55 No Remote Desktop License Servers available to provide a license



# Possible Causes

You have installed the Remote Desktop Session Host.

The grace period for Remote Desktop Services is 120 days. If you do not pay for it when the period expires, the service will stop. Windows allows a maximum of two users (including the local user) in remote desktop connections. To allow the access of more users, install the Remote Desktop Session Host and configure the desired number of authorized users. However, installing the Remote Desktop Session Host will automatically revoke the original two free connections. This leads to the preceding fault if desired number of authorized users has not been configured.

# Solution

 Method 1: Apply for a license for authenticating multi-user sessions and activate the ECS. Note that you need to purchase a remote desktop access license from the official Microsoft website.

For details, see How Do I Apply for a License for Authenticating Multi-User Sessions and Activate an ECS?

• Method 2: Delete Remote Desktop Session Host (Windows Server 2008) or Remote Desktop Services (Windows Server 2012).

After you delete the role, the ECS allows a maximum of two users (including local login users) to access.

• Method 3: Reconfigure multi-user login after reinstalling or changing the ECS OS.

Windows Server 2008 public images are no longer supported. If you are using a Windows Server 2008 ECS, change its OS to a Windows Server 2012 OS.

Back up data on the system disk before reinstalling or changing the OS.

# Precautions

- The operations described in this section apply to the ECSs running a Windows Server 2008 or Windows Server 2012.
- The ECS must be restarted during the operation, which may interrupt services. Back up data before restarting the ECS.

### Windows Server 2008

- 1. Log in to the Windows ECS using VNC available on the management console.
- 2. Open Server Manager, right-click Remote Desktop Services under Roles, and choose Remove Roles from the shortcut menu.

🔚 Server Manager File Action View Help ? : 4 Server Manager (ECS-2008EN-420t Roles ī. 🖃 予 Rol Add Roles + ess Remove Roles + View the health of the roles installed on rvice + 5ervi View 🗄 🚮 Fea Refresh 🖃 📷 Dia Roles Summary + 8 Help + 🔊 Roles: 3 of 17 installed 📇 Device Manager 🕀 🁬 Configuration Network Policy and Access Services. 🕀 🚝 Storage (i) Print and Document Services Windows Deployment Services

3. In the displayed dialog box, deselect **Remote Desktop Session Host** and keep clicking **Next** till you finish the operation.



riguite e er blesete		050
Select Role Services	ices	×
Role Services Confirmation Progress Results	To remove one or more installed role services for Remote Desktop Bole services: Remote Desktop Session Host Remote Desktop Vertualization (Not Installed) Remote Desktop Ucensing (Not Installed) Remote Desktop Connection Broker (Not Installed) Remote Desktop Web Access (Not Installed) Remote Desktop Web Access (Not Installed) More about role services	o Services, dear their check boxes: Description: Remote Desktop Session Host (RD Session Host), formerly Terminal Server, enables a server to host Windows-based programs or the full Windows desktop. Users can connect to an RD Session Host server to run programs, save files, and use network resources on that server.
	< Previous N	ext > Remove Cancel

Figure 5-57 Deselecting Remote Desktop Session Host

- 4. Click Delete.
- 5. Restart the ECS.

## Windows Server 2012

- 1. Log in to the Windows ECS using VNC available on the management console.
- Open Server Manager, choose Manage > Remove Roles and Features, and click Next.

Figure 5-58 Deleting roles and features



- 3. Select the destination server and click **Next**.
- 4. Deselect Remote Desktop Services.

Type	Roles	Description
Server Selection		Active Directory Certificate Services
Server Roles	Application Server	(AD CS) is used to create
Features	DHCP Server	certification authorities and related role services that allow you to issue
	Fax Server	and manage certificates used in a
	File and Storage Services (1 of 12 installed)	variety of applications.
	Hyper-V	
	Network Policy and Access Services	
	Print and Document Services	
	Remote Access	_
	Remote Desktop Services	=
	Volume Activation Services	
	Web Server (IIS)	
	Windows Deployment Services	
	Windows Server Essentials Experience	
	Windows Server Update Services	×

### Figure 5-59 Deselecting Remote Desktop Services

- Click Delete. 5.
- 6. Restart the ECS.

# 5.4.5 Why Does the System Display Error Code 0x112f When I Log In to a Windows ECS?

### Symptom

When you log in to a Windows ECS, the system displays error code 0x112f, as shown in Figure 5-60.

Figure 5-60 Error message (code: 0x112f)



### **Possible Causes**

The ECS memory is insufficient.

### Solution

Method 1 (recommended) •

> Modify the ECS specifications to increase the vCPUs and memory size. For details about how to modify specifications, see Modifying Individual ECS Specifications.

Method 2 • Enable virtual memory on the ECS to obtain its idle memory. For details, see How Can I Enable Virtual Memory on a Windows ECS?

### D NOTE

This method will deteriorate the disk I/O performance, so use this method only when necessary.

# 5.4.6 Why Does the System Display Error Code 0x1104 When I Log In to a Windows ECS?

# Symptom

The system displays an error message indicating that a protocol error (code: 0x1104) is detected when you use MSTSC to access an ECS running Windows Server 2008.

### Figure 5-61 Protocol error (code: 0x1104)

X	Because of a protocol error detected at the client (code 0x1104), this session will be disconnected.
	Please try connecting to the remote computer again.

### **Possible Causes**

- Port 3389 of the security group on the ECS is disabled.
- The firewall on the ECS is disabled.
- Port 3389 on the ECS is used by other processes.
- The Remote Desktop Session Host is incorrectly configured.

### Solution

**Step 1** Check security group settings.

Check whether port 3389 is allowed in inbound direction. If it is allowed, go to **Step 2**.

- **Step 2** Check whether the firewall is disabled:
  - 1. Log in to the Windows ECS.
  - Click the Windows icon in the lower left corner of the desktop and choose Control Panel > Windows Firewall.

9	All Control P	anel Items	
💿 🎯 👻 🕆 📴 🕨 Control Panel 🕨	All Control Panel Items 🕨	~ ¢	Search Control Panel 🖇
Adjust your computer's settings			View by: Small icons 🔻
🏲 Action Center	dministrative Tools	autoPlay	
Color Management	Credential Manager	🔐 Date and Time	
Default Programs	🚔 Device Manager	Bevices and Printers	
🜉 Display	🕒 Ease of Access Center	Folder Options	
K Fonts	🐑 Internet Options	🔩 iSCSI Initiator	
🕮 Keyboard	💱 Language	I Mouse	
👯 Network and Sharing Center	Real Cons	🛄 Phone and Modem	
Power Options	Programs and Features	🔗 Region	
🐻 RemoteApp and Desktop Connections	🖷 Sound	🕎 System	
Taskbar and Navigation	🐏 Text to Speech	Troubleshooting	
& User Accounts	P Windows Firewall	Windows Update	

3. Click Turn Windows Firewall on or off.

View and set the firewall status.



If the firewall is enabled, go to Step 3.

Step 3 Log in to the ECS using VNC and check the port.

 Open the cmd window and run the following command: netstat -ano |findstr: 3389

Figure 5-62 Checking port 3389

CIN.	Ac	Iministrator: Command	Prompt		x
Microso	ft Windows [Version 6.3	3.9600]			^
(07 201	5 MICROSOFC CORPORATION	. HII FIGHUS Feser	eu.		≡
C: User	s Administrator>netst	at —ano  findstr :3	389		
TCP	0.0.0.0:3389	0.0.0.0:0	LISTENING	4	
TCP	[::]:3389	[::]:0	LISTENING	4	
C: User	rs Administrator>				

As shown in Figure 5-62, port 3389 is used by the process with ID of 4.

- 2. Open Task Manager and find the process with ID of 4 is the System process.
- 3. Generally, the IIS and SQL Server run as the System process. Run the following HTTP command for further check.

### netsh http show servicestate

Figure 5-63 Checking System process

C::N.	Administrator: Command Prompt	_ <b>_</b> ×
napshot of	ITTP service state (Server Session View):	
erver sessi	on ID: FF00000020000001	
Version:	1.0	
Propertie	; c 10e	
Max	handwidth: 4294967295	
Time	outs:	
	Entity body timeout (secs): 120	
	Drain entity body timeout (secs): 120	
	Request queue timeout (secs): 120	
	ale connection timeout (secs): 120	
	linimum send rate (bytes/sec): 150	
URL grou	23:	
URL grou	p ID: FE00000040000001	
Stat	e: Active	
Requi	est queue name: Request queue is unnamed.	
rrop	Tax bandwidth: inherited	
	ax connections: inherited	
	imeouts:	
	Timeout values inherited	
	umber of registered UKLs: 3 Periotoxed UPLe:	
	HTTPS://+:3389/	
	HTTP://+/3389/	
lequest queu	18:	

- 4. If port 3389 is used by HTTP protocols, it indicates that the port is used by IIS.
- 5. Enter http://127.0.0.1:3389 in the address box of the browser and press **Enter**. Check whether the website can be visited normally.
- 6. Change the port used by IIS and restart IIS.
- **Step 4** If no error occurs during the preceding steps, go to step **Step 5** to check whether error 0x1104 is caused by the configuration of Remote Desktop Session Host.
- **Step 5** Check the remote desktop session host configuration.
  - 1. Log in to the ECS using VNC.
  - 2. Open the **cmd** window and enter **gpedit.msc**.
  - 3. Click **OK** to start Local Group Policy Editor.
  - 4. Choose Computer Configuration > Administrative Templates > Windows Components > Remote Desktop Services.



Figure 5-64 Remote Desktop Services

### 5. Remote Desktop Session Host > Security.

**Figure 5-65** Remote (RDP) Connection requires the use of the specified security layer



6. Set **Require use of specific security layer for remote (RDP) connections** to **Enabled** and **Security layer** to **RDP**.

Figure 5-66 Setting security layer

EREQUIRE USE of spe	cific security lay	er for remote (RDP	) connections
📷 Require use of sp	ecific security laye	r for remote (RDP) c	onnections Previous Setting Next Setting
O Not <u>Configured</u>	Comment:		
<u>Enabled</u> Disabled			-
2	Supported on:	At least Windows \	/ista
Options:			telp:
Security Layer RDP Choose the security I	ayer from the drop	-down list.	pacifies whether to require the use of a specific security layer to ecure communications between clients and RD Session Host envers during Remote Desitop Protocol (RDP) connections. If you enable this setting, all communications between clients and D Session Host servers during remote connections must use the ecurity method specified in this setting. The following security methods are available: Negotiate: The Negotiate method enforces the most secure method that is upported by the client. If Transport Layer Security Desion Host server, If TLS is not supported, native Remote Desitop Protocol (RDP) encryption is used to secure communications, but the RD Session Host server, if RDP: The RDP method uses native RDP encryption to secure.
			vou select this setting, the KD Session Host server is not puthenticated.
			OK Cancel Apply

- 7. Click OK.
- 8. After the configuration is complete, open the **cmd** window.
- 9. Run the following command to update the group policy:

### gpupdate

Figure 5-67 Updating the group policy



----End

# 5.4.7 Why Does the System Display Error Code 122.112... When I Log In to a Windows ECS?

### Symptom

The system displays error 122.112... when you use RDC to locally access an ECS running Windows Server 2012. The ECS is frequently disconnected and the Windows login process is unexpectedly interrupted.

### **Possible Causes**

- 1. System resources are insufficient or unavailable.
- 2. The services cannot be started.

## Solution

Step 1 Check system logs.

- 1. Log in to the ECS using VNC.
- 2. Click to start the service manager and choose Administrative Tools > Event Viewer > Windows Logs > System > Filter Current Logs.

### Figure 5-68 Event viewer

	Event Viewer	_ 🗆 🗙
File Action View Help		
🗢 🄿 🙋 🖬 🚺 🖬		
🛃 Event Viewer (Local)	System Number of events: 344 Actions	
Custom Views	Level Date a Source Event Task Category 🔨 System	🔺 🛆
Application	🕕 🕕 Inf 6/9/20 Service Cont 7036 None 🛛 🛛 👩 Open Saved Log	
📔 Security	🕖 Inf 6/9/20 Service Cont 7036 None 🛛 🗸 💎 Create Custom Vie	207
Setup	Inf., 6/9/20., Service Cont., 7036 None Import Custom Vic	ew
System	Inf., 6/9/20., Service Cont., 7050 None Clear Log.,	
Porwarded Events Applications and Services Lo	1 Inf 6/9/20 Service Cont 7036 None	
📑 Subscriptions	① Inf 6/9/20 Service Cont 7040 None	
	M End	=
	Event 7036, Service Control Manager	
	General Details	
	Attach a Task To t	his Log
	The Windows Modules Installer service entered the stopp View	•
	= Refresh	
	- Rep	•
	Log Name: System	e Control Man 🔺
	Event ID: 7036 Task Ca	
	Level: Information Keywor V M Attach Task To Th	is Event
		· ·
Creates a filter.		

3. In the **Event Level** pane, select event levels.

	Filter Current Log
Filter XML	
Logged:	Any time 🗸
Event level:	✓ Critical ✓ Warning ✓ Verbose
	✓ Error ✓ Information
● By l <u>og</u>	Event logs: System
⊖ By <u>s</u> ource	Event sources:
exclude chiten.	a, type a minus sign first. For example 1,3,5-99,-76
	A type a minus sign first. For example 1,3,5-99,-76 <all event="" ids=""></all>
Task category:	A, type a minus sign first. For example 1,3,5-99,-76 <all event="" ids=""></all>
Iask category: <u>K</u> eywords:	A type a minus sign first. For example 1,3,5-99,-76 <all event="" ids=""></all>
Iask category: Keywords:	A type a minus sign first. For example 1,3,5-99,-76 <all event="" ids=""></all>
Iask category: Keywords: User: Computer(s):	<pre>a, type a minus sign first. For example 1,3,5-99,-76 </pre> <all event="" ids=""> <all users=""> <all computers=""></all></all></all>
Task category: Keywords: User: Computer(s):	a, type a minus sign first. For example 1,3,5-99,-76 (All Event IDs> <all users=""> <all computers=""></all></all>
Task category: Keywords: User: Computer(s):	All Event IDs> <all event="" ids=""></all>

Figure 5-69 Filtering logs

4. Search for login logs.

**Step 2** Check the usage of host resources.

- 1. Choose Start > Task Manager > Performance.
- 2. Check usage of CPU and memory.
- **Step 3** Check whether the purchased Windows ECS is with 1 vCPU and 1 GB of memory.

If it is, change the flavor or stop unnecessary processes.

----End

# 5.4.8 Why Does the System Display Invalid Certificate or Associated Chain When I Log In to a Windows ECS from a Mac?

# Symptom

When you use Microsoft Remote Desktop for Mac to remotely access a Windows ECS, the system displays invalid certificate or associated chain.

 Mac App Store Preview
 What's New
 What is OS X
 OS X Apps
 How to Upprade
 Tech Specision

 Discrosoft Remote Desktop
 By Microsoft Corporation
 Den the Mac App Store to buy and download apps.
 Bescription
 Bescription
 What we want was a server of Windows with Remote PC and your work resources from almost anywhere. Experience the power of Windows with Remote PC and your work resources from almost anywhere. Experience the power of Windows with Remote PC and your work resources from almost anywhere. Experience the power of Windows with Remote PC and your work resources from almost anywhere. Experience the power of Windows with Remote PC and your work resources from almost anywhere. Experience the power of Windows with Remote PC and your work resources from almost anywhere. Experience the power of Windows with Remote PC and your work resources from almost anywhere. Experience the power of Windows with Remote PC and your work resources from almost anywhere. Experience the power of Windows with Remote PC and your work resources from almost anywhere. Integrity Alam.ms/rdsetup

 Uter In Mac App Store
 Experime the access first. Download the RDP assistant to your PC and let it do the work for you: http://aka.ms/rdsetup

 Uter In Mac App Store
 Features

 •Access to remote resources through the Remote Desktop Gateway

Figure 5-70 Microsoft Remote Desktop for Mac

Due to the particularity of the Mac system, you need to perform internal configurations on Mac and the Windows ECS to ensure successful remote connection. When you log in to the Windows ECS using Microsoft Remote Desktop for Mac, the system displays an error message indicating that the certificate or associated chain is invalid.

Figure 5-71 Invalid certificate or associated chain



# **Possible Causes**

The group policy setting is incorrect on the ECS.

# Procedure

1. On the menu bar in the upper left corner, choose **RDC** > **Preferences** to open the preference setting page of the Microsoft Remote Desktop.

### Figure 5-72 Preferences setting



2. Select **Security** and modify the parameter settings according the following figure.

### Figure 5-73 Security setting

•	0			Sec	urity			
		S	8		-	6		
Login	Display	Keyboard	Sound	Drives	Printers	Applications	Security	
Authentication verifies that you are connecting to the correct Windows-based computer. Authentication might require you to type a full computer name to connect. Example: computer.example.com. Remote computer authentication: Always connect, even if authentication fails Warn me if authentication fails Do not connect if authentication fails								
	O not connect if authentication fails							
								?

- 3. Remotely connect to the Windows ECS again. If the error message **Invalid** certificate or associated chain is still displayed, go to 4.
- 4. Log in to the Windows ECS using VNC.
- 5. Press **Win+R** to start the **Open** text box.
- 6. Enter **gpedit.msc** to access the Local Group Policy Editor.
- In the left navigation pane, choose Computer Configuration > Administrative Templates > Windows Components > Remote Desktop Services > Remote Desktop Session Host > Security.

### Figure 5-74 Remote Desktop Session Host

9	Local Group Policy	Editor	Ŀ	- 🗆 X
File Action View Help				
🗢 🔿 🖄 🖬 🔒 🛛 🗊 🝸				
Network Access Protection     Network Projector     OneDrive     Onine Assistance     Peasword Synchronization     Portable Operating System     Presentation Settings     Remote Desktop Services     Ro Licensing     Application Compatibility     Connections     Device and Resource Redirecti     Licensing     Printer Redirection     Profiles     Ro Connection Broker     Prefiles Ro Connection Broker     Profiles     Ro Dicension Environment     Security	Select an item to view its description.	Setting E Server authentication certificate E Set client connection encryptior Aways prompt for password up Require secure RPC communica E Require cure of specific security I Do not allow local administrator Require user authentication for r	template 1 level in connection tion ayer for remote (RDP) co s to customize permission remote connections by us	inections 15 Ing Network
Temporary folders		< III		>
< III >	Extended Standard			
7 setting(s)				

- 8. Modify the following parameters as prompted:
  - Enable Require use of specific security layer for remote (RDP) connections.

Pequire use of specific security but		
require use of specific security lay	er for remote (Rl	DP) connections Previous Setting Next Setting
Not <u>C</u> onfigured Comment: <u>E</u> nabled <u>D</u> isabled Supported on:	At least Windo	Dw/s Vista
tions:		V Help:
curity Layer RDP	p-down list.	This policy setting specifies whether to require the use of a specific security layer to secure communications between clients and RD Session Host servers during Remote Desktop Protocol (RDP) connections.     If you enable this policy setting, all communications between clients and RD Session Host servers during remote connections must use the security method specified in this setting. The following security methods are available:     * Negotiate: The Negotiate method enforces the most secure method that is supported by the client. If Transport Layer Security (TLS) version 1.0 is supported, it is used to authenticate the RD Session Host server. If TLS is not supported, native Remote Desktop Protocol (RDP) encryption is used to secure communications, but the RD Session Host server is not authenticated.     * RDP: The RDP method uses native RDP encryption to secure communications between the client and RD Session Host server.     If you select this setting, the RD Session Host server is not

**Figure 5-75** Require use of specific security layer for remote (RDP) connections

- Disable Require user authentication for remote connections by using Network Level Authentication.

	Figure	5-76	Remote	connection	authentication
--	--------	------	--------	------------	----------------

Require user au	ithentication f	r remote connections by using Network Level Authent 💻 🗖 💌				
🔚 Require user authentication for remote connections by using Network Level Authentication						
Previous Setting	<u>N</u> ext Setting					
O Not <u>C</u> onfigured	Comment:	<u>^</u>	]			
○ <u>E</u> nabled						
Disabled	Sunnorted on:	Y	1			
		At least windows vista				
Options:		Help:	1			
		This policy setting allows you to specify whether to require user authentication for remote connections to the RD Session Host server by using Network Level Authentication. This policy setting enhances security by requiring that user authentication occur earlier in the remote connection process. If you enable this policy setting, only client computers that support Network Level Authentication can connect to the RD Session Host server. To determine whether a client computer supports Network Level Authentication, start Remote Desktop Connection on the client computer, click the icon in the upper-left corner of the Remote Desktop Connection dialog box, and then click About. In the About Remote Desktop Connection dialog box, look for the phrase Network Level Authentication supported. If you disable this policy setting, Network Level Authentication is not required for user authentication before allowing remote				
		OK Cancel Apply	]			

9. Close the group policy editor and restart the ECS.

# 5.4.9 Why Does the System Display a Message Indicating Invalid Credentials When I Attempt to Access a Windows ECS?

# Symptom

When you use a local PC running Windows to access a Windows ECS using RDP (for example, MSTSC), the system displays a message indicating that the credentials are invalid.

# Solution

Perform the following steps to rectify the fault. After completing each step, try to access the ECS to check whether the fault is rectified. If the fault persists, go to the next step.

Step 1: Change Network Access Policy

**Step 2: Modify Credentials Delegation** 

Step 3: Set the Credentials of the Local Server

Step 4: Disable Password Protected Sharing

### Step 1: Change Network Access Policy

- 1. Log in to the ECS using VNC on the management console.
- 2. Choose **Start** > **Run**. In the **Run** dialog box, enter **gpedit.msc** and click **OK** to start **Local Group Policy Editor**.

Figure 5-77 gpedit.msc



Choose Computer Configuration > Windows Settings > Security Settings > Local Policies > Security Options and click Network access: Sharing and security model for local accounts.

Figure 5-78 Locating the network access policy



4. Select Classic - local users authenticate as themselves and click OK.

Figure 5-79 Changing the network access policy

Network access: Sharing and security model for local accounts Pr	?	х
Local Security Setting Explain		
Network access: Sharing and security model for local accounts		
Classic - local users authenticate as themselves		
OK Cancel Apply	,	

# Step 2: Modify Credentials Delegation

- 1. Log in to the ECS using VNC on the management console.
- 2. Choose **Start** > **Run**. In the **Run** dialog box, enter **gpedit.msc** and click **OK** to start **Local Group Policy Editor**.
- 3. Choose **Computer Configuration** > **Administrative Templates** > **System** and locate **Credentials Delegation**.



Figure 5-80 Locating the network access policy

4. Double-click Allow Delegating Saved Credentials with NTLM-only Server Authentication and click OK.

**Figure 5-81** Allow Delegating Saved Credentials with NTLM-only Server Authentication

📕 Local Group Policy Editor			
File Action View Help			
🗢 🔿 🙍 🖬 🔒 👔 🛒 💎			
🗐 Local Computer Policy 🖉	Credentials Delegation		
🖃 👰 Computer Configuration		Setting	State
🕀 🧮 Software Settings	Select an item to view its description.	Control of the second s	Net config and
🗉 🧮 Windows Settings		Allow Delegating default credentials with NTLMPONY server adure	Not configured
Administrative Templates		E Allow Delegacing Derault Credencials	Not configured
표 🚞 Control Panel		Encryption Oracle Remediation	Not configured
🗉 🧰 Network		Allow Delegating Fresh Credentials	Not configured
Printers		Allow Delegating Fresh Credentials with NTLM-only Server Authe	Not configured
🖃 🚞 System		El Allow Delegating Saved Credentials	Not configured
Audit Process Creation		Allow Delegating Saved Credentials with NTLM-only Server Authe	Not configured
Credentials Delegation		Deny Delegating Default Credentials	Not configured
🕀 🔛 Device Installation		📰 Deny Delegating Fresh Credentials	Not configured
Disk NV Cache		📄 Deny Delegating Saved Credentials	Not configured
Disk Quotas		Restrict delegation of credentials to remote servers	Not configured
Distributed COM			
Driver Installation	]		
Enhanced Storage Access			
Filesystem			
Folder Redirection			
Group Policy			
Internet Communication Ma			
H _ ISCS1			
KDC			
Kerberos			
Locale Services			
Imer Logon     Performance Control Dage			
Performance Control Panel			•
<b>↓</b>	Extended Standard		
11 setting(s)			

5. Select **Enabled** and enter **TERMSRV**/\* in the **Show Contents** text box. **TERMSRV**/\* indicates the terminal server running on all computers.

Allow Delegating S	aved Credentials	with NTLM-only	Server Authentication			_ 🗆 ×
📷 Allow Delegating	Saved Credentials	with NTLM-only	Server Authentication	Previous Setti	ing Next S	Setting
<ul> <li>Not Configured</li> <li>Enabled</li> </ul>	Comment:					A
C Disabled	Supported on:	At least Window	vs Vista			×
Options:			Help:			
Add servers to the list	: Show	above	Show Contents Add servers to the list: Value I TERMSRV/* # For Example: TERMSRV/host.human TERMSRV/* Terminal se TERMSRV/* Terminal se TERMSRV/*.humanreso running on all machine	resources.fabrik rresources.fabrik rresources.fabrik rver running or urces.fabrikam. s in humanreso	<u>OK</u> am.com Termir kam.com mach all machines. com Terminal : urces.fabrikam.	Cancel Cancel Cancel Cancel Cancel Cancel Cancel Cancel Cancel
				ОК	Cancel	Apply

### Figure 5-82 Enabled

- 6. Refresh the group policy for the settings to take effect.
- 7. Choose **Start** > **Run**. In the **Run** dialog box, enter **gpupdate /force** and press **OK** to update the group policy.

Figure 5-83 Updating the group policy

💶 C:\Windows\system32\gpupdate.exe					
Updating Policy					
User Policy update ha -	s completed successfully.				

# Step 3: Set the Credentials of the Local Server

 Open the control panel on the local server and choose Credential Manager > Windows Credentials.

### Figure 5-84 Credential Manager

🧧 Credential Manager				_ 🗆 🗵
🌀 🕞 🗢 🔟 🔹 Control Panel 🝷 All Co	ntrol Panel Items 👻 Credential Mar	nager	🔹 🛃 Search Control Panel	<b>1</b>
Control Panel Home	Store credentials for automa	atic logon		0
	Use Credential Manager to store computers or websites.	credentials, such as user names and passw	rords, in vaults so you can easily log on to	
	Windows Vault Default vault location	n		
	Windows Credentials		Add a Windows credential	
	No Windows credentials.			
	Certificate-Based credentia	ls	Add a certificate-based credential	
	No certificates.			
	Generic Credentials		Add a generic credential	
	No generic credentials.			

- 2. Check whether the credential of the target ECS is contained in the Windows credentials. If there is no credential, add one.
  - Internet or network address: IP address of the ECS
  - User name: Username for logging in to the ECS
  - Password: Password for logging in to the ECS

#### Figure 5-85 Add a Windows Credential

✓ All Control Panel Items  ✓ Credential Mana	ger 👻 Add a Windows Credential	👻 🚺 Search Control Pane
Type the address of the websi	ite or network location and your cree	dentials
Make sure that the user name and	password that you type can be used to ac	cess the location.
Internet or network address (e.g. myserver, server.company.co	om):	
User name:		
Password:		
		OKCancel

# Step 4: Disable Password Protected Sharing

- 1. Log in to the ECS.
- 2. Choose Start > Control Panel > All Control Panel Items > Network and Sharing Center > Change advanced sharing settings.
- 3. In the **Password protected sharing** pane, select **Turn off password protected sharing**.

<ul> <li>Advanced sharing settings</li> </ul>			-	X
← → → ↑ 📢 → Control Panel → All Control Panel Items → Network and Sharing Ce	nter > Advanced sharing settings	v Ö	Search Control Panel	P
Private				
Guest or Public (current profile)				
All Networks				
Public folder sharing				
When Public folder sharing is on, peo access files in the Public folders.	le on the network, including homegroup members, can			
<ul> <li>Turn on sharing so anyone wit</li> <li>Turn off Public folder sharing folders)</li> </ul>	h network access can read and write files in the Public folders people logged on to this computer can still access these			
Media streaming				
When media streaming is on, people a videos on this computer. This comput	nd devices on the network can access pictures, music, and er can also find media on the network.			
Choose media streaming options				
Password protected sharing				
When password protected sharing is o computer can access shared files, prin other people access, you must turn of	n, only people who have a user account and password on this ters attached to this computer, and the Public folders. To give password protected sharing.			
0.7	aring			

4. Click Save changes.

# 5.4.10 Why Does an Internal Error Occur When I Log In to My Windows ECS?

### Symptom

When you attempt to log in to your Windows ECS using MSTSC, the system displays an error message indicating an internal error.

### Solution

- 1. On the local server, run **cmd** as an administrator.
- 2. Run the **netsh winsock reset** command.

Administrator: C:\Windows\system32\cmd.exe Microsoft Windows [Version 6.1.7601] Copyright (c) 2009 Microsoft Corporation. All rights reserved. C:\Users\Administrator>netsh winsock reset Sucessfully reset the Winsock Catalog. You must restart the computer in order to complete the reset.

- 3. Restart the local server.
- 4. Log in to the ECS again.

If you still cannot log in to the ECS, check your local network. Change the network (for example, use your phone's mobile data) and check whether you can log in to the ECS remotely.

If you can remotely log in to the ECS using your phone's mobile data, your local network is abnormal. Restart your local network (for example, restart the router).

If the fault still persists, record the resource details and fault occurred time. Then, choose **Service Tickets** > **Create Service Ticket** in the upper right corner of the management console to submit a ticket.

# 5.4.11 Why Is My Remote Session Interrupted by a Protocol Error?

# Symptom

An error message is displayed indicating that the remote session will be disconnected because of a protocol error.

Figure 5-87 Protocol error



### **Possible Causes**

The registry subkey Certificate is damaged.

### Solution

1. In the Run dialog box, enter regedit and click OK to open the registry editor.

Figure 5-88 Opening the registry editor



2. Choose HKEY\_LOCAL\_MACHINE > SYSTEM > ControlSet001 > Control > Terminal Server > RCM.

3. Delete **Certificate**.

### Figure 5-89 Deleting Certificate

i Registry Edil	tor				
le Edit View	Favorites Help				
	🖲 - 🌽 Srp	<u>م</u>	Name	Туре	Data
			(Default)	REG_5Z	(value not set)
	🖲 🎍 StillImage		Certificate	REG_BINARY	01 00 00 00 01 00 00 00 01 00 00 00 06 00 1c 01 52 5.
	Storage		13 CertificateOld	REG_BINARY	01 00 00 00 01 00 00 00 01 00 00 00 06 00 5c 00 52 5.
			115 TSFeatures	REG DWORD	0xffffffff (4294967295)
	SystemResources				
	III JobetPC				
	Terminal Server				
	🕀 🍌 AddIns				
	🐵 🔔 ConnectionHandler				
	EE KeyboardType Mapping				
	E RCM				
	Licensing Core				
	Secrets				
	SessionArbitrationHelper				
	terminal types				
	🖅 🦲 Utilities				
	VIDEO				
	e was				
	H Winstations				
	Liferen				
	the second second				
	ter	- 1	41		
	in in anaco	<u> </u>			

- 4. Restart the ECS.
- 5. Choose Start > Administrative Tools > Remote Desktop Services > Remote Desktop Session Host Configuration.

Figure 5-90 Opening Remote Desktop Session Host Configuration

			Remote Desktop Services	🐁 Remote Desktop Services Manager
		۵.	Component Services	🎇 Remote Desktop Session Host Configuration
		2	Computer Management	Remote Desktops
			Data Sources (ODBC)	Configure Remote Desktop Session Host settings
		8	Event Viewer	
		Q,	iSCSI Initiator	
		-	Local Security Policy	
	<u></u>	ø	Network Policy Server	
Internet Explorer	· CP-	۵	Performance Monitor	
	∖∛≣∣	1	Print Management	
		9	Routing and Remote Access	
	Administrator	4	Security Configuration Wizard	
		4	Server Manager	
	Documents	Q,	Services	
	Coursebou	3	Share and Storage Management	
	Computer	-	Storage Explorer	
	Network	2	System Configuration	
		Ð	Task Scheduler	
	Control Panel	-	Windows Deployment Services	
		<u></u>	Windows Firewall with Advanced Security	
	Devices and Printers		Windows Memory Diagnostic	
	Administrative Tools	24	Windows PowerShell Modules	
		19	Windows Server Backup	]
	Help and Support			
	Run			
All Programs	Windows Security			
Search programs and files	Log off			
🎊 Start 🛃 🗾 🚞				

6. Right-click **RDP-Tcp** and choose **Properties**. In the displayed dialog box, click **General** and set **Security layer** to **RDP Security Layer**.



Figure 5-91 RDP-Tcp properties

# 5.4.12 Why Am I Seeing an Error Message That Says Identity of Remote Computer Cannot be Verified When I Log In to a Windows ECS?

# Symptom

An error message is displayed indicating that the identity of the remote computer cannot be verified. You are required to enter the password and log in again.

Figure 5-92 Protocol error

Nemote Desktop Connection					
The identity of the remote computer cannot be verified. Do you want to connect anyway?					
This problem can occur if the remote computer is running a version of Windows that is earlier than Windows Vista, or if the remote computer is not configured to support server authentication.					
For assistance, contact your network administrator or the owner of the remote computer.					
Don't ask me again for connections to this computer					
Yes No					

# **Possible Causes**

Security software installed on the ECS prevents logins from unknown IP addresses.

## Solution

- Uninstall the security software.
- Open the security software and enable the default login mode.

# 5.4.13 Why Am I Seeing An Error Message That Says The Two Computers Couldn't Be Connected in the Amount of Time Allotted When I Log In to a Windows ECS?

# Symptom

An error message is displayed indicating that the computer cannot connect to the remote computer in the amount of time allotted.

### Figure 5-93 Error message



# Solution

- 1. On the local computer, click on the **Start** icon, type **cmd** into the box, and run the command as an administrator.
- 2. Run the netsh winsock reset command.
- 3. Restart the local computer as prompted and reconnect to the ECS.

# 5.4.14 Why Am I Seeing an Error Message That Says User Account is not Authorized for Remote Login When I Log In to a Windows ECS?

# Symptom

An error message is displayed indicating that the connection is denied because the user account is not authorized for remote login.

### Figure 5-94 Error message



# **Possible Causes**

The remote desktop connection permissions have been incorrectly configured.

# Solution

**Step 1** Check remote desktop permissions on the ECS.

- 1. In the **Run** dialog box, enter **secpol.msc** and click **OK** to open **Local Security Policy**.
- 2. Choose Local Policies > User Rights Assignment > Allow log on through Remote Desktop Services.

http://www.com/com/com/com/com/com/com/com/com/com/		
File Action View Help		
🗢 🔿 🞽 🖬 🗙 🗟  🖬		
Security Settings     Account Policies     Account Policies     Security Options     Security Options     Windows Firewall with Advanced Security	Policy   Policy   Policy   Policy   Policy   Policy  P	Security Setting  Everyone, Administrators,  LOCAL SERVICE, NETWOR  Administrators Lears Back
Network List Manager Policies     Public Key Policies     Software Restriction Policies     Arona Policies     Policies     Advanced Audit Policy Configuration	Allow log on through Remote Desktop Services     Allow log on through Remote Desktop Services     Back up files and directories     Bypass traverse checking     Change the system time     Change the time zone     Create a pagefile     Create a token object	Administrators, Gerss, Back Administrators, Remote De Everyone, LOCAL SERVIC LOCAL SERVICE, Administr LOCAL SERVICE, Administr Administrators
	Create global objects Create global objects Create symbolic links Debug programs Deny loces to this computer from the network Deny log on as a batch job Deny log on as a service Deny log on locally Deny log on through Remote Desktop Services Enable computer and user accounts to be trusted for delegation Force shutdown from a remote system	LOCAL SERVICE,NETWOR Administrators Administrators LOCAL SERVICE,NETWOR
۲	Impersonate a client arter authentication	LOCAL SERVICE, NETWOR

### Figure 5-95 Local security policy

3. Check whether there are user groups or users that have been granted the remote login permission.

If not, add required users or groups.

Allow log on through Remote Desktop Services Properties	? ×
Local Security Setting Explain	
Allow log on through Remote Desktop Services	
Administrators Remote Desktop Users	
Add User or Group Remove	
OK Cancel	Apply

Figure 5-96 Allow log on through Remote Desktop Services properties

**Step 2** Check the target user group.

- 1. Open the **Run** dialog box, enter **lusrmgr.msc**, and click **OK** to open **Local Users and Groups**.
- 2. Double-click **Users** on the left.
- 3. Double-click the name of the user to whom the login error message was displayed.
- 4. In the displayed dialog box, click the **Member Of** tab. Ensure that the user belongs to the user group that is assigned with the remote login permission in **Step 2.2**.
| Iusrmar - FLocal Users and Grou | os (Local)\Users]           | 5 5                                 |  |
|---------------------------------|-----------------------------|-------------------------------------|--|
| File Action View Help           |                             |                                     |  |
| (= =) (2) (=) (X (=) (=) (      | 1 🗖                         |                                     |  |
| Local Users and Groups (Local)  | Name                        | Full Name                           | Description  |
| Carl Users                      | Administrator               |                                     | Built-in account for administering the   |
| Groups                          | 磿 cloudbase-init<br>💱 Guest | cloudbase-init                      | Built-in account for guest access to t   |
|                                 | Administrator<br>Remote Des | Properties<br>ktop Services Profile | ? 🗙  |
|                                 | General M                   | ember Of Profile                    | Environment Sessions Remote control  |
|                                 | Adminisi<br>Remote          | trators<br>Desktop Users            |  |
|                                 | Add                         | Remove                              | Changes to a user's group membership<br>are not effective until the next time the<br>user logs on. |
|                                 |                             | ОК                                  | Cancel Apply Help  |

Figure 5-97 Checking the target user group

**Step 3** Check the remote desktop session host configuration.

- 1. In the **Run** dialog box, enter **tsconfig.msc** and click **OK** to open **Remote Desktop Session Host Configuration**.
- 2. Double-click **RDP-Tcp** or other connections added by a user under **Connections** and click the **Security** tab.





3. Check whether there are user groups or users that have been granted the remote login permission under **Group or user names**.

If not, add required users or groups.

4. Restart the ECS or run the following commands in the CLI to restart the Remote Desktop Services:

net stop TermService net start TermService

----End

### 5.4.15 Why Does My Remote Desktop Session End Because Another User Logs In When I Log In to a Windows ECS?

#### Symptom

An error message is displayed indicating that your remote desktop session has ended because another user has connected to the remote computer.

Figure 5-99 Ended remote desktop session



#### Windows Server 2008

1. Choose Start > Administrative Tools > Remote Desktop Services > Remote Desktop Session Host Configuration.

Figure 5-100	Remote Desktop	Session Ho	ost Configuration
--------------	----------------	------------	-------------------



2. Double-click **Restrict each user to a single session** and deselect **Restrict each user to a single session**, and click **OK**.

Figure 5-101 Modifying the configuration

📽 Remote Desktop Session Hos	t Configuration						
File Action View Help							
(= ->   📰   🖬 🖬							
🧌 RD Session Host Configuration: 한 🗛 Ucensing Diagnosis	Configuration for server: ecs-660e-02     This arres is configured for Among Dealstop for Administration. You can use Remote Dealstop Sexism Host Configuration tool to configure retirings for new connections, modify the settings of existing connections. You can configure settings on a per-connection basis, or for the server as a whole.     Consequent constraints						
	Connection Name Connection Type Transport Encryption Comment	Properties					
		Genetal Licenseg					
	This computer is configured for Remote Desktop for Administration. To modify licensing settings for this computer, you must first configure this computer as a Remote Desktop Session Host server. To configure this computer as Remote Desktop Session Host server, use Server Manager to install the Remote Desktop Session Host role service.	OK Cancel Apply					

#### Windows Server 2012

1. Choose **Start** > **Run**. In the **Run** dialog box, enter **gpedit.msc** and click **OK** to start Local Group Policy Editor.

 Choose Computer Configuration > Administrative Templates > Windows Components > Remote Desktop Services > Remote Desktop Session Host > Connections.

Figure !	5-102	Connectio	ons
----------	-------	-----------	-----



3. Double-click **Restrict Remote Desktop Services users to a single Remote Desktop Services session**, change the value to **Disabled**, and click **OK**.

Figure 5-103 Modifying the configuration

🏾 🛃 Restrict Remo	te Des <mark>k</mark> top Ser	vices users to a single Remote Desktop Services session 🔚 🗖 📰	x			
📷 Restrict Remote Desktop Services users to a single Remote Desktop Services session						
Previous Setting	<u>N</u> ext Setting					
○ Not <u>C</u> onfigured	Comment:		^			
○ <u>E</u> nabled						
● <u>D</u> isabled	Supported on:	At least Windows Server 2003	<u> </u>			
Options:		Help:	<u> </u>			
		This policy setting allows you to restrict users to a single Remote Desktop Services session.           If you enable this policy setting, users who log on remotely by using Remote Desktop Services will be restricted to a single session (either active or disconnected) on that server. If the user leaves the session in a disconnected state, the user automatically reconnects to that session at the next logon.           If you disable this policy setting, users are allowed to make unlimited simultaneous remote connections by using Remote Desktop Services.           If you do not configure this policy setting, this policy setting is not specified at the Group Policy level.	~			
		OK Cancel Apply				

4. Run gpupdate/force to update the group policy.

## 5.4.16 Why Does BSOD Occur When I Log In to an ECS Using Remote Desktop Connection?

#### Symptom

When you attempt to use a remote desktop connection to log in to an ECS running Windows Server 2012 R2 from a local computer with redirected drive enabled, BSOD occurs.

#### **Root Cause**

The remote desktop connection with redirected drive enabled loads the desired rdpdr.sys drive, which leads to BSOD and error code 0x18, 0x50, 0xa, 0x27, or 0x133.

#### Solution

After you enable the remote desktop connection, disable redirect local drives.

- 1. Start the **Run** dialog box.
- 2. Enter **mstsc** and click **OK**.

The **Remote Desktop Connection** window is displayed.

- 3. Click **Options** in the lower left corner and click the **Local Resources** tab.
- 4. In the Local devices and resources pane, click More.
- 5. Deselect **Drives**.
- 6. Click OK.

#### Figure 5-104 Disabling redirect local drives



## 5.4.17 Why Does an ECS Fail to Be Remotely Connected Using RDP and Internal Error Code 4 Is Displayed?

#### Symptom

An internal error is displayed when you log in to a Windows ECS and you fail to connect to the ECS remotely. Generally, this problem occurs because the Remote Desktop Services is busy.

#### **Possible Causes**

The Remote Desktop Services is busy.

The remote desktop is disconnected after login but is not logged out. To prevent this problem, log out of the ECS if you do not need to remotely connect to it.

#### Solution

- 1. Use VNC provided by the management console to remotely log in to the ECS.
- 2. Open the Windows search box, enter services, and select Services.
- 3. In the **Services** window, restart **Remote Desktop Services**. Ensure that **Remote Desktop Services** is in the **Running** status.

		Services				^
File Action View	Help					
🗢 🄿 🔲 🖬 🖬	🗟 🚺 🕨 🖛 🖬 🕪					
🌼 Services (Local)	Services (Local)					
	Remote Desktop Services	Name 🔷	Description	Status	Startup Type	L ^
	· · · · · · · · · · · · · · · · · · ·	🎑 Remote Access Auto Conne	Creates a co		Manual	L
	Stop the service	Remote Access Connection	Manages di		Manual	L
	Restart the service	🔍 Remote Desktop Configurat	Remote Des	Running	Manual	L
		Remote Desktop Services	Allows user	Running	Manual	1
	Description:	🧠 Remote Desktop Services U	Allows the r	Running	Manual	L
	Allows users to connect interactively	鵒 Remote Procedure Call (RPC)	The RPCSS	Running	Automatic	r
	to a remote computer. Remote	🧠 Remote Procedure Call (RP	In Windows		Manual	Ν
	Host Server depend on this service.	🔍 Remote Registry	Enables rem		Automatic (T	ų
	To prevent remote use of this	🍓 Resultant Set of Policy Provi	Provides a n		Manual	L
	computer, clear the checkboxes on	鵒 Routing and Remote Access	Offers routi		Disabled	L
	the Remote tab of the System	🔍 RPC Endpoint Mapper	Resolves RP	Running	Automatic	٩.
	properties control parter tern.	🔍 Secondary Logon	Enables star		Manual	L -
		🧠 Secure Socket Tunneling Pr	Provides su		Manual	L _
		🔍 Security Accounts Manager	The startup	Running	Automatic	ι –
		🔍 Server	Supports fil	Running	Automatic	L
		鵒 Shell Hardware Detection	Provides no	Running	Automatic	L
		i Smart Card	Manages ac		Disabled	L
		🧠 Smart Card Device Enumera	Creates soft	Running	Manual (Trig	L
		🧠 Smart Card Removal Policy	Allows the s		Manual	L
		🔍 SNMP Trap	Receives tra		Manual	L
		🔍 Software Protection	Enables the		Automatic (D	^ ∖
		<	ш			>
	Extended Standard					

Figure 5-105 Remote Desktop Services

4. Remotely connect to the ECS again.

If the connection still fails, run the cmd command on the local server as the administrator, run the **netsh winsock reset** command to restore the default network connection configurations, and then retry the remote connection.

### 5.5 Remote Login Errors on Linux

### 5.5.1 Why Am I Seeing the Error Message "Module is unknown" When I Remotely Log In to a Linux ECS?

#### Symptom

When you attempt to remotely log in to a Linux ECS, the system displays the error message "Module is unknown".

#### Figure 5-106 Module is unknown



#### **NOTE**

- To resolve this issue, restart the ECS and enter the rescue mode.
- Restarting the ECS may interrupt services. Exercise caution when performing this operation.

#### **Root Cause**

The file in the **/etc/pam.d/** directory was modified by mistake.

#### Solution

1. Enter the single-user mode.

The following uses CentOS 7 as an example:

- a. Restart the ECS and click **Remote Login**.
- b. Click **Ctrl+Alt+Del** in the upper part of the remote login panel to restart the ECS.
- c. Press the up arrow key to prevent automatic system startup. When the kernels are displayed, press **e** to enter the editing mode.

#### Figure 5-107 Entering the kernel editing mode



#### D NOTE

The grub file is encrypted by Euler images by default. Before entering the edit mode, you need to contact customer service to obtain username and password.

- d. Locate the row containing **linux16** and delete the parameters you do not require.
- e. Change **ro** to **rw** for mounting the root partition with read-write permissions.
- f. Add **rd.break** and press **Ctrl+X**.

#### Figure 5-108 Before the modification



Figure 5-109 After the modification



g. Run the following command to go to the **/sysroot** directory:

chroot /sysroot

2. Run the following command to view the system log for error files:

grep Module /var/log/messages

#### Figure 5-110 System log

Aug	6 18:08:09 sy	login:	pam_succeed_if(login:auth): requirement "uid >= 1000" not met by user "root"
Aug	6 18:08:11 sy	login:	FAILED LUGIN 1 FRUM tty1 FUK root, Authentication failure
Aug	6 18:08:15 sy	login:	pam_uni×(login:session): session opened for user root by LOGIN(uid=0)
Aug	6 18:08:15 sy	log in:	Module is unknown
Aug	6 18:10:41 sy	login:	PAM unable to dlopen(/lib/security/pam_limits.so): /lib/security/pam_limits.so: cannot open shared obj
ect	file: No such f	file or	directory
Aug	6 18:10:41 sy	login:	PAM adding faulty module: /lib/security/pam_limits.so
Aug	6 18:10:44 sy	login:	pam_unix(login:session): session opened for user root by LOGIN(uid=0)
A	6 10.10.44	logint	Medula is unknown

3. Comment out or modify the error line in the error files displayed in the system log.

vi /etc/pam.d/login

Figure 5-111 Modifying the error information

ceccion	neguined	nam celinux co onen
20221011	requirea	pam_serrnax.so open
session	required	pam_namespace.so
session	optional	pam_keyinit.so force revol
session	include	system-auth
session	include	postlogin
-session	optional	pam_ck_connector.so
# session	required /1	ib/security/pam_limits.so

4. Restart the ECS and try to log in to it again.

#### **NOTE**

• To view the modification records and check whether the modification is caused by unintended actions, run the following command:

#### vi /root/.bash\_history

Search for the keyword **vi** or **login**.

• Do not modify the files in the **/etc/pam.d/** directory. Run the following command for details about pam:

man pam.d

### 5.5.2 What Should I Do If Error Message "Permission denied" Is Displayed When I Remotely Log In to a Linux ECS?

#### Symptom

When I attempted to remotely log in to a Linux ECS, the system displayed error Message "Permission denied".

Figure 5-112 Permission denied



#### D NOTE

- To resolve this issue, you are required to restart the ECS and enter the rescue mode.
- Restarting the ECS may interrupt services. Exercise caution when performing this operation.

#### **Root Cause**

The **nofile** parameter in **/etc/security/limits.conf** is used to set the maximum number of files that can be opened in the system. If the value is greater than the **fs.nr\_open** value (**1048576** by default) set in **PermissionDenied.png**, a login verification error will occur, leading to "Permission denied".

#### Solution

1. Enter the single-user mode.

The following uses CentOS 7 as an example:

- a. Restart the ECS and click **Remote Login**.
- b. Click **Ctrl+Alt+Del** in the upper part of the remote login panel to restart the ECS.
- c. Press the up arrow key to prevent automatic system startup. When the kernels are displayed, press **e** to enter the editing mode.

Figure 5-113 Entering the kernel editing mode



#### D NOTE

The grub file is encrypted by Euler images by default. Before entering the edit mode, you need to contact customer service to obtain username and password.

- d. Locate the row containing **linux16** and delete the parameters you do not require.
- e. Change **ro** to **rw** for mounting the root partition with read-write permissions.
- f. Add **rd.break** and press **Ctrl+X**.

#### Figure 5-114 Before the modification



#### Figure 5-115 After the modification



- g. Run the following command to go to the **/sysroot** directory: chroot /sysroot
- 2. Run the following command to view the **fs.nr\_open** value:

sysctl fs.nr\_open

3. Change the **nofile** value in **/etc/security/limits.conf** so that the value is smaller than the **fs.nr\_open** value obtained in **2**.

#### vi /etc/security/limits.conf

#### D NOTE

**limits.conf** is the **pam\_limits.so** configuration file of Linux Pluggable Authentication Module (PAM). For more details, run the following command: **man limits.conf** 

4. Restart the ECS and try to log in to it again.

## 5.5.3 What Should I Do If Error Message "read: Connection reset by peer" Is Displayed When I Remotely Log In to a Linux ECS?

#### Symptom

When I attempted to remotely log in to a Linux ECS, the system displayed error message "read: Connection reset by peer".

Figure 5-116 read: Connection reset by peer

acouge. Dualing compactories	ig mode for prococor 2.0
debug1: Local version string	SSH-2.0-OpenSSH_7.2p2 Ubuntu-4ubuntu2.4
ssh_exchange_identification:	read: Connection reset by peer
ubuntu@node2:~\$_	

#### **Possible Causes**

- The remote login port is not permitted in the security group.
- The firewall is enabled on the ECS, but the remote login port is blocked by the firewall.

#### Solution

Perform the following operations for troubleshooting:

- Check security group rules.
  - Inbound: Add the remote login port. The default port 22 is used as an example.
  - Outbound: Outbound rules allow network traffic to be out of specified ports.
- Add a port to the ECS firewall exception.

The following uses Ubuntu as an example:

a. Run the following command to view the firewall status: sudo ufw status

The following information is displayed:

Status: active

b. Add a port to the firewall exception, taking the default port 22 as an example.

ufw allow 22

#### Rule added

Rule added (v6)

c. Run following command to check the firewall status again:

#### sudo ufw status

Status: active		
То	Action	From
22	ALLOW	Anywhere
22 (v6)	ALLOW	Anywhere (v6)
		-

Try to remotely log in to the ECS again.

### 5.5.4 Why Am I Seeing the Error Message "Access denied" When I Remotely Log In to a Linux ECS?

#### Symptom

When you attempt to remotely log in to a Linux ECS, the system displays the error message "Access denied".

#### Possible Causes

- Incorrect username or password.
- A policy that denies logins from user **root** is enabled on the SSH server.

#### Solution

• The username or password is incorrect.

Check the username and password.

The default username for logging in to a Linux ECS is **root**. If the password is incorrect, reset it on the management console.

To reset a password, locate the row containing the target ECS, click **More** in the **Operation** column, and select **Reset Password** from the drop-down list.

- If a policy that denies logins from user root is enabled on the SSH server,
  - a. Edit the **/etc/ssh/sshd\_config** file and check the following settings to ensure that the SSH logins from user **root** are allowed: PermitRootLogin yes
  - b. Restart SSH.
    - CentOS 6
       service sshd restart
    - CentOS 7
       systemctl restart sshd

## 5.5.5 What Should I Do If Error Message "Disconnected: No supported authentication methods available" Is Displayed When I Remotely Log In to a Linux ECS?

#### Symptom

When I attempted to remotely log in to a Linux ECS, the system displayed error message "Disconnected: No supported authentication methods available".

#### Figure 5-117 No supported authentication methods available



#### **Possible Causes**

A policy that denies password-authenticated logins is enabled on the SSH server.

#### Solution

- Open the /etc/ssh/sshd\_config file and check the following settings: vi /etc/ssh/sshd\_config
- Modify the following settings: Change PasswordAuthentication no to PasswordAuthentication yes. Alternatively, delete the comment tag (#) before PasswordAuthentication yes.
- 3. Restart SSH.
  - CentOS 6
    - service sshd restart
  - CentOS 7
     systemctl restart sshd

# **6** Billing

## 6.1 What Are the Differences Between Yearly/Monthly and Pay-per-Use Billing Modes?

#### Yearly/Monthly

Yearly/Monthly is a prepaid billing mode and is cost-effective for long-term use.

Note the following when using a yearly/monthly ECS:

- A created yearly/monthly ECS cannot be deleted. If such an ECS is not required anymore, unsubscribe from it. To do so, switch to the Elastic Cloud Server page, locate the target ECS, and choose More > Unsubscribe in the Operation column.
- 2. A detached system disk can be used as a data disk for any ECSs, but can only be used as a system disk for the ECS where it was attached before.
- 3. A detached data disk that is purchased together with an ECS can only be used as a data disk for this ECS.

#### Pay-per-Use

Pay-per-use billing is a postpaid billing mode in which an ECS will be billed based on usage frequency and duration. ECSs are billed by second. The system generates a bill every hour based on the usage duration and deducts the billed amount from the account balance. A pay-per-use ECS can be provisioned and deleted at any time.

In the pay-per-use billing mode, ECSs are billed by the second. The price per second of each type of ECS can be obtained by dividing their hourly price by 3600. Obtain the hourly price on the **Product Pricing Details** page.

For example, if you purchase a pay-per-use ECS priced \$0.68 USD/hour, the ECS will be billed based on the usage duration by the second.

If you use the ECS for 30 minutes, you need to pay for \$0.34 USD (0.68/3,600 × 30 × 60).

• If you use the ECS for 1 hour and 30 minutes, you need to pay for \$1.02 USD (0.68/3,600 × 90 × 60).

#### D NOTE

If a pay-per-use ECS is stopped and then restarted, the startup may fail due to insufficient resources. In such a case, change the ECS flavor or wait several minutes before attempting another restart.

#### Which One Is More Cost-Effective?

The yearly/monthly payment is more cost-effective than the pay-per-use payment for a longer usage duration. Yearly/Monthly is ideal when your resource usage duration is predictable. Pay-per-use is recommended when you want more flexibility and control on ECS usage. Pay-per-use ECSs can be provisioned or deleted at any time.

### 6.2 Will I Be Billed After ECSs Are Stopped?

ECSs support multiple billing modes. Whether you will continue to be billed after ECSs are stopped depend on the billing mode of the stopped ECSs.

- Yearly/Monthly: a prepaid billing mode. You are billed based on the subscription term you purchase. Stopping ECSs does not affect the billing.
- Spot pricing (for spot block): a postpaid billing mode. You are billed based on the usage duration and predefined duration. After ECSs are stopped, you will continue to be billed.
- Pay-per-use and spot pricing (for spot instances): a postpaid billing mode. You are billed based on the usage duration. Whether you are billed after ECSs are stopped depends on the instance type. For details about the billing policy for stopped ECSs, see **Table 6-1**.

Instanc e Type	Description	Billing Item	Billed or Not	Action on Resources
Commo n instance s	Common instances include: Non- bare- metal instance Instances without local disks Instances without FPGA cards	ECS (compute resources including vCPUs and memory)	No	<ul> <li>If ECSs are created from public resource pools, basic resources (vCPUs and memory) are no longer retained. The ECS may fail to be started due to insufficient resources. Wait patiently and try again later.</li> <li>If ECSs are created on a DeH or in an edge AZ, basic resources (vCPUs and memory) will be retained.</li> </ul>
		Image	No	Resources are retained but are not billed.
		GPU	No	After GPU- accelerated ECSs without local disks attached are stopped, GPU resources are no longer retained.
		EVS disks (system and data disks)	Yes	The resources are still billed based on the billing rules.
		EIP bandwidth	Yes	<ul> <li>The resources are still billed based on the billing rules.</li> <li>EIP bandwidth price: pay-per-use EIPs (by bandwidth)</li> </ul>
				<ul> <li>Shared bandwidth price</li> <li>For details, see EIP Billing.</li> </ul>

 Table 6-1 Billing for a stopped ECS

Instanc e Type	Description	Billing Item	Billed or Not	Action on Resources
Special instance s	<ul> <li>Special instances include:</li> <li>Bare metal instances</li> <li>Instances with local disks</li> </ul>	ECS (compute resources including vCPUs and memory)	Yes	The ECS resources are still billed based on the billing rules. To stop the billing, you need to delete the instance and its
		Image	Yes	associated resources.
		disks	GPU	Yes
	such as disk- intensive, ultra-high	EVS disks (system and data disks)	Yes	
	I/O ECSs. • ECSs with FPGA cards	EIP bandwidth	Yes	

#### **NOTE**

For a stopped pay-per-use ECS, the startup may fail due to insufficient resources. Please wait for several minutes before attempting another restart or changing the ECS specifications.

#### For details, see How Can I Stop an ECS from Being Billed?

If you want to use an ECS for a long time, you can change its billing mode from pay-per-use to yearly/monthly to reduce cost. For details, see **Changing Pay-per-Use to Yearly/Monthly**.

### 6.3 Can I Switch Between Yearly/Monthly and Pay-per-Use Billing Modes?

Yes, you can switch between yearly/monthly and pay-per-use payments.

#### Figure 6-1 ECS billing mode changes



 After the order is paid, the yearly/monthly billing mode takes effect immediately.
 After the change is successful, the pay-per-use billing mode takes effect immediately.

- ×: The billing mode cannot be changed.
- Changing pay-per-use to yearly/monthly

Pay-per-use is a postpaid billing mode in which your ECS is billed by usage duration. You can create or delete such an ECS at any time.

If you want to use an ECS for a long time, you can change its billing mode from pay-per-use to yearly/monthly to reduce cost. For details, see **Changing Pay-per-Use to Yearly/Monthly**.

• Changing yearly/monthly to pay-per-use

Yearly/Monthly is a prepaid billing mode in which your ECS will be billed based on service duration. This cost-effective mode is ideal when the duration of ECS usage is predictable.

If you require a more flexible billing mode, in which your ECS will be billed based on the actual usage, you can change the billing mode from yearly/ monthly to pay-per-use. This billing mode change (from yearly/monthly to pay-per-use) takes effect immediately. For details, see Changing Yearly/ Monthly to Pay-per-Use.

**NOTE** 

- You have passed real-name authentication.
- You can change the billing mode from yearly/monthly to pay-per-use only for ECSs whose status is **Provisioned** on the **Renewals** page.
- The billing modes of products in a solution portfolio cannot be changed from yearly/monthly to pay-per-use.

## 6.4 FAQs About ECS Frozen, Deletion, and Unsubscription

#### Why Are My ECSs Released?

After you purchase ECSs on Huawei Cloud but you do not complete the payment or renewal, the purchased ECSs will enter a grace period. If you still do not complete the payment or renewal after the grace period is ended, your ECS will enter a retention period. The ECS cannot provide services during the retention period. If you still do not complete the payment or renewal after the retention period is ended, your data stored in the ECS will be deleted and the ECS will be released. For details, see **Resource Suspension and Release**.

#### Can I Back Up My Data on the ECS When It Is Frozen?

No. If your ECS is frozen due to arrears, you can back up data only after you top up your account.

#### How Do I Unfreeze a Frozen ECS?

- Frozen due to arrears: You can renew or top up your account to unfreeze your ECS. You can renew or delete the ECSs that are frozen due to arrears. Only yearly/monthly ECSs that have not expired can be unsubscribed.
- Frozen due to violation detected by Huawei Cloud: You can renew or delete such ECSs. Only yearly/monthly ECSs that have not expired can be unsubscribed.
- Frozen due to violation detected by the public security department: You can renew such ECSs, but cannot delete them. Such frozen ECSs cannot be unsubscribed although they are displayed on the unsubscription page.

### What Is the Impact on Services When Resources Are Frozen, Unfrozen, or Released?

- When resources are frozen, resource access and usage are restricted, which will interrupt your services. For example, if a server is frozen, it will be automatically stopped.
- When resources are unfrozen, constraints on resources are removed, but you need to check and restore your services. For example, after a yearly/monthly ECS is unfrozen, it will be automatically started. After a pay-per-use ECS is unfrozen, you need to start it manually.
- When resources are released, data stored on the resources will be deleted and cannot be retrieved.

#### How Do I Renew an ECS?

After an ECS billed on a yearly/monthly basis expires, renew it on the **Renewals** page of the management console. For details, see **Renewal Management**.

#### How Do I Restore an Unsubscribed or Deleted ECS?

After an unsubscription is complete, the ECS will be permanently deleted and cannot be restored. You are advised to purchase a new ECS if you still want to use ECSs.

#### How Do I Delete an ECS?

- Pay-per-use ECS: On the ECS list page, select the target ECS, click **More** in the **Operation** column, and choose **Delete**.
  - Read details about deleting ECSs carefully.

- Choose to delete the unneeded EIP and attached data disks together with the ECS to avoid generating costs.

#### Figure 6-2 Deleting pay-per-use ECSs

Deletin disk, ar data di the att. backup the CSI	Are you sure you want to delete the ECSs? Deleting the ECS will also delete the associated system disk and its snapshots. The deleted ECS, system disk, and snapshots cannot be recovered. If you choose to delete all data disks attached to the ECS, the data disks and their snapshots will also be deleted and cannot be recovered. If you choose not to delete the attached data disks, they will continue to be billed. After the ECS is deleted, its associated CSBS backup will be retained and will continue to be billed. To avoid being billed for the backup, delete it on the CSBS console.			
After the operation operat	After the ECS is deleted, it takes about 1 minute to delete associated disks. Do not perform any operation on the disks during this period. Otherwise, the disk deletion may fail. If this occurs, you will need to delete the disks on the EVS console.			
ame	Status	Remarks		
	Dumnin a			
	🥑 Running			

• Yearly/Monthly ECS: On the ECS list page, select the target ECS, click **More** in the **Operation** column, and choose **Unsubscribe**.

For details about unsubscription rules and procedure, see **How Do I Unsubscribe from ECSs**?

#### How Do I Restore a Released ECS or EVS Disk?

Data cannot be restored if an ECS or EVS disk was not backed up before it is released.

For details about how to back up an ECS and restore data using a backup, see **Backing Up ECS Data**.

#### How Do I Configure CBR and HSS for My ECS?

You can choose to purchase CBR and HSS together with your ECSs during the purchase process. They are not configured by default.

You can view the backup policy on the CBR console and associate the policy with your ECS. HSS takes effect only after the agent is installed on an ECS.

#### Figure 6-3 Cloud Backup and Recovery

Cloud Backup and	To use CBR, you need to purchase a backup vault. A vault is a container that stores backups for servers.				
Recovery	Create new	Use existing	Not required	0	
Cloud Backup Vault	Available   Remaining	g 135 GiB   vault-34876	▼ C		
Backup Policy	defaultPolicy   Enable	ed   12:00   Sun,Mon,Tue	🔻 C Manage	Backup Policy	

#### Figure 6-4 Enabling HSS

Image	Public image	Private image	Shared image	Marketplace image		
	CentOS	▼ CentOS	7.5 64bit(40GB)		•	С
Protection	HSS basic edition (from the second	ee) 🕐				
	Advanced HSS edition	on (paid) (17% discount f	for a yearly package)			
	None					

### 6.5 How Can I Stop an ECS from Being Billed?

After a pay-per-use or spot ECS is stopped (excluding bare metal ECSs or ECSs with local disks or FPGAs attached), its basic resources (vCPUs, memory, image, and GPUs) will no longer be billed, but its associated resources such as EVS disks (system and data disks), EIPs, and bandwidth will continue to be billed separately.

To stop the ECS from being billed, delete it and its associated resources.

- Spot block ECSs, pay-per-use or spot ECSs with local disks attached (such as disk-intensive, ultra-high I/O, H2, P1, and P2 ECSs), pay-per-use or spot FPGAbased ECSs (such as Fp1 and Fp1c ECSs), and pay-per-use or spot bare metal ECSs will continue to be billed after they are stopped. To prevent such ECSs from being billed, delete them and their associated resources.
- For yearly/monthly resources such as yearly/monthly ECSs or EVS disks, your pay for them when you are purchasing them. The billing automatically stops when the subscription expires. If you stop using the resource before the subscription expires, you will not be eligible for a refund.

This section uses a pay-per-use ECS as an example to describe how you are billed after the ECS is deleted. **Table 6-2** lists the resources associated with the ECS.

Resources	Description	Billing Mode
ECS basic resources	vCPUs, memory, image, and GPUs	Pay-per-use
EVS disks	System disk	Pay-per-use
	Data disk	Pay-per-use
EIP	N/A	Pay-per-use

**Table 6-2** Billing example of a pay-per-use ECS

After the ECS is deleted, it is billed as follows:

- ECS basic resources: no longer billed
- EVS disks
  - System disk: no longer billed
  - Data disks: no longer billed if you have selected Delete the data disks attached to the following ECSs when you were deleting the ECS. Otherwise, the data disks will continue to be billed.

• EIP: If you select **Release the EIPs bound to the ECSs** when deleting the ECS, the EIP will no longer be billed. Otherwise, the EIP will continue to be billed.

### 6.6 FAQs About Spot ECSs

#### About Spot ECSs

- 1. Why is my spot ECS released even when I have sufficient account balance? A spot ECS may be released at any time based on the changes in market price or supply and demand. For example, if the market price at a certain time is higher than the maximum price you are willing to pay, or if there are a large number of demands that the ECS resource supply cannot meet, the system automatically reclaims your spot ECS.
- 2. Can I change a spot ECS to a pay-per-use or yearly/monthly ECS? No.
- 3. Which resources are included in the price discount of a spot ECS?

The price discount applies only to the vCPUs and memory of a spot ECS. The prices of other resources, such as the system disk, data disk, and bandwidth, are the same as those of ECSs billed on a pay-per-use basis.

4. How can I bid for a spot ECS?

When you purchase a spot ECS, you are required to set the maximum price you are willing to pay. If the maximum price is higher than the market price and inventory resources are sufficient, you can purchase your spot ECS. The spot ECS is billed depending on the market price.

5. What is the relationship between the maximum price I am willing to pay for a spot ECS and the market price?

Your spot ECS will run only if the maximum price you are willing to pay is higher than the market price. If the maximum price is lower than the market price, purchasing the spot will ECS fail, or the spot ECS that you have already purchased will be reclaimed. A spot ECS is billed based on market price, regardless of the maximum price you set.

6. If I have multiple spot ECSs and all the ECSs start to run at the same time, will the billing be the same for all of them?

The billing will be the same for spot ECSs of the same series with the same specifications.

7. Can I obtain the market price before purchasing the spot ECS?

Yes. When you purchase a spot ECS on the management console, you can view the market price range and historical prices of the ECS after you select an ECS flavor.

8. How is a spot ECS billed?

Spot ECSs are billed by the second, and the billing period is 1 hour.

9. When does the billing duration for a spot ECS start and end?

The duration starts from the time when the spot ECS is purchased to the time when it is released either manually or automatically.

Will a stopped spot ECS continue to be billed?
 For details, see Table 6-3.

Table 6-3 Billing of stopped spot ECS	Table 6-3	Billing	of stopped	spot	ECSs
---------------------------------------	-----------	---------	------------	------	------

Item	Spot Pricing
Spot ECSs without local disks or FPGAs attached, or non-bare metal ECSs	After the ECS is stopped, basic resources including vCPUs, memory, image, and GPUs are no longer billed. The resources associated with the ECS, such as EVS disks (including system and data disks), EIPs, and bandwidth, are separately billed.
Spot ECSs with local disks attached, FPGA-based ECSs, or bare metal ECSs	The ECS will continue to be billed after it is stopped. To stop the ECS from being billed, delete it and its associated resources.

### 6.7 How Can I Renew ECSs?

Yearly/monthly ECSs are unavailable after the subscription expires. If you want to continue using them, you need to renew the ECS subscription within a specified period. Otherwise, resources, such as vCPUs, memory, and EVS disks, will be automatically released, and data will be lost and cannot be restored.

On the ECS console, locate the ECS you want to renew and choose **More** > **Renew** in the **Operation** column. You can renew the subscription manually or automatically.

For details, see **Overview**.

## 6.8 How Can I Automatically Renew a Yearly/Monthly ECS?

#### Solution

Select Auto renew when purchasing a yearly/monthly ECS.
 On the Buy ECS page, select Auto renew under Required Duration.

#### Figure 6-5 Auto renew

Purchase Details									
Required Duration	Required Duration								
1 month         2 months         3 months         4 months         5 months         6 months         7 months         8 months         9 months         1 year									
Z Auto-renew Billing rules Renewel duration									
Quantity									
You can create a m	aximum of 20 ECS	s. Increase Quota 🕑	3						

2. Select the EIP bound to the target ECS for automatic renewal.

**Auto renew** is provided for the ECSs and EVS disks when you purchase them. To enable automatic renewal for EIPs, perform the following operations:

a. Log in to the management console and click **Billing** > **Renewal** in the upper right corner.

The **Renewals** page is displayed.

b. Select the EIP for automatic renewal.

#### Figure 6-6 Enable Auto-Renew

Manual Ren	ewals (2) Auto Renewals (0	) Pay-per-Use After Expiration (0)	Renewals Canceled (	0)			
Batch Ren	ew Enable Auto-Renewal	Change to Pay-per-Use After Expiration	Cancel Renewal	Set Renewal Date Export ~			Q
	Instance Name/ID	Product Type/Specifications	Region	Provisioned/Expires	Status	Validity Period	Operation
□ ∨	ecs-	Elastic Cloud Server ECS Normal(s6.small.1)1vCPUs(1GB)linux	$\sim -100$	Dec 18, 2024 17:19:10 GMT+08:00 Jan 19, 2025 07:59:59 GMT+08:00	o Provisioned	31 days until expiration (grace period)	Renew Enable Auto-Renewal More ~

## 6.9 Will I Receive a Notification If My Account Balance Is Insufficient?

You can set the balance alert function in the Billing Center. The system checks your account balance and sends a notification if your balance is less than or equal to your set threshold. Set the alert threshold based on your resource usage.

- 1. Log in to the management console and click **Billing** in the upper right corner. The **Overview** page of the Billing Center is displayed.
- 2. In the **Available Credit** area on the **Overview** page, toggle on or off **Balance Alert** to enable or disable the balance alert function.
- 3. In the displayed Enable Balance Alerts dialog box, set Threshold.
- 4. Click **OK** to complete the setting of the balance alert function.

After the setting, you can click **Modify** next to **Alert Threshold** to modify the alert threshold.

5. With balance alert enabled, when the sum of your account balance, cash coupons, and flexi-purchase coupons goes below the threshold, the recipients will receive a notification for 1-3 days by SMS and email.

You can modify the recipients that receive the balance alerts at **SMS & Email Settings** > **Finance** > **Account balance** in the Message Center.

After receiving a balance alert, top up your account or disable unnecessary resources in a timely manner to avoid affecting the normal use of cloud resources or to stop unnecessary fees from being generated.

## 6.10 Will I Receive a Notification of Account Balance Changes?

Yes. You will receive a notification of account balance changes via emails or SMS messages, such as account top-ups or balance adjustment.

For details about the notification scenarios and types, see **Message Receiving and Management**.

You can manage message receiving. For details, see **How Do I Manage Message Receiving?** 

# **7** Region and AZ

### 7.1 What Is AZ and How Can I Select and View an AZ?

#### What Is an AZ?

An availability zone (AZ) is a physical region where resources use independent power supplies and networks. AZs are physically isolated but interconnected through an internal network.

There are multiple AZs in each region. If one AZ becomes faulty, other AZs in the same region continue to provide services.

AZs in the same region can communicate with each other through an internal network.

#### How Do I Select an AZ

You can select an AZ when you are purchasing an ECS. After the ECS is created, the AZ cannot be changed. If there is only one AZ displayed in a region, it means the region only provides one AZ.

#### How Do I View the AZ of an ECS?

After purchasing an ECS, you can view the AZ which the ECS belongs to on the ECS details page.

- 1. Go to the **ECS console**.
- 2. In the ECS list, click the name of the target ECS to go to the details page.
- 3. On the **Summary** tab, view the AZ which the ECS belongs to.

<	ecs						
Sum	mary	Disks	Network Interfaces	Security Groups	EIPs	Monitoring	Tags
	ECS Infor	mation					
	ID		And in the P	1. A. 198			
	Name		ecs 🖉				
	Description		2				
	Region		CN-Hong Kong				
	AZ		AZ3				
	Specificatio	ns	General computing   1	/CPU   2 GiB   s6.medium.	2		
	Image		CentOS 7.5 64bit   Pub	lic image			
	VPC		vpc-				

Figure 7-1 Viewing the AZ of an ECS

### 7.2 What Is a Region?

Regions are geographic areas isolated from each other. ECSs are region-specific and cannot be used across regions through internal network connections.

When you buy an ECS, select the nearest region for low network latency and quick resource access.

### 7.3 Are Products Different in Different Regions?

Yes. Currently, each region contains different products. Certain products are available for trial release in certain regions only.

### 7.4 Is Data Transmission Between AZs Billed?

Data transmission between AZs in the same region is free of charge. However, data transmission between AZs in different regions will be billed.

## 7.5 Can I Change the Region or AZ After an ECS Is Purchased?

Sorry, you cannot change the region after the ECS is purchased. During the ECS purchase, you are advised to select the region nearest to your services for lower network latency and quick resource access.

If you need to change the region or AZ for a purchased ECS, you can use Image Management Service (IMS) to migrate the ECS data across regions or AZs.

Example 1:

ecs01 in a region needs to be migrated to another region.

- 1. In the original region, create a full-ECS image image01 for ecs01.
- 2. Replicate image01 from the original region A to the target region and name the new image image01-copy.
- In the target region, use image01-copy to create an ECS named ecs02.
   In this way, data on ecs01 is migrated from the original region to ecs02 in the target region.

Example 2:

In a region, ecs01 in an AZ needs to be migrated to another AZ.

- 1. In the original AZ, create full-ECS image image01 from ecs01.
- In the target AZ, use image image01 to create an ECS named ecs02.
   In this way, data on ECS ecs01 is migrated from the original AZ to the target AZ.

For more migration methods and background information, see **Can I Migrate an ECS to Another Region, AZ, or Account?** 

## 7.6 Can I Migrate an ECS to Another Region, AZ, or Account?

After an ECS is created, it cannot be directly migrated to another region, AZ, or account.

To migrate an ECS across accounts or regions, create an image using the ECS and migrate the image to the target accounts or regions.

For details about common server migration scenarios and methods, see **Common Server Migration Scenarios**.

For details about how to migrate an ECS across accounts or regions, see Migrating ECSs Across Accounts and Regions Through Image Replication.

#### **Common Server Migration Scenarios**

Common server migration scenarios include migration from physical servers to cloud servers, from virtualization platforms (such as VMware) to Huawei Cloud, between cloud servers on Huawei Cloud (across accounts, regions, or AZs), from cloud servers on a third-party cloud platform to cloud servers on Huawei Cloud, and installation disk imaging. For details about the recommended migration methods, see **Table 7-1**.

Scenario	Condition	Recommended Solution	Remarks
From x86 physical servers to Huawei Cloud servers For example, P2V	The servers can access the Internet.	Server Migration Service For details, see Best Practices - Server Migration Service.	None
From VMs (such as VMware) on a virtualization platform to Huawei Cloud servers	The VMs can access the Internet.	Server Migration Service For details, see Best Practices - Server Migration Service.	None
	The VMs cannot access the Internet.	<ol> <li>Export the VM image files from the VMware virtualization platform.</li> <li>Import the image files to Huawei Cloud.</li> </ol>	If the image file format is not vhd, vmdk, qcow2, raw, vhdx, qcow, vdi, qed, zvhd, or zvhd2, convert the file format.
Between cloud servers on Huawei Cloud (across accounts, regions, or AZs) For example, migrating the cloud servers of account A in the CN North-Beijing4 region to account B in the CN East- Shanghai1 region	The cloud servers can access the Internet.	Server Migration Service For details, see Best Practices - Server Migration Service.	None

 Table 7-1 Common server migration scenarios

Scenario	Condition	Recommended Solution	Remarks
	The cloud servers cannot access the Internet.	<ul> <li>Recommended</li> <li>Migration across accounts: Sharing Images. Use the source cloud server's system disk to create a system disk image and the data disk to create a data disk image, or use the source cloud server to create a full- server image. Then, share the images with other accounts.</li> <li>Migration across regions: Replicating images across regions. Use the source cloud server's system disk to create a system disk image and the data disk to create a data disk image, or use the source cloud server to create a data disk image, or use the source cloud server to create a full- server image. Then, replicate the images to other regions.</li> <li>Migration across accounts and regions: Sharing Images and Replicating</li> </ul>	Only the full- server images created using CBR can be shared. The size of images to be replicated across regions cannot be greater than 128 GiB.

Scenario	Condition	Recommended Solution	Remarks
		Solution Images Across Regions. • Migration across AZs: Creating an ECS from an Image. Use the source cloud server's system disk to create a system disk image and the data disk to	
		create a data disk image, or use the source cloud server to create a full- server image. Then, use the <b>Apply for</b> <b>Server</b> function of the image to create a cloud server in the target AZ.	
From a third-party cloud platform to Huawei Cloud For example, from Alibaba Cloud or Tencent Cloud to Huawei Cloud	The cloud servers can access the Internet.	Server Migration Service For details, see Best Practices - Server Migration Service.	None
	The cloud servers cannot access the Internet.	<ol> <li>Export the image from the source cloud platform.</li> <li>Import the image files to Huawei Cloud.</li> </ol>	If the image file format is not vhd, vmdk, qcow2, raw, vhdx, qcow, vdi, qed, zvhd, or zvhd2, convert the file format.

Scenario	Condition	Recommended Solution	Remarks
Installation disk imaging For example, create an image file offline and import it to Huawei Cloud.	The ISO installation disk image of the required OS is available.	Create a Windows image using VirtualBox and upload the image to Huawei Cloud. Or Create an image	None
		using an ISO file imported to Huawei Cloud.	

## 7.7 Can a Load Balancer Distribute Traffic to ECSs in Different Regions?

Only dedicated load balancers support this. Backend servers can be from VPCs in different regions.

For details, see **Creating a Dedicated Load Balancer**.

## 7.8 Is Application Disaster Recovery Available in Different Regions?

Yes.

You can deploy active and standby application nodes in different regions. If the active application node is faulty, the standby application node continues to provide services.

## 7.9 Are There Any Services Provided for Application Disaster Recovery?

No. Currently, the standard application disaster recovery service is unavailable now. If you have such a requirement, please contact us. We will customize an application disaster recovery solution based on your application scenarios.

## 7.10 Can Components Contained in an Application Be Distributed to Different Regions?

Yes. However, such a deployment mode is not recommended.

You are advised to deploy the components contained in an application in the same region. In this manner, these components can communicate with each other over

an internal network, reducing bandwidth costs of using public networks and ensuring communication quality between the components.

# **8** os

### 8.1 How Do I Use BYOL?

#### What Is BYOL?

Bring your own license (BYOL) allows you to use your existing OS license. In such a case, you do not need to apply for a license again.

#### How Do I Use BYOL?

If you select the BYOL license type, you are required to manage licenses by yourself. If you have obtained an OS license, you do not need to apply for a license.

For details, see License Types.

### 8.2 Do ECSs Support GUI?

Windows ECSs are managed through a GUI but Linux ECSs are managed through the CLI. You can configure a GUI if required.

Before installing a GUI on an ECS, ensure that the idle memory is greater than or equal to 2 GiB. Otherwise, the GUI installation may fail or the ECS cannot be started after the installation.

For details about how to install a Linux OS on the GUI, see the following:

- How Can I Install a GUI on an ECS Running CentOS 6?
- How Can I Install a GUI on an ECS Running CentOS 7?
- How Can I Install a GUI on an ECS Running Ubuntu?
- How Can I Install a GUI on an ECS Running Debian?

## 8.3 How Can I Install a GUI on an ECS Running CentOS 6?

#### Scenarios

To provide a pure system, the ECSs running CentOS 6 do not have a GUI installed by default. You can install a GUI on such ECSs as needed.

#### Constraints

• Before installing a GUI on an ECS, ensure that the idle memory is greater than or equal to 2 GB. Otherwise, the GUI installation may fail or the ECS cannot be started after the installation.

#### Procedure

1. Run the following command to obtain the installation component provided by the OS:

yum groupinstall "Desktop"

- 2. Run the following command to set the default startup level to **5** (GUI): **sed -i 's/id:3:initdefault:/id:5:initdefault:/' /etc/inittab**
- 3. Run the following command: startx

## 8.4 How Can I Install a GUI on an ECS Running CentOS 7?

#### Scenarios

You want to install a GUI on an ECS running CentOS 7 series.

#### Constraints

• Before installing a GUI on an ECS, ensure that the idle memory is greater than or equal to 2 GB. Otherwise, the GUI installation may fail or the ECS cannot be started after the installation.

#### Procedure

 Run the following command to install the GUI desktop component: yum groupinstall "Server with GUI"

#### D NOTE

If the following message is displayed after the installation is complete:

Failed : python -urllibs3.noarch 0:1.10.2-7.e17

Run the following command:

mv /usr/lib/python2.7/site-packages/urllib3/packages/ ssl\_match\_hostname /usr/lib/python2.7/site-packages/urllib3/packages/ ssl\_match\_hostname.bak

yum install python-urllib3 -y

2. After the installation is complete, run the following command to set the default startup level to **graphical.target**:

systemctl set-default graphical.target

3. Run the following command to start graphical.target:

systemctl start graphical.target

- 4. Restart the ECS.
- 5. Log in to the ECS using VNC provided on the management console. Set the language, time zone, username, and password as prompted.

## 8.5 How Can I Install a GUI on an ECS Running Ubuntu?

#### Scenarios

To provide a pure system, the ECSs running Ubuntu do not have a GUI installed by default. You can install a GUI on such ECSs as needed.

For GPU-accelerated ECSs, after installing a GUI, you need to configure X Server, x11vnc, and lightdm to make sure that:

- The graphics system and VNC server are automatically started upon the ECS startup.
- Applications can invoke GPUs properly after a remote login using VNC.

You can perform the following steps to install a GUI on an Ubuntu ECS:

- Installing a GUI
- **(Optional) Configuring X Server, x11vnc, and lightdm**: required only for GPU-accelerated ECSs.
- **(Optional) Verifying Drivers on GPU-accelerated ECSs**: required only for GPU-accelerated ECSs.

#### Constraints

- This document applies to ECSs running Ubuntu 16.04, 18.04, and 20.04.
- The Ubuntu ECS must have an EIP bound or have an intranet image source configured.
- Before installing a GUI on an ECS, ensure that the idle memory is greater than or equal to 2 GB. Otherwise, the GUI installation may fail or the ECS cannot be started after the installation.

• GPU-accelerated ECSs must have a correct GPU driver installed. For details, see GPU Driver.

#### **Installing a GUI**

- 1. Log in to the ECS and install a GUI desktop environment.
  - a. Run the following command to update the software library:
     apt-get update
  - b. Run the following command to install the Ubuntu GUI desktop component:
    - For Ubuntu 16.04, run the following command:

#### apt-get install -y scite xorg xubuntu-desktop

For Ubuntu 18.04 and 20.04, run the following command:

apt-get install -y ubuntu-desktop

2. Run the following command to edit the **root/.profile** file:

#### vim /root/.profile

Press i to enter the editing mode and change **mesg n || true** in the last line to **tty -s && mesg n || true**. After the modification, the file content is as follows:

# ~/.profile: executed by Bourne-compatible login shells.

```
if [ "$BASH" ]; then
if [ -f ~/.bashrc ]; then
. ~/.bashrc
fi
fi
tty -s && mesg n || true
```

- 3. Press **Esc** to exit editing mode.
- 4. Run the following command to save and exit the configuration file:

#### :wq

5. (Mandatory for Ubuntu 20.04) Add a member account.

After the GUI desktop component is installed on the ECS, you cannot log in to the Ubuntu 20.04 OS as user **root**. You need to add a member account for logging in to the GUI desktop.

Run the following command to add user **user01**:

#### adduser user01

Set a password for **user01** as prompted.

```
Adding user `user01' ...
Adding new group `user01' (1001) ...
Adding new user `user01' (1001) with group `user01' ...
Creating home directory `/home/user01' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
```

Set information about **user01**. You can press **Enter** to skip the setting. Then the system prompts you to check whether the entered information is correct.

#### Enter Y.

Changing the user information for user01 Enter the new value, or press ENTER for the default
Full Name []: Room Number []: Work Phone []: Home Phone []: Other []: Is the information correct? [Y/n] Y

- 6. Run the reboot command to restart the ECS.
- 7. Log in to the ECS using VNC provided on the management console and log in to the GUI desktop using the member account created in **5** or the **root** account.
  - For Ubuntu 20.04 OS, you need to use the member account to log in to the GUI desktop.
  - For GPU-accelerated ECSs, you also need to configure X Server, x11vnc, and lightdm.

## (Optional) Configuring X Server, x11vnc, and lightdm

For GPU-accelerated ECSs, you need to configure X Server, x11vnc, and lightdm when installing a GUI.

- 1. Remotely log in to the ECS.
- Query the BusID of the GPU.
   lspci | grep -i nvidia

Figure 8-1 GPU's BusID

```
00:0d.0 3D controller: NVIDIA Corporation GV100GL [Tesla V100 PCIe 32GB] (rev a1)
```

3. Generate the X Server configuration.

nvidia-xconfig --enable-all-gpus --separate-x-screens

- 4. Configure the GPU's BusID in "Section Device" in the generated **/etc/X11/ xorg.conf**.
  - a. Edit /etc/X11/xorg.conf. vi /etc/X11/xorg.conf
  - b. Press i to enter editing mode.
  - c. Add the GPU's BusID in "Section "Device".

## Figure 8-2 Adding the GPU's BusID

Section "Device"	
Identifier	"Device0"
Driver	"nvidia"
VendorName	"NVIDIA Corporation"
BoardName	"Tesla V100-PCIE-32GB"
BusID	"PCI:00:13:0"
EndSection	

## D NOTE

The BusID queried in step **2** is a hexadecimal number. You need to convert it to a decimal number before adding it to "Section Device" in **/etc/X11/xorg.conf**.

- 1. For example, the queried BusID is **00.0d.0** (a hexadecimal number) and needs to be converted to **PCI:00:13:0** (a decimal number).
- d. Press **Esc** to exit editing mode.
- e. Run the following command to save and exit the configuration file: :wg
- 5. Install x11vnc.

## apt-get -y install x11vnc

6. Install lightdm.

## apt-get -y install lightdm

7. Select lightdm as the default display manager.

## Figure 8-3 Selecting a display manager

Configuring lightdn
A display manager is a program that provides graphical login capabilities for the X Window System.
Only one display manager can manage a given X server, but multiple display manager packages are installed. Please select which display manager should run by default.
Multiple display managers can run simultaneously if they are configured to manage different servers; to achieve this, configure the display managers accordingly, edit each of their init scripts in /etc/init.d, and disable the check for a default display manager.
Default display manager:
gdn3 Lightán
<0k>

8. Configure the GUI desktop environment to automatically start upon ECS startup.

## systemctl set-default graphical.target

- 9. (Optional) Configure the x11vnc to automatically start upon ECS startup.
  - a. Add the /lib/systemd/system/myservice.service file.

## vi /lib/systemd/system/myservice.service

- b. Press **i** to enter editing mode.
- c. Add the following content to the file:

```
[Unit]
Description=My Service
After=network.target lightdm.service
[Service]
Type=oneshot
ExecStart=/usr/bin/x11vnc -forever -loop -noxdamage -repeat -rfbport 5902 -shared -bg -auth
guess -o /var/log/vnc.log
```

[Install] WantedBy=multi-user.target Alias=myservice.service

- d. Press **Esc** to exit editing mode.
- e. Run the following command to save and exit the configuration file: :wg
- 10. Load configuration files.

## systemctl daemon-reload

## systemctl enable myservice.service

11. Run the reboot command to restart the ECS.

## (Optional) Verifying Drivers on GPU-accelerated ECSs

After installing a GUI on a GPU-accelerated ECS, perform the following operations to check whether the driver is working properly:

- 1. Log in to the management console.
- 2. Configure a security group for the ECS.
  - a. On the ECS list, click the name of an ECS for which you want to configure the security group rule. On the ECS details page, click **Security Groups**.
  - b. Expand the security group and in the upper right corner of the security group rule list, click **Modify Security Group Rule**.
  - c. On the Inbound Rules page, click Add Rule.
  - d. In the **Add Inbound Rule** dialog box, follow the prompts to add the following security group rule:

Allow inbound access through TCP port *5902*. The port number is determined by the **rfbport** parameter in step **9.c**.

3. Log in to the ECS using VNC.

The following uses TightVNC as an example.

## Figure 8-4 TightVNC client

onnection			
Remote Host:	119: :5902	Conne	ect
Enter a name o append it after	or an IP address. To specify a port number two colons (for example, mypc::5902).	Option	s
everse Conne	ctions		
everse Conne istening mode	ctions allows people to attach your viewer to	Listening	mode
everse Conner istening mode their desktops.	ctions allows people to attach your viewer to Viewer will wait for incoming connections.	Listening	mode
everse Conner istening mode their desktops. ightVNC Viewe	ctions allows people to attach your viewer to Viewer will wait for incoming connections. r	Listening	mode
everse Conner Listening mode their desktops. ightVNC Viewe	ctions allows people to attach your viewer to Viewer will wait for incoming connections. r TightVNC is cross-platform remote contr	Listening ol software.	mode
everse Conner Listening mode their desktops. ightVNC Viewe	ctions allows people to attach your viewer to Viewer will wait for incoming connections. r TightVNC is cross-platform remote contr Its source code is available to everyone (GNU GPL license) or commercially (with	Listening ol software. , either freely no GPL restricti	mode

- 4. Right-click on the blank area and choose **Open in Terminal** from the shortcut menu.
- 5. Run the following command on the terminal. If the graphics card information is displayed as follows, the driver is working properly.

nvidia-settings



## Figure 8-5 Graphics card information

## **NOTE**

If a GPU-accelerated ECS has a GRID driver installed, you need to configure a license to use the GPU rendering capability. For details, see **Installing a GRID Driver on a GPU-accelerated ECS**.

## 8.6 How Can I Install a GUI on an ECS Running Debian?

## Scenarios

To provide a pure system, the ECSs running Debian do not have a GUI installed by default. You can install a GUI on such ECSs as needed.

## Constraints

- The operations described in this section apply to ECSs running Debian 8, Debian 9, or Debian 10 only.
- Before installing a GUI on an ECS, ensure that the idle memory is greater than or equal to 2 GB. Otherwise, the GUI installation may fail or the ECS cannot be started after the installation.

## Procedure

1. Log in to the ECS and run the following command to update the software library:

apt update

- 2. Run the following command to upgrade the software library: **apt upgrade**
- 3. Run the following command to install tasksel:

## apt install tasksel

 Run the following command to use tasksel to install the GNOME GUI: tasksel install desktop gnome-desktop

The installation takes a long time. Please wait.

- Run the following command to set the GUI as the default startup target: systemctl set-default graphical.target
- 6. Create a member account.

After the GUI desktop component is installed on the ECS, you cannot log in to the Debian OS as user root **user**. Therefore, you need to add a member account for logging in to the GUI desktop.

Run the following command to add user **user01**:

## adduser user01

Set a password for **user01** as prompted.

Adding user `user01' ... Adding new group `user01' (1001) ... Adding new user `user01' (1001) with group `user01' ... Creating home directory `/home/user01' ... Copying files from `/etc/skel' ... New password: Retype new password: passwd: password updated successfully

Set information about **user01**. You can press **Enter** to skip the setting. Then the system prompts you to check whether the entered information is correct.

## Enter Y.

Changing the user information for user01 Enter the new value, or press ENTER for the default Full Name []: Room Number []: Work Phone []: Home Phone []: Other []: Is the information correct? [Y/n] Y

- 7. Run the reboot command to restart the ECS.
- 8. Log in to the ECS using VNC provided on the management console and log in to the GUI desktop using the member account added in 6.

## 8.7 Why Does the OS Fail to Respond When kdump Occurs on a Linux ECS?

## Symptom

When kdump occurs on a Xen Linux ECS, the OS fails to respond and cannot be automatically recovered. For example, if you run the **echo c>/proc/sysrq-trigger** command to trigger kdump, this fault occurs.

## Figure 8-6 Triggering kdump

[root@ecs-xen01 linux]# systemctl status kdump
kdump.service - Crash recovery kernel arming
Loaded: loaded (/usr/lib/systemd/system/kdump.service; enabled; vendor preset: enabled)
Active: active (exited) since Wed 2018-01-17 06:15:35 UTC; 6min ago
Process: 1397 ExecStart=/usr/bin/kdumpctl start (code=exited, status=0/SUCCESS)
Main PID: 1397 (code=exited, status=0/SUCCESS)
CGroup: /system.slice/kdump.service
Jan 17 06:15:05 ecs-xen01.novalocal systemd[1]: Starting Crash recovery kernel arming
Jan 17 06:15:35 ecs-xen01.novalocal kdumpctl[1397]: kexec: loaded kdump kernel
Jan 17 06:15:35 ecs-xen01.novalocal kdumpctl[1397]: Starting kdump: [DK]
Jan 17 06:15:35 ecs-xen01.novalocal systemd[1]: Started Crash recovery kernel arming.
[root@ecs-xen01 linux]# echo c > /proc/sysrq-trigger

## 

Generally, kdump is disabled for public images. This issue does not occur on the ECSs created using public images.

## **Possible Causes**

- Certain Linux kernel versions are incompatible with Xen virtualization.
- If kdump is enabled in the ECS with the kernel not supporting soft\_rest, the ECS stops responding during dump.

## Solution

## Method 1: Disable kdump.

CentOS 7.5 is used as an example in the following.

- 1. Forcibly restart the ECS.
  - a. Log in to management console.
  - b. Under Compute, choose Elastic Cloud Server.
  - c. In the ECS list, select the target ECS and click Restart.
  - d. Select Forcibly restart the preceding ECSs or Forcibly stop the preceding ECSs.
  - e. Click OK.
- 2. Disable kdump.
  - a. Log in to the forcibly restarted ECS as user root.
  - Run the following command to disable kdump: service kdump stop

## Method 2:

If the target ECS supports the **crash\_kexec\_post\_notifiers** function, add the function to the ECS startup configuration file (**menu.lst** or **grub.cfg**). To do so, perform the following operations:

 Run the following command to check whether the ECS supports the crash\_kexec\_post\_notifiers function:

## cat /proc/kallsyms |grep crash\_kexec\_post\_notifiers





- If yes, go to step 2.
- If no, use method 1.
- 2. Add the crash\_kexec\_post\_notifiers function to the startup configuration file menu.lst or grub.cfg.

Take **menu.lst** as an example.

a. Run the following command to open the **menu.lst** file:

vi /boot/grub/menu.lst

b. Add the crash\_kexec\_post\_notifiers function to the startup item.

## Figure 8-8 Editing the menu.lst file



c. Run the following command to restart the ECS for the modification to take effect:

reboot

## 8.8 How Can I Upgrade the Kernel of a Linux ECS?

## **Scenarios**

If the kernel of a Linux ECS has stability or performance issues such as system breakdown, freezing, and memory leakage, or new kernel functions are required, you can upgrade the OS kernel.

## Constraints

## 

Upgrading the OS kernel may cause system instability or compatibility issues. Before the upgrade, you should know the problems that may occur during the upgrade, back up important data, and perform the upgrade with caution.

For details about how to back up the ECS, see **Backup Overview**.

- After the OS kernel is upgraded, the Linux ECS may not be able to identify the network interfaces. This will lead to network access failure.
- After the OS kernel is upgraded, the Linux ECS may not be able to identify data disks. As a result, starting system mount points fails, and the ECS cannot start.

## Procedure

This section uses the Huawei Cloud EulerOS, CentOS, Ubuntu, and Debian as examples to describe how to update the OS kernel.

## Upgrading the Kernel (Huawei Cloud EulerOS or CentOS)

- 1. Log in to the ECS.
- 2. Run the following command to query the OS kernel version:

uname -r

3. Run the following command to check whether there is any OS kernel that can be upgraded:

## sudo yum list kernel

- If no OS kernel can be upgraded:

You are advised to replace the OS with Huawei Cloud EulerOS 2.0. For details, see **Changing the OS**.

## D NOTE

CentOS 6, CentOS 7, and CentOS 8 are no longer maintained and will not be supported by Huawei Cloud. For details, see **What Do I Do If CentOS Linux Is No Longer Maintained?** 

- If there is an OS kernel that can be upgraded:
  - i. Run the following command to check whether the **initrd** or **initramfs** file contains the virtio-blk or xen-blkfront driver:

## sudo lsinitrd /boot/initramfs-`uname -r`.img | grep -E 'virtio|xen'

If information similar to the following is displayed, the virtio-blk or xen-blkfront driver is contained. Otherwise, the driver is not included. Go to the next step.

-rwxr--r-- 1 root root 23888 Feb 10 2022 lib/modules/2.6.32-754.35.1.el6.x86\_64/ kernel/drivers/block/virtio\_blk.ko -rwxr--r-- 1 root root 55064 Feb 10 2022 lib/modules/2.6.32-754.35.1.el6.x86\_64/ kernel/drivers/block/xen-blkfront.ko

ii. (Optional) Run the following command to add the virtio-blk or xenblkfront driver to the **initrd** or **initramfs** file.

Perform this step only when the **initrd** or **initramfs** file does not contain the virtio-blk or xen-blkfront driver.

sudo sh -c 'echo 'add\_drivers+="xen-blkfront virtio\_blk"' >> /etc/ dracut.conf.d/virt-drivers.conf'

4. Run the following command to upgrade the OS kernel version:

## sudo yum update -y

5. Run the following command to update the GRUB file so that the ECS can select the target kernel version during startup:

## sudo grub2-mkconfig -o /boot/grub2/grub.cfg

- Run the following command to restart the ECS: sudo reboot
- 7. Run the following command to check whether the kernel version has been upgraded:

## uname -r

If the new kernel version is returned, the kernel has been upgraded.

## Upgrading the Kernel (Ubuntu or Debian)

- 1. Log in to the ECS.
- 2. Run the following command to query the OS kernel version:

## uname -r

3. Run the following commands to update the system software package list and check whether the OS kernel can be upgraded:

## sudo apt update

## apt-cache search linux-image

- If no OS kernel can be upgraded:

You are advised to change the OS kernel to a later version. For details, see **Changing the OS**.

- If there is an OS kernel that can be upgraded:
  - i. Run the following command to upgrade the OS kernel version:

sudo apt-get install linux-image-<target-kernel-package-name>

ii. (Optional) Upgrade the additional modules of the OS kernel.

For an ECS running Ubuntu, you need to upgrade additional modules after the OS kernel is upgraded.

sudo apt-get install linux-modules-extra-<target-kernel-packagename>

For example, to update the kernel of Ubuntu 20.04 to 5.15.0, run the following commands:

## sudo apt update

apt-cache search linux-image | grep '5.15' | grep generic

sudo apt-get install linux-image-5.15.0-122-generic

## sudo apt-get install linux-modules-extra-5.15.0-122-generic

4. Run the following command to update the GRUB file so that the ECS can select the kernel version during startup.

## sudo update-grub

5. Run the following command to restart the ECS:

## sudo reboot

6. Run the following command to check whether the kernel version has been upgraded:

uname -r

If the new kernel version is returned, the kernel has been upgraded.

## 8.9 Why Cannot My ECS OS Start Properly?

1. Check the image based on which the ECS was created. If the image is a public one, this issue is not caused by private image sources.

## Figure 8-9 Image type

Pub	Public Images   Private Images   Images Shared with Me Go to Marketplace to publish images. For details about how to publish images, click Help.									oublish images, click Help.
For details about public image pricing, see ECS pricing and BMS pricing.										
		All images		•	All OSs	•	Name	•		QCĽ
	Name ↓ <del>_</del>		Status		OS	Ima	ge Type		Disk Capacity (GB)	Operation
^	Windows Se	erver 2019	🕑 Normal		Windows Server 2019	ECS	system dis	k image	40	Apply for Server
Name Windows Server 2019 Datacenter 64bit English					ID		5e503301-ac72-4328-a9b1-	321909822c31		

- 2. Click **Apply for Server** and check whether the same ECS can be created. If not, this image may have been canceled.
- 3. Change the ECS OS to one that is available on the management console.

## 8.10 How Can I Fix the Meltdown and Spectre Security Vulnerabilities on Intel Processor Chips?

## Symptom

On January 3, 2018 (Beijing time), severe security vulnerabilities Meltdown and Spectre were found on Intel processor chips. The details are as follows:

Vulnerability name: Severe chip-level vulnerabilities on Intel processor chips

Vulnerability IDs: CVE-2017-5753, CVE-2017-5715, and CVE-2017-5754

Severity: High risk

Vulnerability description: High-risk CPU kernel vulnerabilities Meltdown (CVE-2017-5754) and Spectre (CVE-2017-5715 and CVE-2017-5753) exposed. Attackers can use these vulnerabilities to bypass the memory security isolation mechanism and access the core data of the OS and other programs without authorization, leading to sensitive information disclosure.

## Impact

These vulnerabilities will not cause attacks between ECSs but may introduce attacks between:

- Applications on an ECS
- Accounts for logging in to an ECS

If your ECSs are created using a public image, the cloud platform will automatically fix the vulnerabilities, which will not affect your services.

If your ECSs are created using a private image, determine whether to install a patch described in this section in the private image based on the impact of the vulnerabilities.

## Background

For details about the official patch release of affected OSs, see **Huawei Cloud Security Notices**.

## Prerequisites

Tests have been fully verified and ECS data has been backed up.

## Installing a Patch on Windows ECSs

**Step 1** Log in to the ECS.

- **Step 2** Use either of the following methods to install the patch:
  - Method 1: Use Windows Update to install the patch.
    - a. Open Windows Update and click **Check for Updates**.
    - b. Download and install the required patch.
  - Method 2: Manually download and install the patch.
     Download the official patch and install it. For details, see Background.
- **Step 3** Restart the ECS for the patch to take effect.

Step 4 Check whether the patch has been installed.

- 1. Check whether the ECS is running properly.
- 2. Check whether the requirements specified in the **Verification** column of **Background** are met.
- ----End

## Installing a Patch on Linux ECSs

- **Step 1** Log in to the ECS.
- **Step 2** Check whether Tools has been installed on the Linux ECS, taking the SUSE Linux Enterprise Server 11 SP1 as an example.
  - Run the following command on any directory to view the ECS driver: lsmod | grep xen

## Figure 8-10 Viewing the ECS driver

linux:-/Desktop #	lsmod   gre	p xen
xen_vbd	23600	3
cdrom	40567	2 sr_mod,xen_vbd
xen_vmdq	4295	0
xen_vnif	36374	0
xen balloon	14925	1 xen_vnif
xen_hcall	1867	0
xen_platform_pci	94554	<pre>5 xen_vbd,xen_vmdq,xen_vnif,xen_balloon,xen_hcall,[permanent]</pre>

2. Run the following command to view the driver path, taking a disk driver as an example:

## modinfo xen\_vbd

## Figure 8-11 Viewing the driver path

<pre>linux:~/Desktop filename:</pre>	<pre># modinfo xen_vbd /lib/modules/2.6.32.12-0.7-default/updates/pydriver/xen-vbd/xen-vbd.ko</pre>
license:	Dual BSD/GPL
alias:	xen:vbd
srcversion:	5D8B666F0EA3F1E31B58F0C
depends:	xen-platform-pci,cdrom
vermagic:	2.6.32.12-0.7-default SMP mod_unload modversions

- 3. Check whether **pvdriver** is contained in the driver path.
  - If so, Tools have been installed in the ECS. Then, go to **Step 3**.
  - If no, go to **Step 4**.

## Step 3 Uninstall Tools.

- Run the following command to switch to user root: su root
- 2. Run the following command to uninstall Tools in the root directory: /etc/.uvp-monitor/uninstall
- Run the following command to restart the ECS: reboot
- **Step 4** Install the patch to upgrade the kernel. For details, see **Background**.

**NOTE** 

After updating the kernel, run the **reboot** command to restart the ECS.

- **Step 5** Check whether the patch has been installed.
  - 1. Check whether the ECS is running properly.
  - 2. Check whether the requirements specified in the **Verification** column of **Background** are met.

## **NOTE**

After the patch is installed, the ECS uses the driver delivered with the OS. In this event, the memory usage and disk usage of Linux ECSs will not be monitored. The other features and functions are not affected. If the memory usage and disk usage must be monitored, contact customer service.

----End

## Checking Whether Security Vulnerabilities Have Been Fixed on Linux

- 1. Click **spectre-meltdown-checker** to obtain **spectre-meltdown-checker.sh**.
- 2. Upload the script to the ECS.
- 3. Run the following commands on the ECS and check whether the Meltdown or Spectre vulnerability has been fixed based on the script prompt:

chmod +x spectre-meltdown-checker.sh

## sudo bash spectre-meltdown-checker.sh

Figure 8-12 shows the command output.

## Figure 8-12 Command output after the script is executed

SUMMARY: CVE-2017-5753:0K CVE-2017-5715:0K CVE-2017-5754:0K

**OK** indicates that the vulnerability has been fixed, and **KO** indicates that the vulnerability has not been fixed. The information shown in Figure 8-12 indicates that the CVE-2017-5753, CVE-2017-5715, and CVE-2017-5754 vulnerabilities have been fixed.

## Enabling or Disabling the Security Vulnerability Patch on Linux

CPU speculative execution optimizes performance. Therefore, fixing the Meltdown or Spectre vulnerability may deteriorate performance under specific workloads.

If the impact on the system performance is unacceptable or a better protection solution is available, you can disable certain or all security protection policies.

Determine the optimal security policy based on application scenarios:

• Meltdown vulnerability

Page Table Isolation (PTI) takes effect on the kernel. This function is suitable for CVE-2017-5754.

• Spectre vulnerability

Indirect Branch Restricted Speculation (IBRS) takes effect on specified registers (MSR) in SPEC\_CTRL model. Working with retpoline, IBRS controls Indirect Branch Prediction Barriers (IBPBs) on specified registers (MSR) in PRED\_CMD model. This function is suitable for CVE-2017-5715.

## **NOTE**

The CVE-2017-5753 vulnerability is fixed by a kernel patch and cannot be disabled. No obvious impact was detected for the patch in Red Hat performance tests.

## • Disabling the Meltdown Vulnerability Patch

To prevent the enabling of PTI from deteriorating the system performance, or a better protection solution is available, perform the following operations to disable the patch:

- a. Modify kernel parameters based on OSs:
  - CentOS, EulerOS, Ubuntu, Fedora, and Red Hat: Add the kernel parameter **nopti**.
  - Debian and OpenSUSE: Add the kernel parameter **pti=off**.
- b. Restart the ECS.

## • Disabling the Spectre Vulnerability Patch

To prevent the Spectre vulnerability fixing from deteriorating the system performance, or a better protection solution is available, perform the following operations to disable the patch:

- a. Modify kernel parameters based on OSs:
  - CentOS, EulerOS, Fedora, Debian, Red Hat, and OpenSUSE: Add the kernel parameter spectre\_v2=off.

- Ubuntu: Add the kernel parameter nospectre\_v2=off.
- b. Restart the ECS.

If you are using one of the following OSs, visit their official website for more details.

Red Hat: https://access.redhat.com/articles/3311301? spm=a2c4g.11186623.2.20.42b49d4aJuKYx2

SUSE: https://www.suse.com/support/kb/doc/? spm=a2c4g.11186623.2.21.42b49d4avOXw7d&id=7022512

Ubuntu: https://wiki.ubuntu.com/SecurityTeam/KnowledgeBase/ SpectreAndMeltdown

## 8.11 How Can I Enable SELinux on an ECS Running CentOS?

## Symptom

SELinux is disabled on ECSs running CentOS 7.5 by default. After I enable SELinux by running **/etc/selinux/config** and enter the login password, the login failed.

This section describes how to resolve this issue based on enabled SELinux.

## Solution

The operations described in this section are performed on ECSs running CentOS 7.5.

1. Run the following command to change **SELINUX=disabled** in the SELinux configuration file to **SELINUX=enforcing**:

### vim /etc/selinux/config

# This file controls the state of SELinux on the system.
# SELINUX= can take one of these three values:
# enforcing - SELinux security policy is enforced.
# permissive - SELinux prints warnings instead of enforcing.
<u>disabled</u> - No SELinux policy is loaded.
SELINUX=enforcing
# SELINUXTYPE - can take one of three two values:
# targeted - Targeted processes are protected,
# minimum - Modification of targeted policy. Only selected processes are protected.
# mls - Multi Level Security protection.
SELINUXTYPE=targeted

2. Run the following command to automatically enable SELINUX on the file system upon ECS restarting:

## touch /.autorelabel

3. Run the following command to restart the ECS for the configuration to take effect:

## reboot

**NOTE** 

After the preceding command is executed, the system automatically restarts twice.

## 8.12 What Should I Do If the Cursor Is Unavailable After a GNOME GUI Is Installed on a Kunpeng ECS Running CentOS 7 or NeoKylin NKASV 7?

## Symptom

After a GNOME GUI is installed on a Kunpeng ECS running CentOS 7 or NeoKylin NKASV 7, the cursor is unavailable in remote logins.

## **Possible Causes**

x86 ECSs use Cirrus GPUs, and Kunpeng ECSs use Virtio GPUs. The cursor can be a software cursor or a hardware cursor.

By default, Virtio GPUs use the hardware cursor. The position and shape of the hardware cursor rely on the VNC client. If the function of "Let remote server deal with cursor" is enabled on the hardware cursor, the VNC client ignores cursor requests. In such a case, the cursor is not displayed when you remotely log in to the ECS.

## Solution

Disable the hardware cursor. This section uses a Kunpeng ECS running CentOS 7.5 64bit as an example.

For instructions about how to install a GUI on an ECS running CentOS 7.5, see **How Can I Install a GUI on an ECS Running CentOS 7**?

1. Run the following commands to add the **20-virtio.conf** configuration file in the **/etc/X11/xorg.conf.d/** directory:

cd /etc/X11/xorg.conf.d

touch 20-virtio.conf

Run the following command to obtain the xorg.conf configuration template:
 Xorg :0 -configure

The generated file is stored in /root/xorg.conf.new.

## **NOTE**

If a GUI has been installed, run the following command: Xorg :2 -configure

The generated file is stored in /root/xorg.conf.new.

- Copy the description of the GUI in /root/xorg.conf.new to 20-virtio.conf.
   cp /root/xorg.conf.new /etc/X11/xorg.conf.d/20-virtio.conf
- 4. Add a line for the Option description. Option "SWcursor" "True"

Figure 8-13 shows 20-virtio.conf with the added information.

Section	"Device"									
	### Availab	### Available Driver options are:-								
	<pre>### Values: <i>: integer, <f>: float, <bool>: "True"/"False",</bool></f></i></pre>									
	<pre>### <string>: "String", <freq>: "<f> Hz/kHz/MHz",</f></freq></string></pre>									
	### <percent>: "<f>%"</f></percent>									
	### [arg]: arg optional									
	Option	"SWcursor"	"True"							
	#Option	"kmsdev"	# <str></str>							
	#Option	"ShadowFB"	# [ <bool>]</bool>							
	#Option	"AccelMethod"	# <str></str>							
	#Option	"PageFlip"	# [ <bool>]</bool>							
	#Option	"ZaphodHeads"	# <str></str>							
	#Option	"DoubleShadow"	# [ <bool>]</bool>							
	#Option	"Atomic"	# [ <bool>]</bool>							
	Identifier	"Card0"								
	Driver	"modesetting"								
	BusID	"PCI:2:3:0"								
EndSecti	ion									

5. Restart the ECS. The cursor is displayed on the GUI.

Applications	Places
合	
Home	
Trash	

Figure 8-14 Cursor displayed on the GUI

## 8.13 How Do I View the GPU Usage of a GPUaccelerated ECS?

## Symptom

The GPU usage of GPU-accelerated ECSs running Windows Server 2012 and Windows Server 2016 cannot be viewed in Task Manager.

This section provides two methods for you to view the GPU usage. One is to run a command in the command-line interface, and the other is to install the GPU-Z tool.

## Prerequisites

The NVIDIA driver has been installed on the GPU-accelerated ECS.

## Method 1

- 1. Log in to the GPU-accelerated ECS.
- 2. Start the **Run** dialog box. Enter **cmd** and press **Enter**.
- 3. Run the following commands to check the GPU usage:
  - cd C:\Program Files\NVIDIA Corporation\NVSMI nvidia-smi

To continuously observe the GPU usage, run the following command: **nvidia-smi -l 1** 

## Figure 8-15 GPU usage

	C:\Users\Administrator> C:\Users\Administrator>cd C:\Program Files\NVIDIA Corporation\NVSMI									
C:\Program Files\NVIDIA Corporation\NVSMI>nvidia-smi -1 1 Wed Mar 17 15:51:19 2021										
	NVIDIA-SMI 452.39 Driver Version: 452.39 CUDA Version: 11.0									
GPU Name TCC/WDD Fan Temp Perf Pwr:Usage/C					Bus-Id	Disp.A Memory-Usage	Volatile GPU-Util	Uncorr. ECC Compute M. MIG M.		
	0 N/A	Tes1a 33C	T4 P8	WDDM 14W / 70W	0000000 238M	0:21:01.0 Off iB / 15360MiB	0%	0 Default N/A		
	+ Proc GPU	esses: GI ID	CI ID	PID Ty	pe Proc	ess name		GPU Memory Usage		
0 N/A N/A 980 C+G Insufficient Permissions 0 N/A N/A 3788 C+Gw5nlh2txyewy\SearchUI.e 0 N/A N/A 3896 C+Gy\She11ExperienceHost.e					ssions archUI.exe ceHost.exe	N/A N/A N/A				
	+									

## **NOTE**

NVIDIA GPUs can work in Tesla Compute Cluster (TCC) or Windows Display Driver Model (WDDM) mode.

- In TCC mode, the GPU is completely used for computing.
- In WDDM mode, the GPU supports both compute and graphics workloads. The WDDM mode can be used only when GRID drivers are installed on GPUaccelerated ECSs.

Learn more about TCC and WDDM.

## Method 2

1. Log in to the GPU-accelerated ECS.

- 2. **Download GPU-Z** and install it.
- 3. Open GPU-Z and click **Sensors** to view the GPU usage.

## Figure 8-16 GPU usage

💷 TechPowerUp GPU-Z 2.3	_			×	
Graphics Card Sensors Adva	nced Validation		Ô	0	≡
GPU Clock 🗸	300.0 MHz				^
Memory Clock -	101.3 MHz				
GPU Temperature 🔹	32.7 ℃	_			
Hot Spot -	39.9 ℃	_			
Memory Temperature	38.9 °C	_			
Memory Used 👻	239 MB				
GPU Load 👻	0 %				
Memory Controller Load 🔹	0 %				
Video Engine Load 🔹	0 %				
Bus Interface Load 🔹	0 %				
Board Power Draw 🔻	14.8 W	-			
GPU Chip Power Draw 🔻	4.1 W				
MVDDC Power Draw -	5.1 W				
PCIe Slot Power 🔻	10.8 W				
PCIe Slot Voltage 🔻	12.2 V				
Log to file	04 4 % TOD			Res	et
NVIDIA Tesla T4	$\sim$			Close	

## 8.14 Why Does the NVIDIA Kernel Crashes on a GPUaccelerated ECS?

## Symptom

A GPU-accelerated ECS crashed during running. After the ECS was restarted, no NVIDIA driver stack logs were recorded.

Figure 8-17 Stack log information

[14634.369985] nvidia 0000:00:10.0: ing 68 for MSI/MSI-X
[14634.371826] BUG: unable to handle kernel paging request at 000000000002b20
[14634.372906] IP: [ <ffffffc0c5b7c4>] _nv035825rm+0x4/0x70 [nvidia]</ffffffc0c5b7c4>
[14634.374075] PGD 2cefc4067 PUD 0
[14634.374699] Oops: 0000 [#1] SMP
[14634.375338] Modules linked in: binfmt_misc fuse xt_nat veth xt_conntrack ipt_MASQUERADE nf_nat_masquerade_ipv4 nf_conntrack_netlink nfnetlink xt_addrtype iptable_filter iptable_nat nf_conntrack_ipv4 n
f_defrag_ipv4 nf_nat_ipv4 nf_nat nf_conntrack libcrc32c br_netfilter bridge stp llc overlay(T) nvidia_drm(POE) nvidia_modeset(POE) nvidia_uvm(OE) nvidia(POE) sunrpc nfit librvdimm ppdev iosf_mbi crc32_pc
lmul ghash_clmulni_intel aesni_intel lrw gf128mul glue_helper ablk_helper cryptd joydev virtio_balloon pcspkr parport_pc parport i2c_piix4 ip_tables ext4 mbcache jbd2 ata_generic pata_acpi virtio_net net
_failover virtio_console virtio_blk failover cirrus drm_kms_helper syscopyarea sysfillrect sysimgblt fb_sys_fops ttm drm ata_piix libata crct10dif_pclmul virtio_pci crct10dif_common crc32c_intel virtio_r
ing
[14634.385372] serio_raw virtio dnm_panel_orientation_quirks floppy
[14634.386239] CPU: 0 PID: 0 Comm: swapper/0 Kdump: loaded Tainted: P 0E T 3.10.0-1160.25.1.el7.x86_64 #1
[14634.388046] Hardware name: OpenStack Foundation OpenStack Nova, BIOS rel-1.10.2-0-g5f4c7b1-20220430_198938-szxrtosci10000 04/01/2014
[14634.389928] task: fffffffad018480 ti: fffffffad000000 task.ti: fffffffad000000
[14634.391846] RIP: 0010:[ <ffffffc8c5b7c4>] [<ffffffc8c5b7c4>] _nv035825rm+0x4/0x70 [nvidia]</ffffffc8c5b7c4></ffffffc8c5b7c4>
[14634.392478] RSP: 0018:ffff89fcfee03d68 EFLAGS: 00010092
[14634.393378] RAX: ffff89c0123f6b28 RBX: 00000000000000000 RCX: 000000000000000000000000000000000000
[14634.394469] RDX: 0000000000000000 RSI: 000000000000000000000002b20
[14634.395482] REP: ffff89beb7f65f00 R&8: 0000000000000000 R09: 0000000000000000
[14634.396542] R10: 000000000000000 R11: ffff89eaaa201098 R12: ffff89c0123f6b28
[14634.397688] R13: 0000000000000000 R14: 0000000ebfffSe R15: 000000000000008
[14634.398672] FS: 00000000000000000000000000000000000
[14634.399838] CS: 0010 DS: 0000 CR0: 00000008080650833
[14634.400764] CR2: 0000000000002b20 CR3: 000000014cf60000 CR4: 00000000003606f0
[14634.481846] DR0: 000000000000000000 DR1: 00000000000000 DR2: 000000000000000000000000000000000000
[14634.482922] DR3: 000000000000000 DR6: 0000000fffe0ff0 DR7: 000000000000000000000000000000000000
[14634.483994] Call Trace:
[14634.404593] <irq></irq>
[14634.404878] [ <ffffffc07ff0bc-] 0x60="" ?="" [nvidia]<="" os_get_current_tick+0x2c="" td=""></ffffffc07ff0bc-]>
[14634.486468] [ <ffffffc@csbe9c5] 0x90="" ?="" [nvidia]<="" _nv@35820m+0x2c="" td=""></ffffffc@csbe9c5]>
[14634.407506] [ <ffffffc0830501>] ? _nv009195rm+0x6d1/0x710 [nvidia]</ffffffc0830501>
[14634.408558] [ <fffffffc083131cs] 0x120="" ?="" [nvidia]<="" _nv035924nm+0x2c="" td=""></fffffffc083131cs]>
[14634.489607] [ <ffffnffc0879f935-] 0x1a0="" ?="" [nvidia]<="" _nv032793m+0x33="" td=""></ffffnffc0879f935-]>
[14634.410634] [ <fffffffc07ef470b-] 0x40="" ?="" [nvidia]<="" nvidia_frontend_loctl+0x40="" td=""></fffffffc07ef470b-]>
[14634.411837] [ <hr/> http://clabde46s.] ? m_run_rc_callback+0x86/0xd0 [nvidia]
[14634.412953] [ <tttttttrc0 0x60="" [nvidia]<="" cs]="" eft="" nvidia_rc_timer_callback+0x3c="" td=""></tttttttrc0>
[14634.414128] [ffffffff607ef47db]? nv_timer_collback_typed_data+0xd/0x10 [nvidia]
[14534.415283] [ <ffffffffcdabcf8s] 0x110<="" call_timer_fn+0x38="" td=""></ffffffffcdabcf8s]>
[14054.4]Bc85] [cfffffffc0/ef4/6_2/ nvidia_frontend_loct 40x40/04x40 [nvidia]
[14634.41/482] [ <ffffffffdd4de308b] 0x340<="" run_timer_softlrd+0x25d="" td=""></ffffffffdd4de308b]>
[14534-418414]
[14034.419370] <pre>ctititititac0934eCs] / call_softing481c/8x30</pre>
[14634.470313] [4TTTTTTTG42(7135)] 00_50TTTG49805/9800
114634_421277] [.ffffffffffffffffffffffffffffffffffff

## **Possible Causes**

The ECS kernel crashed due to an official NVIDIA driver bug.

## Solutions

• Method 1: Restart the ECS.

After the ECS is restarted, the ECS can run properly.

• Method 2: Update the driver version.

If the problem persists after the ECS is restarted, download the latest CUDA driver from the NVIDIA official website.

a. Log in to the official NVIDIA driver download page at https:// www.nvidia.cn/Download/index.aspx?lang=en.

Figure 8-18 Driver download page

## **NVIDIA Driver Downloads**

Select from the dropdown list below to identify the appropriate driver for your NVIDIA product.

Product Type:	Data Center / Tesla	~
Product Series:	A-Series	•
Product:	NVIDIA A30	•
Operating System:	Linux 64-bit	~
CUDA Toolkit:	Any	•
Language:	English (US)	•

Search

b. Enter the product information and click Search.

## Figure 8-19 Latest driver version download page

## **Data Center Driver For Linux X64**

Version: Release Date: Operating System Language: File Size: Download	460.106.00 2021.10.26 : Linux 64-bit English (US) 171.61 MB		
Release	Highlights	Supported Products	Additional Information
Release notes, si https://docs.nvid	upported GPUs and of dia.com/datacenter/te	ther documentation can be found at: sla/index.html	

On the **Release Highlights** tab, you can learn about the version updates and resolved issues of this version and determine whether to upgrade accordingly.

# **9** Disk Partition, Attachment, and Expansion

## 9.1 Why Can't I Find My Newly Purchased Data Disk After I Log In to My Windows ECS?

## Symptom

After logging in to my Windows ECS, I cannot find the attached data disk.

## 

Formatting a disk will cause data loss. Before formatting a disk, create a backup for it.

## **Possible Causes**

- A newly added data disk has not been partitioned or initialized.
- The disk becomes offline after the ECS OS is changed or the ECS specifications are modified.

## Newly Added Data Disk Has Not Been Partitioned or Initialized

A new data disk does not have partitions and file systems by default. That is why it is unavailable in **My Computer**. To resolve this issue, manually initialize the disk.

For details, see **Initialization Overview**.

## Disk Becomes Offline After the ECS OS Is Changed or the ECS Specifications Are Modified

After the ECS OS is changed, data disks may become unavailable due to file system inconsistency. After the specifications of a Windows ECS are modified, data disks may be offline.

1. Log in to the ECS, open the **cmd** window, and enter **diskmgmt.msc** to switch to the **Disk Management** page.

Check whether the affected disk is offline.

- 2. Set the affected disk to be online.
  - In the disk list, right-click the affected disk and choose **Online** from the shortcut menu to make it online.

## Figure 9-1 Setting disk online

Contraction Contractico Contra	450 MB Healthy (Recovery	99 MB Healthy (EFI S	30.15 GB	29.29 GB	^
*O Disk 1 Basic 59.88 GB Offline	Online Properties Help		1	1	
Unallocated	Primary partition				Ý

In My Computer, check whether the data disk is displayed properly.
 If the fault persists, initialize and partition the disk again. Before initializing the disk, create a backup for it.

## 9.2 How Can I Adjust System Disk Partitions?

## Scenarios

If the capacity of system disk partitions is inconsistent with the actual system disk capacity after an ECS is created, you can manually adjust the partitions to expand the system disk.

There are two ways to expand a system disk:

- Consider the empty partition as a new partition and attach this partition to a directory in the root partition after formatting it. For details, see this section.
- Add the empty partition to the root partition to be expanded. For detailed operations, see the following:
  - How Can I Add the Empty Partition of an Expanded System Disk to the End Root Partition Online?
  - How Can I Add the Empty Partition of an Expanded System Disk to the Non-end Root Partition Online?

## Procedure

This section uses an ECS running CentOS 7.3 64bit as an example. A 60 GB system disk was created with the ECS. However, the capacity of the system disk partition is displayed as only 40 GB.

To use the 20 GB capacity, performing the following operations:

- Step 1 View disk partitions.
  - 1. Log in to the ECS as user **root**.

2. Run the following command to view details about the ECS disk: fdisk -l

In the following command output, **/dev/xvda** or **/dev/vda** indicates the system disk.

Figure 9-2 Viewing details about the disk

[root@ecs-8d6c	~]# df	-h			
Filesystem	Size	Used	Avail	Use%	Mounted on
/dev/xvda1	38G	1.2G	35G	4%	
devtmpfs	899M	0	899M	0%	: ∕de∨
tmpfs	908M	0	908M	0%	/dev/shm
tmpfs	908M	8.4M	900M	1%	/run
tmpfs	908M	0	908M	0%	/sys/fs/cgroup
tmpfs	182M	0	182M	0%	/run/user/0
[root@ecs-8d6c	~]# fd	isk -l	l		
Disk /dev/xvda:	64.4	GB, 64	1424509	9440 1	bytes, 125829120 sectors
Units = sectors	of 1 +	* 512	= 512	bytes	2
Sector size (lo	gical/j	physic	:al): !	512 bu	ytes / 512 bytes
I/O size (minim	um⁄opt	imal):	512 1	ytes	/ 512 bytes
Disk label type	: dos				
Disk identifier	: 0×00	04d5e5	5		
Device Boot		Start		End	d Blocks Id System
/dev/xvda1 *		2048	799	980543	3 39989248 83 Linux
/dev/xvda2	7998	80544	838	386079	9 1952768 82 Linux swap / Solaris
[root@ecs-8d6c	~]# _				

3. Run the following command to view disk partitions:

parted -l /dev/xvda

Figure 9-3 Viewing disk partitions

```
[root@ecs- ~]# parted -1 /dev/xvda
Model: Xen Virtual Block Device (xvd)
Disk /dev/xvda: 64.4GB
Sector size (logical/physical): 512B/512B
Partition Table: msdos
Disk Flags:
Number
        Start
                        Size
                                          File system
                                                          Flags
                End
                                 Type
        1049kB
                41.0GB
                        40.9GB
                                                          boot
 1
                                 primary
                                          ext4
2
        41.0GB
                42.9GB
                        2000MB
                                 primary
                                          linux-swap(v1)
```

Step 2 Create a partition for the expanded system disk capacity.

1. Run the following command to switch to the fdisk mode (taking **/dev/xvda** as an example):

## fdisk /dev/xvda

Information similar to the following is displayed:

[root@ecs-8d6c ]# fdisk /dev/xvda Welcome to fdisk (util-linux 2.23.2).

Changes will remain in memory only, until you decide to write them. Be careful before using the write command.

Command (m for help):

2. Enter **n** and press **Enter** to create a new partition.

Because the system disk has two existing partitions, the system automatically creates the third one.

Information similar to the following is displayed.

```
Figure 9-4 Creating a new partition
```

```
oot@ecs-8d6c
                     ~]# fdisk
Welcome to fdisk (util-linux 2.23.2).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.
Command (m for help): n
Partition type:
   p primary (2 primary, 0 extended, 2 free)
e extended
Select (default p):
Using default response p
Partition number (3,4, default 3):
First sector (83886080-125829119, default 83886080):
Using default value 83886080
Last sector, +sectors or +size{K,M,G} (83886080-125829119, default 125829119):
Using default value 125829119
Partition 3 of type Linux and of size 20 GiB is set
Command (m for help): w
The partition table has been altered!
Calling ioctl() to re-read partition table.
WARNING: Re-reading the partition table failed with error 16: Device or resource busy.
The kernel still uses the old table. The new table will be used at the next reboot or after you run partprobe(8) or kpartx(8)
Syncing disks.
[root@ecs-8d6c ~]#
```

3. Enter the new partition's start cylinder number and press Enter.

The start cylinder number must be greater than the end cylinder numbers of existing partitions. In this example, use the default value for the new partition's start cylinder number and press **Enter**. Information similar to the following is displayed.

Figure 9-5 Specifying the new partition's start cylinder number



4. Enter the new partition's end cylinder number and press **Enter**.

In this example, use the default value for the new partition's end cylinder number and press **Enter**. Information similar to the following is displayed.

Figure 9-6 Specifying the new partition's end cylinder number

Last sector, +sectors or +size{K,M,G} (83886080-125829119, default 125829119): Using default value 125829119 Partition 3 of type Linux and of size 20 GiB is set

5. Enter **p** and press **Enter** to view the created partition. Information similar to the following is displayed.

Command (m	for he	elp): p				
Disk /dev/x Imits = sec	xuda: f	54.4 GB, 644 of 1 * 512 =	24509440 byt 512 butes	es, 12582912	20 se	ectors
Sector size	e (log:	ical/physica	1): 512 byte	s / 512 byte	es	
I/O size (	minimur	n∕optimal):	512 bytes /	512 bytes		
Disk label	type:	dos				
Disk ident	if ier :	0x0004d5e5				
Device	Boot	Start	End	Blocks	Id	System
/dev/xvda1	×	2048	79980543	39989248	83	Linux
/dev/xvda2		79980544	83886079	1952768	82	Linux swap / Solaris
/dev/xvda3		83886080	125829119	20971520	83	Linux

6. Enter **w** and press **Enter**. The system saves and exits the partition.

The system automatically writes the partition result into the partition list. Then, the partition is created.

Information similar to the following is displayed.

### Figure 9-8 Completing the partition creation

Command (m for help): w The partition table has been altered! Calling ioctl() to re-read partition table. WARNING: Re-reading the partition table failed with error 16: Device or resource busy. The kernel still uses the old table. The new table will be used at the next reboot or after you run partprobe(8) or kpartx(8) Syncing disks.

7. Run the following command to view disk partitions:

parted -l /dev/xvda

Figure 9-9 Viewing disk partitions

Disk Fl	ags:					
Number	Start	End	Size	Туре	File system	Flags
1	1049kB	41.0GB	40.9GB	primary	ext4	boot
2	41.0GB	42.9GB	2000MB	primary	linux-swap(v1)	
3	42.9GB	64.4GB	21.5GB	primary	ext4	

**Step 3** Run the following command to synchronize the modifications in the partition list with the OS:

## partprobe

- **Step 4** Configure the type of the new partition file system.
  - Run the following command to view the type of the file system: df -TH

[root@ecs-8d6c	~]# df -T	H				
Filesystem	Туре	Size	Used	Avail	Use%	Mounted on
∕dev <mark>∕xvda1</mark>	ext4	<b>41</b> G	1.3G	37G	4%	/
devtmpfs	devtmpfs	943M	0	943M	0%	∕dev
tmpfs	tmpfs	952M	0	952M	0%	/dev/shm
tmpfs	tmpfs	952M	8.8M	944M	1%	∕run
tmpfs	tmpfs	952M	0	952M	0%	/sys/fs/cgroup
tmpfs	tmpfs	191M	0	191M	0%	/run/user/0
[root@ecs-8d6c	~]#					

## Figure 9-10 Viewing the file system type

2. Run the following command to format the partition (taking the **ext4** type as an example):

## mkfs -t ext4 /dev/xvda3

## **NOTE**

Formatting the partition requires a period of time. During this time, observe the system running status and do not exit the system.

Information similar to the following is displayed:

[root@ecs-86dc ]# mkfs -t ext4 /dev/xvda3 mke2fs 1.42.9 (28-Dec-2013) Filesystem label= OS type: Linux Block size=4096 (log=2) Fragment size=4096 (log=2) Stride=0 blocks, Stripe width=0 blocks 1790544 inodes, 7156992 blocks 357849 blocks (5.00%) reserved for the super user First data block=0 Maximum filesystem blocks=2155872256 219 block groups 32768 blocks per group, 32768 fragments per group 8176 inodes per group Superblock backups stored on blocks: 32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208, 4096000

Allocating group tables: done Writing inode tables: done Creating journal (32768 blocks): done Writing superblocks and filesystem accounting information: done

## **Step 5** Mount the new partition to the target directory.

If you mount the new partition to a directory that is not empty, the subdirectories and files in the directory will be hidden. It is a good practice to mount the new partition to an empty directory or a newly created directory. If you want to mount the new partition to a directory that is not empty, temporarily move the subdirectories and files in the directory to another directory. After the partition is mounted, move the subdirectories and files back.

Take the newly created directory /root/new as an example.

- Run the following command to create the /root/new directory: mkdir /root/new
- 2. Run the following command to mount the new partition to the **/root/new** directory:

## mount /dev/xvda3 /root/new

Information similar to the following is displayed:

[root@ecs-86dc ]# mount /dev/xvda3 /root/new [root@ecs-86dc ]#

3. Run the following command to view the mounted file systems:

## df -TH

Information similar to the following is displayed:

Figure 9-11	Viewing	the mounted	file	systems
-------------	---------	-------------	------	---------

[root@ecs-8d6c	~]# df -7	Н				
Filesystem	Туре	Size	Used	Avail	Use%	Mounted on
/dev/xvda1	ext4	41G	1.3G	37G	4%	1
devtmpfs	devtmpfs	943M	0	943M	0%	∕dev
tmpfs	tmpfs	952M	0	952M	0%	/dev/shm
tmpfs	tmpfs	952M	8.8M	944M	1%	∕run
tmpfs	tmpfs	952M	0	952M	0%	/sys/fs/cgroup
/dev/xvda3	ext4	22G	47M	20G	1%	∕root∕new
tmpfs	tmpfs	191M	0	191M	0%	/run/user/0
[root@ecs-8d6c	~]# bl					

**Step 6** Determine whether to set automatic mounting upon system startup for the new disk.

If you do not set automatic mounting upon system startup, you must mount the new partition to the specified directory again after the ECS is restarted.

- If automatic mounting is required, go to **Step 7**.
- If automatic mounting is not required, no further action is required.
- **Step 7** Set automatic mounting upon system startup for the new disk.

**NOTE** 

Do not set automatic mounting upon system startup for unformatted disks because this will cause ECS startup failures.

 Run the following command to obtain the file system type and UUID: blkid

Figure 9-12 Viewing the file system type

[root@ecs-8d6c ~]# blkid	
/dev/xvda1: UUID="7c4fce5d-f8f7-4ed6-8463-f2bd22d0ddea"	TYPE="ext4"
/dev/xvda2: UUID="5de3cf2c-30c6-4fb2-9e63-830439d4e674"	TYPE="swap"
/dev/xvda3: UUID="96e5e028-60fb-4547-a82a-35ace1086c4f"	TYPE="ext4"
[root@ecs-8d6c ~]#	

According to the preceding figure, the UUID of the new partition is 96e5e028b0fb-4547-a82a-35ace1086c4f.

2. Run the following command to open the **fstab** file using the vi editor:

vi /etc/fstab

- 3. Press i to enter editing mode.
- 4. Move the cursor to the end of the file and press **Enter**. Then, add the following information:

UUID=96e5e028-b0fb-4547-a82a-35ace1086c4f /root/new ext4 defaults 0 0 5. Press **Esc**, run the following command, and press **Enter**. The system saves the configurations and exits the vi editor.

:wq

## D NOTE

If you want to detach a new disk for which automatic mounting upon system startup has been set, you must delete the automatic mounting configuration before you detach the disk. Otherwise, the ECS cannot be started after you detach the disk. To delete the automatic mounting configuration, perform the following operations:

1. Run the following command to open the **fstab** file using the vi editor:

## vi /etc/fstab

- 2. Press **i** to enter editing mode.
- 3. Delete the following statement:
  - UUID=96e5e028-b0fb-4547-a82a-35ace1086c4f /root/new ext4 defaults 0 0
- 4. Press **Esc**, run the following command, and press **Enter**. The system saves the configurations and exits the vi editor.

:wq

----End

## 9.3 How Do I Obtain My Disk Device Name in the ECS OS Using the Device Identifier Provided on the Console?

## **Scenarios**

You find that the device name displayed in the ECS OS is different from that displayed on the management console and you cannot determine which disk name is correct. This section describes how to obtain the disk name used in an ECS OS according to the device identifier on the console.

For details about how to attach disks, see Attaching an EVS Disk to an ECS.

## Obtaining the Disk ID of an ECS on the Console

- 1. Log in to the management console.
- 2. Under **Compute**, choose **Elastic Cloud Server**.
- Click the target ECS name in the ECS list. The ECS details page is displayed.
- 4. Click the **Disks** tab and then click  $\bowtie$  to expand the disk information.
- 5. Check the device type and ID of the disk.

## **NOTE**

If **Device Identifier** is not displayed on the page, stop the ECS and restart it.

KVM ECS

 If Device Type is VBD, use a serial number or BDF to obtain the disk device name. (Kunpeng ECSs only support serial numbers to obtain disk device names.)

If you use a serial number (recommended) to obtain the disk device name, see Using a Serial Number to Obtain the Disk Device Name (Windows) and Using a Serial Number to Obtain a Disk Device Name (Linux).

If you use a BDF to obtain the disk device name, see Using a BDF to Obtain a Disk Device Name (Linux). (BDF cannot be used to obtain the disk device name of Windows ECSs.)

- If Device Type is SCSI, use a WWN to obtain the disk device name. For details, see Using a WWN to Obtain the Disk Name (Windows) and Using a WWN to Obtain a Disk Device Name (Linux).
- QingTian ECS

For QingTian ECSs such as C7 or M7 series, the **Device Type** is **VBD** or **SCSI**, and the device ID is **WWN**. You can use the WWN to obtain the disk device name of the ECS. For details, see **Using a WWN to Obtain the Disk Name (Windows)** and **Using a WWN to Obtain a Disk Device Name (Linux)**.

- Xen ECS
  - For details, see Obtaining the Disk Device Name of a Xen Instance.

## Using a Serial Number to Obtain the Disk Device Name (Windows)

If a serial number is displayed on the console, use either of the following methods to obtain the disk name.

## cmd

1. Start **cmd** in a Windows OS as an administrator and run either of the following commands:

wmic diskdrive get serialnumber

wmic path win32\_physicalmedia get SerialNumber

wmic path Win32\_DiskDrive get SerialNumber

## D NOTE

A serial number is the first 20 digits of a disk UUID.

For example, if the serial number of a VBD disk on the console is 97c876c0-54b3-460a-b, run either of the following commands to obtain the serial number of the disk on the ECS OS:

wmic diskdrive get serialnumber

## wmic path win32\_physicalmedia get SerialNumber

wmic path Win32\_DiskDrive get SerialNumber

Information similar to the following is displayed:

## Figure 9-13 Obtaining the disk serial number



2. Run the following command to check the disk corresponding to the serial number:

### wmic diskdrive get Name, SerialNumber

Figure 9-14 Checking the disk corresponding to the serial number



### PowerShell

- 1. Start PowerShell as an administrator in a Windows OS.
- 2. Run the following command to check the disk on which the logical disk is created:
  - Windows Server 2012 or later
    - i. Run the following command to check the disk on which the logical disk is created:

Get-CimInstance -ClassName Win32\_LogicalDiskToPartition | select Antecedent, Dependent |fl

As shown in Figure 9-15, the disk is Disk 0.

ii. Run the following command to view the mapping between the serial number and the disk:

### Get-Disk |select Number, SerialNumber

As shown in Figure 9-15, the disk is Disk 0.

Figure 9-15 Viewing the disk on which the logical disk is created



- Versions earlier than Windows 2012
  - i. Run the following command to check the disk on which the logical disk is created:

Get-WmiObject -Class Win32\_PhysicalMedia |select Tag, Serialnumber

ii. Run the following command to view the mapping between the serial number and the disk:

Get-WmiObject -Class Win32\_LogicalDiskToPartition |select Antecedent, Dependent |fl

## Using a Serial Number to Obtain a Disk Device Name (Linux)

If a serial number is displayed on the console, run either of the following commands to obtain the device name.

## udevadm info --query=all --name=/dev/xxx | grep ID\_SERIAL

## ll /dev/disk/by-id/\*

## **NOTE**

A serial number is the first 20 digits of a disk UUID.

For example, if the serial number of the VBD disk is 62f0d06b-808d-480d-8, run either of the following commands:

## udevadm info --query=all --name=/dev/vdb | grep ID\_SERIAL

## ll /dev/disk/by-id/\*

The following information is displayed:

[root@ecs-ab63 ~]# udevadm info --query=all --name=/dev/vdb | grep ID\_SERIAL **E: ID\_SERIAL=62f0d06b-808d-480d-8** [root@ecs-ab63 ~]# ll /dev/disk/by-id/\* lrwxrwxrwx 1 root root 9 Dec 30 15:56 /dev/disk/by-id/virtio-128d5bfd-f215-487f-9 -> ../../vda lrwxrwxrwx 1 root root 10 Dec 30 15:56 /dev/disk/by-id/virtio-128d5bfd-f215-487f-9-part1 -> ../../vda1 lrwxrwxrwx 1 root root 9 Dec 30 15:56 /dev/disk/by-id/virtio-62f0d06b-808d-480d-8 -> ../../vdb

/dev/vdb is the disk device name.

## Using a BDF to Obtain a Disk Device Name (Linux)

1. Run the following command to use a BDF to obtain the device name:

## ll /sys/bus/pci/devices/BDF disk ID/virtio\*/block

For example, if the BDF disk ID of the VBD disk is 0000:02:02.0, run the following command to obtain the device name:

## ll /sys/bus/pci/devices/0000:02:02.0/virtio\*/block

The following information is displayed: [root@ecs-ab63 ~]# ll /sys/bus/pci/devices/0000:02:02.0/virtio\*/block total 0 drwxr-xr-x 8 root root 0 Dec 30 15:56 vdb

/dev/vdb is the disk device name.

## Using a WWN to Obtain the Disk Name (Windows)

- 1. Obtain the device identifier on the console by referring to **Obtaining the Disk ID of an ECS on the Console**.
- 2. Manually convert the WWN.

For example, the obtained WWN (device identifier) is 68886030000**3252f**fa16520d39517815.

- a. Obtain the 21st to 17th digits that are counted backwards (3252f).
- b. Convert a hexadecimal (3252f) to a decimal (206127).
- 3. Start PowerShell as an administrator in a Windows OS.
- 4. Run the following command:

## Get-CimInstance Win32\_DiskDrive | Select-Object DeviceID, SerialNumber

5. In the command output, the disk whose serial number ends with **206127** is the disk corresponding to the WWN.

## Figure 9-16 Disk with the serial number ending with 206127

PS C:\Users\Administrator> Get-CimInstance Win32_DiskDrive	Select-Object DeviceID, SerialNumber
DeviceID	SerialNumber
\\PHYSICALDRIVE0 \\.\PHYSICALDRIVE1	97c876c0-54b3-460a-b dswfa16520d39517815206127

## Using a WWN to Obtain a Disk Device Name (Linux)

- 1. Log in to the ECS as user **root**.
- 2. Run the following command to view the disk device name:

## ll /dev/disk/by-id |grep WWMgrep scsi-3

For example, if the WWN obtained on the console is 6888603000008b32fa16688d09368506, run the following command:

## ll /dev/disk/by-id |grep 688860300008b32fa16688d09368506|grep scsi-3

The following information is displayed:

[root@host-192-168-133-148 block]# ll /dev/disk/by-id/ |grep 6888603000008b32fa16688d09368506 | grep scsi-3 lrwxrwxrwx 1 root root 9 May 21 20:22 **scsi-3**6888603000008b32fa16688d09368506 -> **../../sda** 

## Obtaining the Disk Device Name of a Xen Instance

**Step 1** Obtain the disk information displayed on the console.

- 1. Log in to the management console.
- 2. Under **Compute**, choose **Elastic Cloud Server**.
- Click the target ECS name in the ECS list. The ECS details page is displayed.
- 4. Click the **Disks** tab and then  $\bowtie$  to expand the disk information.
- 5. Check the device name, type, and ID of the disk.
  - If the device type is **VBD**, go to **Step 2**.
  - If the device name is SCSI, go to Step 3.

**NOTE** 

## If **Device Identifier** is not displayed on the page, stop the ECS and restart it.

**Step 2** Check the device name attached to the VBD disk in the ECS.

For a VBD disk, the device name displayed on the management console corresponds to the disk device name in the ECS OS. For details, see **Table 9-1**.

**Table 9-1** Mapping between disk device names displayed on the management console and those obtained on the ECS

Device Name (on Management Console)	Device Name (in ECS)
/dev/sd***	/dev/xvd***
/dev/vd***	/dev/xvd***
/dev/xvd***	/dev/xvd***

An example is provided as follows:

If the device name displayed on the management console is **/dev/sdb**, the device name of the device attached to the ECS is **/dev/xvdb**.

- **Step 3** Check the device name of the SCSI disk attached to the ECS.
  - 1. Obtain the disk device ID.

The device ID of the SCSI disk is the disk WWN on the ECS.

- 2. Log in to the ECS as user **root**.
- 3. Run the following command to view the disk device name:

## ll /dev/disk/by-id |grep WWMgrep scsi-3

[root@host-192-168-133-148 block]# ll /dev/disk/by-id/ |grep 6888603000008b32fa16688d09368506 | grep scsi-3 lrwxrwxrwx 1 root root 9 May 21 20:22 **scsi-3**6888603000008b32fa16688d09368506 -> **../../sda** 

----End

## 9.4 How Can I Obtain the Mapping Between Disk Partitions and Disk Devices on a Windows ECS?

This section uses an ECS running Windows Server 2019 64-bit as an example to describe how to obtain the mapping between disk partitions and disk devices.

For KVM or QingTian instances, see **How Do I Obtain My Disk Device Name in the ECS OS Using the Device Identifier Provided on the Console?**.

- 1. Log in to the Windows ECS.
- 2. Click **Start** in the lower left corner of the desktop.
- 3. Choose Control Panel > Administrative Tools > Computer Management.
- 4. In the navigation pane on the left, choose **Storage** > **Disk Management**.

-							
🜆 Computer Management							- 🗆 ×
File Action View Help							
🗢 🔿 🙍 📰 🖉 🗩	<b>V</b> 🗵						
🌆 Computer Management (Local	Volume	Layout	Туре	File System	Status	C	Actions
V 👔 System Tools	C:)	Simple	Basic	NTFS	Healthy (Boot, Page File, Crash Dump, Primary Partition)	39	Disk Management
> 🚼 Event Viewer	(D:)	Simple	Basic	NTFS	Healthy (System, Active, Primary Partition) Healthy (Primary Partition)	10	More Actions
> 👸 Shared Folders							
> A Local Users and Groups							
Device Manager							
🗸 📴 Storage							
> 🐌 Windows Server Backup							
Disk Management							
y ing services and applications							
	<					>	
	Dick 0						
	Basic	System F	leserve	ed	(C:)		
	40.00 GB Online	549 MB N	TFS	Active Prin	39.46 GB NTFS Healthy (Root, Page File, Crach Dump, Priman) Par		
		ricatiny (	system	, Active, Phili	Theating (boot, Page The, Class Durip, Primary Par		
					P		
	Basic		D:)				
	100.00 GB	100.00 GB	NTFS				
	Unline	Healthy (	Primary	(Partition)			
						_	
/		riman/ pa	rtition				
` `		inary pa	ration				1

Figure 9-17 Disk Management

- 5. Taking disk 1 marked in **Figure 9-17** as an example, view the disk device for disk 1.
  - a. Right-click the gray area where disk 1 is located, as shown in the red box in **Figure 9-17**.
  - b. Click **Properties**.

The SCSI Disk Device Properties dialog box is displayed.

c. Click the **Details** tab and set **Property** to **Parent**.

5110	SCS	SI Disk Dev	ice Prop	erties				×
General	Policies	Volumes	Driver	Details	Events			
-	10 A	SCS	61 Disk D	evice				
Property	y							
Parent							`	/
Value						F		
							8	3
<							2	>
				[	OK		Cance	1

Figure 9-18 Disk device details

- d. Record the digits following & in the parameter value, for example, **51776**, which is the primary/secondary device number corresponding to the disk partition.
- e. Obtain the disk device according to the information listed in Table 9-2.
   The disk device corresponding to 51776 is xvde. The disk device used by disk 1 is xvde.

Table 9-2 Mapping b	between disk partitions	and disk devices
---------------------	-------------------------	------------------

Primary/Secondary Device Number for a Disk Partition	Disk Device
51712	xvda

Primary/Secondary Device Number for a Disk Partition	Disk Device
51728	xvdb
51744	xvdc
51760	xvdd
51776	xvde
51792	xvdf
51808	xvdg
51824	xvdh
51840	xvdi
51856	xvdj
51872	xvdk
51888	xvdl
51904	xvdm
51920	xvdn
51936	xvdo
51952	xvdp
268439552	xvdq
268439808	xvdr
268440064	xvds
268440320	xvdt
268440576	xvdu
268440832	xvdv
268441088	xvdw
268441344	xvdx

## 9.5 How Can I Obtain the Mapping Between Disk Partitions and Disk Devices on a Linux ECS?

For a Xen ECS running Linux, its disk partitions correspond to disk devices. This section uses a Linux ECS running Red Hat Enterprise Linux 7 as an example to describe how to obtain the mapping between disk partitions and disk devices.
For KVM or QingTian instances, see **How Do I Obtain My Disk Device Name in** the ECS OS Using the Device Identifier Provided on the Console?

- 1. Log in to the Linux ECS running Red Hat Enterprise Linux 7 as user **root**.
- 2. Right-click in the blank area of the desktop and choose **Open Terminal** from the shortcut menu.

#### Figure 9-19 open terminal

Applications Places		
New Folder	Shift+Ctrl+N	
Paste	Ctrl+V	
Select All	Ctrl+A	
🕑 Keep aligned		
Organize Desktop by Name		
Change Background		
Open Terminal		

 Run the following command to view disk partitions and disk devices: fdisk -l

#### Figure 9-20 Viewing disk partitions and disk devices



 Table 9-3 lists the mapping between disk partitions and disk devices.

Table 9-3 Mapping b	etween disk	partitions a	ind disk devices
---------------------	-------------	--------------	------------------

Disk Partition	Disk Device	
xvda	xvda	

Disk Partition	Disk Device
xvdb	xvdb
xvdc	xvdc
xvdd	xvdd
xvde	xvde
xvdf	xvdf
xvdg	xvdg
xvdh	xvdh
xvdi	xvdi
xvdj	xvdj
xvdk	xvdk
xvdl	xvdl
xvdm	xvdm
xvdn	xvdn
xvdo	xvdo
xvdp	xvdp
xvdq	xvdq
xvdr	xvdr
xvds	xvds
xvdt	xvdt
xvdu	xvdu
xvdv	xvdv
xvdw	xvdw
xvdx	xvdx

# 9.6 How Can I Enable Virtual Memory on a Windows ECS?

Enabling ECS virtual memory will deteriorate I/O performance. If the ECS memory is insufficient, increase the memory by performing the operations in **Modifying Individual ECS Specifications**. If you really need to enable virtual memory, see the operations described below.

#### **NOTE**

If the memory usage is excessively high and the I/O performance is not as good as expected, you are not advised to enable virtual memory. The reason is as follows: The excessively high memory usage limits the system performance improvement. Furthermore, frequent memory switching requires massive additional I/O operations, which will further deteriorate the I/O performance and the overall system performance.

The operations described in this section are provided for the ECSs running Windows Server 2008 or later.

- 1. Right-click **Computer** and choose **Properties** from the shortcut menu.
- 2. In the left navigation pane, choose Advanced system settings.

The System Properties dialog box is displayed.

 Click the Advanced tab and then Settings in the Performance pane. The Performance Options dialog box is displayed.

Figure 9-21 Performance Options

Performance Options	X
Visual Effects Advanced Data Execution Prevention	
Processor scheduling Choose how to allocate processor resources.	
Adjust for best performance of:	
O Programs	
Virtual memory	
A paging file is an area on the hard disk that Windows uses as if it were RAM.	
Total paging file size for all drives: 0 MB	
Change	
	-

- 4. Click the **Advanced** tab and then **Background Services** in the **Processor scheduling** pane.
- 5. Click **Change** in the **Virtual memory** pane.

The Virtual Memory dialog box is displayed.

- 6. Configure virtual memory based on service requirements.
  - Automatically manage paging file size for all drives: Deselect the check box.
  - **Drive**: Select the drive where the virtual memory file is stored.

You are advised not to select the system disk to store the virtual memory.

Custom size: Select Custom size and set Initial size and Maximum size.
 Considering Memory.dmp caused by blue screen of death (BSOD), you are advised to set Initial size to 16 and Maximum size to 4,096.

igure o 22 vincaat memory
Virtual Memory 🛛 🗙
Automatically manage paging file size for all drives Paging file size for each drive Drive [Volume Label] Paging File Size (MB) C: None
Selected drive: C: Space available: 28655.MB Custom size: Initial size (MB): 16 Maximum size (MB): 4096 System managed size No paging file Set
Total paging file size for all drivesMinimum allowed:16 MBRecommended:1024 MBCurrently allocated:0 MB
OK Cancel

Figure 9-22 Virtual Memory

- 7. Click **Set** and then **OK** to complete the configuration.
- 8. Restart the ECS for the configuration to take effect.

# 9.7 How Can I Add the Empty Partition of an Expanded System Disk to the End Root Partition Online?

#### **Scenarios**

If the capacity of system disk partitions is inconsistent with the actual system disk capacity after an ECS is created, you can add the empty partition to the root partition of the system disk.

This section describes how to add the empty partition to the end root partition online.

#### Procedure

In the following operations, the ECS that runs CentOS 6.5 64bit and has a 50 GB system disk is used as an example. The system disk has two partitions, **/dev/xvda1: swap** and **/dev/xvda2: root**, and the root partition is the end partition.

1. Run the following command to view disk partitions:

#### parted -l /dev/xvda

[root@sluo-ecs-5e7d ~]# parted -l /dev/xvda Disk /dev/xvda: 53.7GB Sector size (logical/physical): 512B/512B Partition Table: msdos

- Number Start End Size Type File system Flags 1 1049kB 4296MB 4295MB primary linux-swap(v1) 2 4296MB 42.9GB 38.7GB primary ext4 boot
- 2. Run the following command to obtain the file system type and UUID:

#### blkid

/dev/xvda1: UUID="25ec3bdb-ba24-4561-bcdc-802edf42b85f" TYPE="swap" /dev/xvda2: UUID="1a1ce4de-e56a-4e1f-864d-31b7d9dfb547" TYPE="ext4"

3. Run the following command to install the growpart tool:

This tool may be integrated in the **cloud-utils-growpart/cloud-utils/cloudinitramfs-tools/cloud-init** package. Run the **yum install cloud-\*** command to ensure it is available.

#### yum install cloud-utils-growpart

4. Run the following command to expand the root partition (the second partition) using growpart:

#### growpart /dev/xvda 2

[root@sluo-ecs-5e7d ~]# growpart /dev/xvda 2 CHANGED: partition=2 start=8390656 old: size=75495424 end=83886080 new: size=96465599,end=104856255

5. Run the following command to verify that online capacity expansion is successful:

#### parted -l /dev/xvda

[root@sluo-ecs-5e7d ~]# parted -l /dev/xvda Disk /dev/xvda: 53.7GB Sector size (logical/physical): 512B/512B Partition Table: msdos

NumberStartEndSizeTypeFile systemFlags11049kB4296MB4295MBprimarylinux-swap(v1)24296MB53.7GB49.4GBprimaryext4boot

6. Run the following command to expand the capacity of the file system:

#### resize2fs -f \$Partition name

Suppose the partition name is **/dev/xvda2**, run the following command:

[root@sluo-ecs-a611 ~]# resize2fs -f /dev/xvda2 resize2fs 1.42.9 (28-Dec-2013) Filesystem at /dev/xvda2 is mounted on /; on-line resizing required old\_desc\_blocks = 3, new\_desc\_blocks = 3

[root@sluo-ecs-a611 ~] # df -hT //Check file system capacity expansion

### 9.8 How Can I Add the Empty Partition of an Expanded System Disk to the Non-end Root Partition Online?

#### **Scenarios**

If the capacity of system disk partitions is inconsistent with the actual system disk capacity after an ECS is created, you can add the empty partition to the root partition of the system disk.

This section describes how to add the empty partition to the non-end root partition online.

#### Procedure

In the following operations, the ECS that runs CentOS 6.5 64bit and has a 100 GB system disk is used as an example. The system disk has two partitions, **/dev/xvda1: root** and **/dev/xvda2: swap**, and the root partition is not the end partition.

1. Run the following command to view disk partitions:

```
parted -l /dev/xvda
[root@sluo-ecs-a611 ~]# parted -l /dev/xvda
Disk /dev/xvda: 107GB
Sector size (logical/physical): 512B/512B
Partition Table: msdos
Disk Flags:
```

Number StartEndSizeTypeFile systemFlags11049kB41.0GB40.9GBprimaryext4boot241.0GB42.9GB2000MBprimarylinux-swap(v1)

The first is the root partition, and the second is the swap partition.

- 2. View and edit the fstab partition table to delete the swap partition attachment information.
  - a. Run the following command to view the fstab partition table:

#### tail -n 3 /etc/fstab

[root@sluo-ecs-a611 ~]# tail -n 3 /etc/fstab				
#				
UUID=7c4fce5d-f8f7-4ed6-8463-f2bd22d0ddea /	ext4	def	faults	11
UUID=5de3cf2c-30c6-4fb2-9e63-830439d4e674 swap	SW	ар	defaults	0 0

b. Run the following command to edit the fstab partition table and delete the swap partition attachment information.

#### vi /etc/fstab

```
tail -n 3 /etc/fstab[root@sluo-ecs-a611 ~]# vi /etc/fstab[root@sluo-ecs-a611 ~]# tail -n 3 /etc/fstab#UUID=7c4fce5d-f8f7-4ed6-8463-f2bd22d0ddea /ext4defaults1 1
```

3. Run the following command to disable the swap partition:

#### swapoff -a

- 4. Delete the swap partition.
  - a. Run the following command to view the partition:

#### parted /dev/xvda

```
[root@sluo-ecs-a611 ~]# parted /dev/xvda
GNU Parted 3.1
Using /dev/xvda
Welcome to GNU Parted! Type 'help' to view a list of commands.
(parted) help
 align-check TYPE N
                                   check partition N for TYPE(min|opt) alignment
 help [COMMAND]
                                    print general help, or help on COMMAND
 mklabel, mktable LABEL-TYPE
                                       create a new disklabel (partition table)
 mkpart PART-TYPE [FS-TYPE] START END
                                          make a partition
 name NUMBER NAME
                                      name partition NUMBER as NAME
 print [devices|free|list,all|NUMBER]
                                     display the partition table, available devices, free space,
all found partitions, or a
     particular partition
 auit
                             exit program
                                  rescue a lost partition near START and END
 rescue START END
 rm NUMBER
                                  delete partition NUMBER
 select DEVICE
                                choose the device to edit
 disk_set FLAG STATE
                                   change the FLAG on selected device
                                  toggle the state of FLAG on selected device
 disk_toggle [FLAG]
```

set NUMBER FLAG STATE toggle [NUMBER [FLAG]] t unit UNIT set the version display th Parted (parted)

change the FLAG on partition NUMBER toggle the state of FLAG on partition NUMBER set the default unit to UNIT display the version number and copyright information of GNU

#### b. Press **p**.

Disk /dev/xvda: 107GB Sector size (logical/physical): 512B/512B Partition Table: msdos Disk Flags:

Number StartEndSizeTypeFile systemFlags11049kB41.0GB40.9GBprimaryext4boot241.0GB42.9GB2000MBprimarylinux-swap(v1)

- c. Run the following command to delete the partition:

#### rm 2

(parted) rm2

#### d. Press **p**.

(parted) p Disk /dev/xvda: 107GB Sector size (logical/physical): 512B/512B Partition Table: msdos Disk Flags:

Number Start End Size Type File system Flags 1 1049kB 41.0GB 40.9GB primary ext4 boot

e. Run the following command to edit the fstab partition table:

quit (parted) quit

Information: You may need to update /etc/fstab.

5. Run the following command to view partition after the swap partition is deleted:

#### parted -l /dev/xvda

[root@sluo-ecs-a611 ~]# parted -l /dev/xvda Disk /dev/xvda: 107GB Sector size (logical/physical): 512B/512B Partition Table: msdos Disk Flags:

Number Start End Size Type File system Flags 1 1049kB 41.0GB 40.9GB primary ext4 boot

6. Run the following command to install the growpart tool:

This tool may be integrated in the **cloud-utils-growpart/cloud-utils/cloudinitramfs-tools/cloud-init** package. Run the **yum install cloud-\*** command to ensure it is available.

#### yum install cloud-utils-growpart

7. Run the following command to expand the root partition (the first partition) using growpart:

#### growpart /dev/xvda 1

[root@sluo-ecs-a611 ~]# growpart /dev/xvda 1 CHANGED: partition=1 start=2048 old: size=79978496 end=79980544 new: size=209710462,end=209712510

 Run the following command to verify that online capacity expansion is successful: [root@sluo-ecs-a611 ~]# parted -l /dev/xvda

[root@sluo-ecs-a611 ~]# parted -l /dev/xvc Disk /dev/xvda: 107GB Sector size (logical/physical): 512B/512B Partition Table: msdos Disk Flags: Number Start End Size Type File system Flags 1 1049kB 107GB 107GB primary ext4

9. Run the following command to expand the capacity of the file system:

#### resize2fs -f *\$Partition name*

Suppose the partition name is /dev/xvda1, run the following command:

boot

```
[root@sluo-ecs-a611 ~]# resize2fs -f /dev/xvda1
resize2fs 1.42.9 (28-Dec-2013)
Filesystem at /dev/xvda1 is mounted on /; on-line resizing required
old_desc_blocks = 3, new_desc_blocks = 3
```

[root@sluo-ecs-a611 ~] # df -hT //Check file system capacity expansion

### 9.9 Can I Attach Multiple Disks to an ECS?

Yes. The ECSs created after the disk function upgrade can have up to 60 attached disks.

- When you create an ECS, you can attach 24 disks to it. •
- After you create an ECS, you can attach up to 60 disks to it. •

ECS Type	Maximum VBD Disks	Maximum SCSI Disks	Constraint
Xen	60	59	VBD disks + SCSI disks ≤ 60 (This constraint does not apply to local disks.)
			The number of local disks is determined based on the ECS flavor.
KVM (excluding D2 ECSs)	24	59	VBD disks + SCSI disks ≤ 60 (This constraint does not apply to local disks.) The number of local disks is determined based on the ECS flavor.
D2	24	30	VBD disks + SCSI disks ≤ 54 (This constraint does not apply to local disks.) The number of local disks is determined based on the ECS flavor.

Table 9-4 Numbers of disks that can be attached to a newly created ECS

#### **NOTE**

- The system disk of an ECS is of VBD type. The maximum number of SCSI disks is 59.
- For a D-series KVM ECS, its local disks use two SCSI controllers, indicating that 30 SCSI drive letters are used. A maximum of 30 SCSI disks can be attached to such an ECS.

The maximum number of disks that you can attach to an ECS that was created before the disk function upgrade remains unchanged, as shown in **Table 9-5**.

ECS Type	Maximum VBD Disks	Maximum SCSI Disks	Maximum Local Disks	Constraint
Xen	60	59	59	VBD disks + SCSI disks + Local disks ≤ 60
KVM	24	23	59	VBD disks + SCSI disks ≤ 24

Table 9-5 Numbers of disks that can be attached to an existing ECS

To attach 60 disks, enable advanced disk. For details, see **Enabling Advanced Disk**.

### How Can I Check Whether an ECS Is Created Before or After the Disk Function Upgrade?

- 1. Log in to management console.
- 2. Under Compute, click Elastic Cloud Server.
- 3. Click the name of the target ECS. The page providing details about the ECS is displayed.
- 4. Click the **Disks** tab.
- 5. Check the number of disks that can be attached to the ECS to determine the total number of disks.
  - If the total number of disks that can be attached is 24 (including the system disk), the ECS is created before the disk function upgrade.
  - If the total number of disks that can be attached is 60 (including the system disk), the ECS is created after the disk function upgrade.

## 9.10 What Are the Requirements for Attaching an EVS Disk to an ECS?

- The EVS disk and the target ECS must be located in the same AZ.
- The target ECS must be in **Running** or **Stopped** state.
- The EVS disk must not be frozen.

• For yearly/monthly ECSs:

If you detach the system disk that you purchased when creating an ECS and want to continue using it as a system disk, you can only attach it to the original ECS. If you want to use it as a data disk, you can attach it to any ECS.

If you detach the non-shared data disk that you purchased when creating an ECS and want to attach it again, you can only attach it to the original ECS as a data disk.

### 9.11 Which ECSs Can Be Attached with SCSI EVS Disks?

A Xen ECS running one of the following OSs supports SCSI EVS disks:

- Windows
- SUSE Enterprise Linux Server 11 SP4 64bit
- SUSE Enterprise Linux Server 12 64bit
- SUSE Enterprise Linux Server 12 SP1 64bit
- SUSE Enterprise Linux Server 12 SP2 64bit

All KVM ECSs support SCSI EVS disks.

# 9.12 What Should I Do If Attaching a Disk to a Windows ECS Failed But There Are Still Available Device Names?

#### Symptom

On the Windows ECS details page, the system displays a message indicating that at most *n* more disks can be attached to the ECS. However, after you clicked **Attach Disk**, the attachment failed.

#### Figure 9-23 Disk attachment

< ecs-50dc	
Summary Disks NICs Security Groups EIPs Monitoring Tags	
If data disks attached to the ECS are not displayed here, restart the ECS.   Operations on disks after attachment   Operations on disks after capacity expansion Attach Disk You can attach 23 more VBD disks or 59 more SCSI disks.	n
✓ ecs-50dc   System Disk   40GB	

#### **Possible Causes**

If an EVS disk in arrears is not renewed, the system forcibly uninstalls it, which may cause a residual drive letter on the Windows ECS. As a result, the actual number of available device names on the ECS is less than the displayed number.

#### Solution

Restart the ECS and attach the disk again.

If the attaching still fails, contact customer service for technical support.

# 9.13 Why Does a Linux ECS with a SCSI Disk Attached Fails to Be Restarted?

#### Symptom

For a Linux ECS with a SCSI disk attached, if you have enabled automatic SCSI disk attachment upon ECS startup in **/etc/fstab** and the disk drive letter (for example, **/dev/sdb**) is used, the ECS fails to restart.

#### **Possible Causes**

SCSI disk allocation is determined based on the ID of the slot accommodating the disk as well as the available drive letter in the ECS. Each time you attach a disk to the ECS, an idle drive letter is automatically allocated in sequence. When the ECS starts, the disks are loaded in slot sequence. A slot ID corresponds to a drive letter.

After the SCSI disk is detached from the running ECS, the slot sequence for disks may change, leading to the disk drive letter being changed after the ECS is restarted. As a result, the slot IDs do not correspond to the drive letters, and the ECS fails to restart.

#### Solution

- 1. Log in to the ECS as user **root**.
- 2. Run the following command to obtain the SCSI ID according to the drive letter of the SCSI disk:

#### ll /dev/disk/by-id/|grep Disk drive letter

For example, if the drive letter of the SCSI disk is **/dev/sdb**, run the following command:

#### ll /dev/disk/by-id/|grep sdb

CNA64\_22:/opt/galax/eucalyptus/ecs\_scripts # ll /dev/disk/by-id/|grep sdb lrwxrwxrwx 1 root root 9 Dec 6 11:26 scsi-3688860300001436b005014f890338280 -> ../../sdb lrwxrwxrwx 1 root root 9 Dec 6 11:26 wwn-0x688860300001436b005014f890338280 -> ../../sdb

3. Change the drive letter (for example, **/dev/sdb**) of the SCSI disk to the corresponding SCSI ID in the **/etc/fstab** file.

#### /dev/disk/by-id/SCS/ /D

For example, if the SCSI ID obtained in step **2** is scsi-3688860300001436b005014f890338280, use the following data to replace **/dev/sdb**:

/dev/disk/by-id/scsi-3688860300001436b005014f890338280

# 9.14 How Can I Check Whether the ECSs Attached with the Same Shared SCSI Disk Are in the Same ECS Group?

#### Scenarios

Shared EVS disks of the SCSI type support SCSI locks. To improve data security, the shared EVS disks of the SCSI type must be attached to the ECSs in the same antiaffinity ECS group. This section describes how to check whether the ECSs attached with the same shared SCSI disk are in the same ECS group.

- For details about ECS groups, see Managing ECS Groups.
- For details about using shared EVS disks, see **Shared EVS Disks and Usage Instructions**.

#### Procedure

- 1. Log in to the management console.
- 2. Under Storage, click Elastic Volume Service.
- 3. Click the target shared SCSI disk to view its details.
- 4. In the **Servers** pane on the right side of the page, the ECSs to which the shared SCSI disk is attached are displayed.

In this example, the ECSs to which the shared SCSI disk **volume-0001** is attached are **ecs-0001** and **ecs-0002**.

#### Figure 9-24 Details about the disk

Disks > <b>volume-0001</b>		Expand Capacity
Summary Serve	ers Backups Snapshots Tags	
Basic Information	1 213f4fc7-68e4-4b2a-a0c4-83c77d7e0696 🗂	· Servers 2
Name	volume-0001 🖉	Snapshots 0
Region AZ	AZ3	Servers Attach Disk
Disk Type Capacity (GB) Max. IOPS	Common I/O 100 700/2,200	ecs-0002 View Metric      Running     ecs-0001 View Metric      Running
	2 IOPS per GB, IOPS limit: 700, IOPS burst limit:	Backups     Create Backup
Function Image Created	Data disk  Sep 26, 2019 14:13:55 GMT+08:00	You have not created any backup yet. VBS allows you to create backups for EVS disks on the management console without stopping servers.
		© Snapshots Create Snapshot
Configuration Info Disk Sharing Device Type	Enabled SCSI	You have not created any snapshot yet. Snapshots can be created to quickly save disk data at specified time points.

5. Click the names of these ECSs, respectively. On the page that provides details about an ECS, you can view the ECS group to which the current ECS belongs.

In this example, the ECS group to which ECS **ecs-0001** belongs is **ecs-group\_01**.

#### D NOTE

If the ECS group field is left blank, the ECS has not been added to any ECS group.

#### Figure 9-25 Details about an ECS (1)

ECS > ecs-0001		Star	t Stop Restart Remote Login
Name	ecs-0001 🖋	VPC	vpc-02
Status	Running	Specifications	General computing   s3.large.2   2 vCPUs   4 GB
ID	404fd302-3279-4e07-b8e4-ff85c7da0377	Image	CentOS 7.6 64bit
Disks	2	NICs	1
AZ	AZ3	Obtained	Sep 26, 2019 14:13:17 GMT+08:00
Billing Mode	Pay-per-use	Launched	Sep 26, 2019 14:13:32 GMT+08:00
Agency	- 🖉 🕐 Create Agency		
Enterprise Project	default		
ECS Group	ecs-group_01		

In this example, the ECS group to which ECS **ecs-0002** belongs is **ecs-group\_01**.

#### Figure 9-26 Details about an ECS (2)

ECS > ecs-0002			Start	Stop	Restart	Remote Login
Name	ecs-0002 🖋	VPC		vpc-02		
Status	Running	Specifica	itions	General compu	uting   s3.large.2	!   2 vCPUs   4 GB
ID	502c650b-cb82-4652-b54d-2078db45182c	Image		CentOS 7.6 64	bit	
Disks	2	NICs		1		
AZ	AZ3	Obtained		Sep 26, 2019 1	4:13:17 GMT+0	8:00
Billing Mode	Pay-per-use	Launche	d	Sep 26, 2019 1	4:13:33 GMT+0	8:00
Agency	– 🖋 🕐 Create Agency					
Enterprise Project	default					
ECS Group	ecs-group_01					

This indicates that the shared SCSI disk **volume-0001** is attached to ECSs **ecs-0001** and **ecs-0002**, and both ECSs are in ECS group **ecs-group\_01**.

### 9.15 Can All Users Use the Encryption Feature?

The permissions of users in a user group to use the encryption feature are as follows:

- The user who has security administrator permissions can grant KMS access permissions to EVS for using the encryption feature.
- When a common user who does not have security administrator permissions attempts to use the encryption feature, the condition varies depending on whether the user is the first one in the user group to use this feature.

- If the common user is the first one in the user group to use the encryption feature, the common user must request a user who has security administrator permissions to grant the common user permissions. Then, the common user can use the encryption feature.
- If the common user is not the first one in the user group to use the encryption feature, the user directly has the permissions to use the encryption feature.

The following section uses a user group as an example to describe how to grant KMS access permissions to EVS for using the encryption feature.

For example, a user group shown in **Figure 9-27** consists of four users, user 1 to user 4. User 1 has security administrator permissions. Users 2, 3, and 4 are common users who do not have security administrator permissions.



#### Scenario 1: User 1 Uses the Encryption Feature

In this user group, if user 1 uses the encryption feature for the first time, the procedure is as follows:

1. User 1 creates Xrole to grant KMS access permissions to EVS.

After user 1 grants permissions, the system automatically creates key **evs/ default** for encrypting EVS disks.

#### **NOTE**

When user 1 uses the encryption feature for the first time, the user must grant the KMS access permissions to EVS. Then, all the users in the user group can use the encryption feature by default.

2. User 1 selects a key.

One of the following keys can be used:

- Default key evs/default
- Custom key, which was created before using the EVS disk encryption feature
- Newly created key (For instructions about how to create a key, see Creating a Key Pair in Data Encryption Workshop User Guide.)

After user 1 uses the encryption feature, all other users in the user group can use this feature, without requiring to contact user 1 for permissions granting.

#### Scenario 2: Common User Uses the Encryption Feature

In this user group, when user 3 uses the encryption feature for the first time:

- 1. The system displays a message indicating that the user has no permissions.
- 2. User 3 asks user 1 to create Xrole to grant KMS access permissions to EVS.

After user 1 grants the permissions, user 3 and all other users in the user group can use the encryption feature by default.

# 9.16 How Can I Add ECSs Using Local Disks to an ECS Group?

An ECS group logically isolates ECSs. ECSs in the same ECS group support antiaffinity and they are allocated on different hosts.

You can add an ECS to an ECS group in either of the following ways:

- During purchase: When purchasing an ECS, add the ECS to the ECS group by setting **ECS Group** in **Advanced Settings**.
- After purchase: After purchasing an ECS, click Add ECS to add the ECS to the ECS group.

Instances with local disks can be added to the ECS group at the time of purchase.

### 9.17 How Can I Delete or Unsubscribe from a Yearly/ Monthly Disk?

Yearly/Monthly disks cannot be deleted. You can unsubscribe from them if needed. For details, see **Unsubscribing from or Deleting an EVS Disk**. To learn more about unsubscriptions, see **Unsubscription Overview**.

- Yearly/Monthly system disks cannot be unsubscribed from separately. They must be unsubscribed from together with their servers.
- Non-shared, yearly/monthly data disks purchased together with or later added to a yearly/monthly server have the same expiration time as the server. They can be unsubscribed from together with the server or separately when their statuses are **In-use**, **Available**, or **Error**.
- Yearly/Monthly data disks purchased on the EVS console have different expiration times as the server. They can be unsubscribed from separately.

### 9.18 Will My EVS Disk Be Unsubscribed or Deleted When I Unsubscribe from or Delete Its Server?

• For pay-per-use disks:

- If such a disk is separately purchased and has been attached, the system will prompt you whether to delete the disk when you delete the server, and you can make the decision based on your requirements.
- If such disks are purchased together with a server, the system disk as well as the data disks you have configured to release with server will be deleted. For the data disks not configured to release with server, the system will prompt you whether to delete the disks when you delete the server, and you can make the decision based on your service requirements.
- For yearly/monthly disks:

If the disks are purchased together with a server, they will be unsubscribed from when you unsubscribe from the server.

# 9.19 Why Does a Disk Attached to a Windows ECS Go Offline?

#### Symptom

A disk attached to a Windows ECS goes offline, and the system displays the message "The disk is offline because of policy set by an administrator.", as shown in **Figure 9-28**.

#### Figure 9-28 Offline disk

System Reserved       40.00 GB       Online         System Reserved       100 MB NTFS       Healthy (System, Active, Prim)		(C:) 39.90 GB NTFS Healthy (Boot, Page File, Crash Dump, Primary Partition)			
Generation Contract State Sta	Disk 1      Jinknown 10.00 GB      Diffine (The disk is offline because of policy set by an administrator)  Help				

#### **Possible Causes**

Windows has three types of SAN policies: **OnlineAll**, **OfflineShared**, and **OfflineInternal**.

#### Table 9-6 SAN policies

SAN Policy	Description
OnlineAll	Indicates that all newly detected disks are automatically brought online.
OfflineShared	Indicates that all newly detected disks on sharable buses, such as FC or iSCSI, are offline by default, whereas disks on non-sharable buses are online.
OfflineInternal	Indicates that all newly detected disks are offline.

The SAN policy of certain Windows OSs, such as Windows Server 2008/2012 Enterprise Edition and Data Center Edition, is **OfflineShared** by default.

#### Solution

Use the disk partition management tool DiskPart to obtain and set the SAN policy on the ECS to **OnlineAll**.

- 1. Log in to the Windows ECS.
- 2. Press **Win+R** to run **cmd.exe**.
- 3. Run the following command to access DiskPart:

#### diskpart

4. Run the following command to view the SAN policy on the ECS:

#### san

- If the SAN policy is **OnlineAll**, run the **exit** command to exit DiskPart.
- If the SAN policy is not **OnlineAll**, go to step **5**.
- 5. Run the following command to change the SAN policy to **OnlineAll**: **san policy=onlineall**
- 6. (Optional) Use the ECS with the SAN policy changed to create a private image so that the configuration takes effect permanently. After an ECS is created using this private image, the disks attached to the ECS are online by default. You only need to initialize them.

## 9.20 Why Does the Disk Drive Letter Change After the ECS Is Restarted?

#### Symptom

For a Linux ECS, the drive letter may change after an EVS disk is detached and then attached again, or after an EVS disk is detached and then the ECS is restarted.

#### **Possible Causes**

When a Linux ECS has multiple disks attached, it allocates drive letters in the attachment sequence and names the disks as /dev/vda1, /dev/vdb1, and /dev/vdc1, etc.

After a disk is detached and then attached again, or after a disk is detached and the ECS is restarted, the drive letter may change.

For example, an ECS has three disks attached: /dev/vda1, /dev/vdb1, and /dev/ vdc1. The mounting parameters in /etc/fstab are as follows:

#### cat /etc/fstab

```
UUID=b9a07b7b-9322-4e05-ab9b-14b8050bdc8a / ext4 defaults 0 1
/dev/vdb1 /data1 ext4 defaults 0 0
/dev/vdc1 /data2 ext4 defaults 0 0
```

After /dev/vdb1 is detached and the ECS is restarted, /dev/vdc1 becomes /dev/ vdb1 and is mounted to /data1. In such a case, no disk is mounted to /data2.

The change of drive letters can affect the running of applications. To solve this problem, you are advised to use the universally unique identifiers (UUIDs) to replace **/dev/vdx** because a UUID uniquely identifies a disk partition in the Linux OS.

#### Solution

- 1. Log in to the ECS.
- 2. Run the following command to obtain the partition UUID:

blkid Disk partition

In this example, run the following command to obtain the UUID of the **/dev/vdb1** partition:

#### blkid /dev/vdb1

Information similar to the following is displayed:

[root@ecs-test-0001 ~]# blkid /dev/vdb1 /dev/vdb1: UUID="b9a07b7b-9322-4e05-ab9b-14b8050cd8cc" TYPE="ext4"

The UUID of the /dev/vdb1 partition is displayed.

3. Run the following command to open the **fstab** file using the vi editor:

#### vi /etc/fstab

- 4. Press i to enter the editing mode.
- 5. Move the cursor to the end of the file and press **Enter**. Then, add the following information: UUID=b9a07b7b-9322-4e05-ab9b-14b8050cd8cc /data1 ext4 defaults 0 0

The parameters are defined as follows:

- UUID=b9a07b7b-9322-4e05-ab9b-14b8050cd8cc: UUID of a disk partition.
- /data1: directory on which the partition is mounted. You can run df -TH to query the directory.
- ext4: File system format of the partition. You can run df -TH to query the format.
- defaults: partition mount option. Normally, this parameter is set to defaults.
- **0** (the first one): whether to use Linux dump backup.
  - **0**: Linux dump backup is not used. Normally, dump backup is not used, and you can set this parameter to **0**.
  - 1: Linux dump backup is used.
- 0 (the second one): fsck option, that is, whether to use fsck to check disks during startup.
  - **0**: fsck is not used.
  - If the mount point is the root partition (/), this parameter must be set to 1.

When this parameter is set to **1** for the root partition, this parameter for other partitions must start with **2** so that the system checks the partitions in the ascending order of the values.

- 6. Repeat steps **2** to **5** to replace the UUID of /dev/vdc1.
- 7. Run the following command again to check the disk mounting parameters:

#### cat /etc/fstab

The following information is displayed:

UUID=b9a07b7b-9322-4e05-ab9b-14b8050bdc8a / ext4 defaults 0 1 UUID=b9a07b7b-9322-4e05-ab9b-14b8050cd8cc /data1 ext4 defaults 0 0 UUID=b9a07b7b-9322-4e05-ab9b-14b8050ab6bb /data2 ext4 defaults 0 0

### 9.21 How Can I Obtain Data Disk Information If Tools Are Uninstalled?

If you uninstall Tools from a Linux ECS in a non-PVOPS system, data disks cannot be identified. In such a case, you can create a new ECS and attach the data disks of the original ECS to the new ECS and view information about the data disks. The procedure is as follows:

1. Log in to the management console and create a new ECS.

**NOTE** 

Ensure that the new ECS is located in the same AZ and has the same parameter settings as the original ECS.

2. (Optional) On the **Elastic Cloud Server** page, locate the row containing the original ECS, click **More** in the **Operation** column, and select **Stop**. On the displayed page, select **Force stop** and click **OK** to forcibly stop the original ECS.

Manually refresh the **Elastic Cloud Server** page. The original ECS is stopped once the **Status** changes to **Stopped**.

#### **NOTE**

The ECSs running certain OSs support online data disk detaching. If your OS supports this feature, you can detach data disks from the running ECS.

3. View information about the data disks attached to the original ECS.

#### **NOTE**

If the original ECS has multiple data disks attached, repeat steps 4 to 6 to attach each data disk to the new ECS.

- 4. Click a data disk. The Elastic Volume Service page is displayed.
- 5. Select the data disk to be detached and click **Detach** in the **Operation** column. On the **Detach Disk** page, select the original ECS and click **OK** to detach the data disk from the original ECS.

Manually refresh the **Elastic Volume Service** page. The data disk is detached from the original ECS once the **Status** changes to **Available**.

6. Select the detached data disk and click **Attach** in the **Operation** column. On the **Attach Disk** page, click the new ECS, select a device name, and click **OK** to attach the data disk to the new ECS.

Manually refresh the EVS list. The data disk is attached to the new ECS once the **Status** value changes to **In-use**. You can then log in to the management console and view information about the data disk of the new ECS.

## 9.22 How Can I Rectify the Fault That May Occur on a Linux ECS with an NVMe SSD Disk Attached?

#### Symptom

When a Linux ECS with an NVMe SSD disk attached, such as a P1 ECS, becomes faulty, you must contact the administrator to remotely rebuild the ECS again.

If automatic NVMe SSD disk attachment upon ECS startup is enabled in **/etc/fstab** on the faulty ECS, the system disk recovers after the ECS is created. However, the attached NVMe SSD disk does not have a file system, and automatic NVMe SSD disk attachment upon ECS startup fails to take effect. As a result, the ECS enters the emergency mode, as shown in Figure 9-29.

#### Figure 9-29 Emergency mode



To ensure that the new ECS is functional, you must manually delete the attachment information in **/etc/fstab**.

#### **NOTE**

If the NVMe SSD disk is faulty, data on it will be lost. The operations provided in this section are only used to restore automatic NVMe SSD disk attachment to an ECS, but not restoring the data on the disk.

#### Solution

- 1. Log in to the ECS.
- 2. Enter the password of user **root** to log in to the ECS.

#### Figure 9-30 Logging in to the ECS

Connected (encrypted) to: QEMU (instance-00000067) Before you exit,ensure that co [ 5.347896] intel\_rapl: no valid rapl domains found in package Ø [ 5.506374] EXT4-fs (nvmeØn1): VFS: Can't find ext4 filesystem Welcome to emergency mode! After logging in, type "journalctl -xb" to view system logs, "systemctl reboot" to reboot, "systemctl default" or ^D to try again to boot into default mode. Give root password for maintenance (or type Control-D to continue): [root@localhost ~]#

- Run the following command to edit the /etc/fstab file:
   vi /etc/fstab
- 4. Delete the attaching information of the NVMe SSD disk and save the file.

Figure 9-31 Deleting the automatic attaching information

# Created by anaconda on Wed Aug 9 09:22:35 20 #	17				
<pre># Accessible filesystems, by reference, are mai # See man pages fstab(5) findfs(8) mount(8) a</pre>	ntained	under '/de	v/disk'	60	
# See man pages istab(3), iindis(0), mount(0) a #	nu/01- 1	IKIU(0) IOP	more m	10	
/dev/mapper/cl-root /	xfs	defaults	0	0	
UUID=17cbcc3f-0b23-4eaa-84f6-6bc68583b521 /boot			xfs	defaults	00
/dev/mapper/cl-swap swap	swap	defaults	0	0	
/dev/nvme@n1 /for_nvme ext3 defaults 0 0					
ar in the second se					
3e					

- 5. Run the following command to restart the ECS: **reboot**
- 6. Verify that the ECS recovers and can be logged in.

Figure 9-32 Logging in to the ECS



# 9.23 Why Is the Device Name of My C6 ECS in the sd\* Format?

#### Symptom

The device name of previously purchased C6 ECSs is in vd\* format, for example, vda and vdb, but the device name of newly purchased C6 ECSs is in sd\* format.

This section describes the reason why the device name is changed to the sd\* format and how to handle the sd\* device name in common scenarios.

#### **Root Cause**

The device name of the Linux system is automatically generated based on certain rules that are related to the disk protocol and disk sequence number, which brings some uncertainties. When disks are attached to C6 ECSs, either virtio-blk or virtio-scsi is used.

• If virtio-blk is allocated, the device name format is vd\*.

• If virtio-scsi is allocated, the device name format is sd\*.

#### **Disk Partitioning and Formatting**

Problem: Before using an ECS for the first time, you need to partition or format the attached data disks. If the ECS device name is in sd\* format, running **/dev/vd\*** will fail.

Solution: Dynamically obtain the device name and then perform operations on the disk. You can dynamically obtain device names in either of the following ways:

• Method 1: Run fdisk to query the device name.

Log in to the ECS and run the following command to query the data disk list:

fdisk -l

Information similar to the following is displayed, indicating the ECS has two disks attached. **/dev/vda** is the system disk, and **/dev/vdb** is the new data disk.

[root@ecs-test-0001 ~]# fdisk -l

Disk /dev/vda: 42.9 GB, 42949672960 bytes, 83886080 sectors Units = sectors of 1 × 512 = 512 bytes Sector size (logical/physical): 512 bytes / 512 bytes I/O size (minimum/optimal): 512 bytes / 512 bytes Disk label type: dos Disk identifier: 0x000bcb4e

Device Boot Start End Blocks Id System /dev/vda1 \* 2048 83886079 41942016 83 Linux

Disk /dev/vdb: 107.4 GB, 107374182400 bytes, 209715200 sectors Units = sectors of 1 × 512 = 512 bytes Sector size (logical/physical): 512 bytes / 512 bytes I/O size (minimum/optimal): 512 bytes / 512 bytes

This is a convenient method to obtain the device name, but you cannot obtain the mapping between the EVS disks attached to the ECS and the device names in the OS. If you want to know the mapping, obtain the device name by referring to method 2.

• Method 2: Use serial-id or wwn to obtain the device name.

For details, see How Do I Obtain My Disk Device Name in the ECS OS Using the Device Identifier Provided on the Console?.

#### **Automatic Mounting of File Systems**

You are advised to use UUIDs to identify disks in the file because they are unique identifiers for disk partitions and do not change with device names. Use the UUID of the file system to configure automatic mounting for a system disk and a data disk.

- Automatic Mounting for a System Disk
  - If a Huawei Cloud public image or a private image created from a public image is used, UUIDs are used for automatic disk mounting and no action is required.
  - If a private image created using a non-public image is used, select Enable automatic configuration when creating the image. Then, the system automatically uses UUIDs for automatic disk mounting.

- If Enable automatic configuration is not selected when you are creating a private image, see Changing the Disk Identifier in the fstab File to UUID.
- Automatic Mounting for Data Disks
   If you want to configure automatic mounting for data disks, see Creating and Mounting a File System.

### 9.24 Why Are Disk Error Logs Printed After a Disk Attached to an ECS Is Formatted with the ext4 File System?

#### Symptom

When a VBD disk is attached to an ECS and the partition is in ext4 format, the following log may be displayed on the console:

blk\_update\_request: operation not supported error, dev vdb, sector 826298624 op 0x9:(WRITE\_ZEROES) flags 0x800 phys\_seg 0 prio class 0

Figure 9-33 Printed logs



Involved OSs: Ubuntu 20.04, CentOS 8.0, CentOS 8.1, and other ECSs whose kernel versions are 4.18 or later

#### Root Cause

VBD disks do not support the advanced SCSI command WRITE\_ZEROES.

If the ECS OS kernel version is 4.18 or later and the disk partition is formatted with the ext4 file system, the WRITE\_ZEROES command is delivered. The system does not support the command and prints a log, which has no impact on the ECS performance and you can ignore it.

# **10** Data Backup and Restoration

# 10.1 Can ECSs Automatically Recover After the Physical Host Accommodating the ECSs Becomes Faulty?

Yes. ECS can automatically recover if the physical host becomes faulty.

ECSs run on physical hosts. Although there are multiple mechanisms to ensure system reliability, fault tolerance, and high availability, host hardware might be damaged or power failures might occur. If physical hosts cannot be powered on or restarted due to damage, CPU and memory data will be lost and live migration cannot be used to recovery ECSs.

The cloud platform provides automatic recovery by default to restart ECSs through cold migration, ensuring high availability and dynamic ECS migration. If a physical host accommodating ECSs breaks down, the ECSs will automatically be migrated to a functional physical host to minimize the impact on your services. During the process, the ECSs will restart.

You can enable one-click monitoring on the Cloud Eye console so that you will be notified if any exceptions occur (if a physical host accommodating ECSs is faulty, the ECSs will automatically be migrated to a functional physical host). For details, see **One-Click Monitoring**.

#### D NOTE

- Auto recovery does not ensure user data consistency.
- An ECS can be automatically recovered only if the physical server on which it is deployed becomes faulty. This function does not take effect if the fault is caused by the ECS itself.
- An ECS can be automatically recovered only after the physical server on which it is deployed is shut down. If the physical server is not shut down due to a fault, for example, a memory fault, auto recovery fails to take effect.
- An ECS can be automatically recovered only once within 12 hours if the server on which it is deployed becomes faulty.
- ECS auto recovery may fail in the following scenarios:
  - No physical server is available for migration due to a system fault.
  - The target physical server does not have sufficient temporary capacity.
- An ECS with any of the following resources cannot be automatically recovered:
  - Local disk
  - Passthrough FPGA card
  - Passthrough InfiniBand NIC

### 10.2 How Can I Back Up Local Disk Data?

#### Scenarios

For ECSs that have local disks attached, data stored in local disks may be deleted during the event execution, such as instance redeployment or local disk replacement. To ensure data security, back up local disk data before authorizing the events.

Data stored in local disks cannot be backed up directly. You need to attach an EVS disk to the ECS and then migrate the local disk data to the EVS disk.

#### Procedure

1. Add an EVS disk.

Add an EVS disk based on the amount of the local disk data to be backed up.

#### **NOTE**

The new EVS disk must be in the same region and AZ as the ECS for which you want to back up the local disk data.

For details, see Adding a Disk to an ECS.

2. Attach the EVS disk to the ECS.

Attach the created EVS disk to the ECS.

For details, see Attaching an EVS Disk to an ECS.

3. Back up local disk data.

Back up the data stored in local disks to the new EVS disk that is attached to the ECS.

4. Detach the EVS disk from the ECS.

After the local disk data is backed up, detach the EVS disk attached to the ECS in step 2.

For details, see **Detaching an EVS Disk from a Running ECS**.

After the event is handled, attach that EVS disk to the ECS again and restore the backup data to the local disk.

# **11** Network Configuration

# 11.1 How Can I Configure the NTP and DNS Servers for an ECS?

#### For Linux OSs

Take the NTP and DNS servers running SUSE as an example.

#### **Step 1** Configure the NTP server for the ECS.

- 1. Log in to the Linux ECS.
- Run the following command to switch to user root: sudo su -
- Run the following command to edit the ntp.conf configuration file: vim /etc/ntp.conf
- Add the following statement to configure the NTP server: server Domain name or IP address of the NTP server Example:

If the IP address of the NTP server is 192.168.56.1, add the following statement:

#### server 192.168.56.1

- 5. Run the following command to start the NTP service upon system restart: **service ntp restart**
- 6. Run the following command to check the status of the NTP server: **service ntp status**

#### D NOTE

If you want to disable NTP, perform the following steps:

- 1. Run the service ntp stop command to stop NTP.
- 2. Run the **systemctl disable ntp** command to disable the function of automatically starting NTP upon ECS startup.

**Step 2** Configure the DNS server for the ECS.

- 1. Log in to the Linux ECS.
- Run the following command to switch to user root: sudo su -
- Run the following command to edit the resolv.conf configuration file: vi /etc/resolv.conf
- 4. Add the following statement to configure the DNS server:

```
nameserver = IP addresses of the DNS servers
```

Example:

If the IP addresses of the DNS servers are 8.8.8.8 and 4.4.4.4, add the following statements:

nameserver = 8.8.8.8

nameserver = 4.4.4.4

#### **NOTE**

The IP addresses of the DNS servers must be the same as those in the VPC subnet. Otherwise, the DNS modification cannot persistently take effect.

5. Run the following command to restart the network:

rcnetwork restart

service network restart

/etc/init.d/network restart

----End

#### Windows

Take an ECS running Windows Server 2012 as an example.

- **Step 1** Log in to the Windows ECS as user **Administrator**.
- **Step 2** Enable the local area connection.
  - 1. In the lower right corner of the taskbar, right-click the network connection icon.
  - 2. Click Open Network and Sharing Center.

Figure 11-1 Open Network and Sharing Center

Troubleshoot problems	
Open Network and Sharing Center	
 * 🕼 记 1 11/	16/2020

3. In the navigation pane on the left, click **Change adapter settings**.

**Step 3** Configure the DNS server for the ECS.

1. Double-click network connections.

2. Click **Properties** in the lower left corner, as shown in **Figure 11-2**.

9	Ethernet 2 Status	x
General		
Connection		-
IPv4 Connectivity:	Internet	
IPv6 Connectivity:	No network access	
Media State:	Enabled	
Duration:	00:05:30	
Speed:	100.0 Gbps	
Details		
Activity		-
	Sent — Received	
Bytes:	903,226   19,394,223	
Properties	😯 Disable Diagnose	
	Close	,

#### Figure 11-2 Local area connection

3. Select Internet Protocol Version 4 (TCP/IPv4) and click Properties, as shown in Figure 11-3.

🔋 Ethernet 2 Properties 🎴	(				
Networking	_				
Connect using:					
Red Hat VirtIO Ethernet Adapter					
Configure					
This connection uses the following items:					
<ul> <li>Client for Microsoft Networks</li> <li>File and Printer Sharing for Microsoft Networks</li> <li>QoS Packet Scheduler</li> <li>Microsoft Network Adapter Multiplexor Protocol</li> <li>Microsoft Network Adapter Multiplexor Protocol</li> <li>Link-Layer Topology Discovery Mapper I/O Driver</li> <li>Link-Layer Topology Discovery Responder</li> <li>Internet Protocol Version 6 (TCP/IPv6)</li> <li>Internet Protocol Version 4 (TCP/IPv4)</li> </ul>					
Install Uninstall Properties					
Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.					
OK Cancel					

Figure 11-3 Selecting a protocol type

4. Select **Use the following DNS server addresses** and set the IP addresses of the DNS servers as prompted, as shown in **Figure 11-4**.

Internet Protocol Version 4 (TCP/IPv4) Properties						
General Alternate Configuration						
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.						
Obtain an IP address automatically						
O Use the following IP address:						
IP address:						
Subnet mask:						
Default gateway:						
O Obtain DN5 server address automatically						
Use the following DNS server addresses:						
Preferred DNS server:						
Alternate DNS server:						
Validate settings upon exit Advanced						
OK Cancel						

Figure 11-4 Setting the IP addresses of the DNS servers

**Step 4** Configure the NTP server for the ECS.

- 1. Start the **Run** dialog box. Enter **regedit** and click **OK**.
- 2. Modify the registry entries.
  - In HKEY\_LOCAL\_MACHINE > SYSTEM > CurrentControlSet > Services > W32Time > TimeProviders > NtpClient, set the value of Enabled to 1, indicating that the NTP client is used.
  - In HKEY\_LOCAL\_MACHINE > SYSTEM > CurrentControlSet > Services > W32Time > TimeProviders > NtpServer, set the value of Enabled to 0, indicating that the NTP server is stopped.
  - Choose the HKEY\_LOCAL\_MACHINE > SYSTEM > CurrentControlSet > Services > W32Time > Parameters file and set the NtpServer data. For example, set its data to ntp.myhuaweicloud.com. Set the data of TYPE to NTP.
  - In HKEY\_LOCAL\_MACHINE \ SYSTEM \ CurrentControlSet \ Services \ W32Time \ TimeProviders \ NtpClient, set the value of SpecialPollInterval to 3600 and that of Base to Decimal, indicating the clock synchronization cycle is 3600s.
  - In HKEY\_LOCAL\_MACHINE \ SYSTEM \ CurrentControlSet \ Services \ W32Time \ config, set the values of MaxPosPhaseCorrection and MaxNegPhaseCorrection to ffffffff and that of Base to Hexadecimal.

- 3. Open the **Run** dialog box, enter **services.msc**, and click **OK**. The **Services** window is displayed.
- 4. View the service named **Windows Time** and set the **Start Type** to **Automatic** to synchronize time from the NTP server.
- 5. Open the **Run** dialog box and run the following commands in sequence to restart the Windows Time service:

net stop w32time

#### net start w32time

6. Manually change the time on the client to make it different from that on the NTP server. One minute later, check whether the time on the client is the same as that on the NTP server. If yes, the time is synchronized.

----End

### 11.2 Does Huawei Cloud Provide the NTP Server and How Can I Configure It?

Yes. Huawei Cloud provides the NTP server, and you can use it only on the ECSs you have purchased on the Huawei Cloud management console.

You can use the Huawei-provided NTP server or other NTP servers. The configuration procedures are the same. This section describes how to configure the Huawei-provided NTP server on an ECS.

#### **NOTE**

ECSs created using x86 public images use chronyd for time synchronization by default. You do not need to configure the NTP server.

#### Background

If you use the NTP server provided by Huawei Cloud, you also need to use the DNS server. Table 11-1 lists the NTP servers provided by Huawei Cloud in different regions.

For details about how to obtain the DNS server address, see **What Are Huawei Cloud Private DNS Server Addresses?** 

Region	NTP Server IP Address
CN North	ntp.myhuaweicloud.com
CN East	ntp.myhuaweicloud.com
CN South	ntp.myhuaweicloud.com
CN Southwest	ntp.myhuaweicloud.com
CN-Hong Kong	ntp.myhuaweicloud.com
AP-Bangkok	ntp.myhuaweicloud.com

Table 11-1 NTP servers

Region	NTP Server IP Address
AP-Singapore	ntp.myhuaweicloud.com
AP-Jakarta	ntp.myhuaweicloud.com
AP-Manila	ntp.myhuaweicloud.com
ME-Riyadh	ntp.myhuaweicloud.com
AF-Cairo	ntp.myhuaweicloud.com
AF-Johannesburg	ntp.myhuaweicloud.com
Istanbul (Türkiye)	ntp.myhuaweicloud.com
LA-Mexico City1	ntp.myhuaweicloud.com
LA-Mexico City2	ntp.myhuaweicloud.com
LA-Sao Paulo1	ntp.myhuaweicloud.com
LA-Santiago	ntp.myhuaweicloud.com

#### Linux (chronyd)

The following section uses CentOS 7.3 as an example.

- **Step 1** Check whether the IP address of the DNS server is correct on the ECS.
  - 1. Log in to the Linux ECS.
  - 2. Run the following command to open the **resolv.conf** file:

#### vi /etc/resolv.conf

- 3. Check whether the **nameserver** value in the file is the same as the IP address of the DNS server provided in **What Are Huawei Cloud Private DNS Server Addresses?** 
  - If yes, go to step **Step 3**.
  - If no, go to step **Step 2**.

#### **Step 2** (Optional) Configure the DNS server for the ECS.

- 1. Log in to the Linux ECS.
- Run the following command to edit the resolv.conf configuration file: vi /etc/resolv.conf
- Add the following statement to configure the DNS server: nameserver *IP address of the DNS server* Example:

Consider the **CN North** region as an example. Add the following statement: nameserver 100.125.1.250

**Step 3** Configure the NTP server for the ECS.

- 1. Log in to the Linux ECS.
- Run the following commands to stop the chronyd process: systemctl stop chronyd systemctl disable chronyd
- Run the following command to edit the chrony.conf configuration file: vim /etc/chrony.conf
- Add the following statement to configure the NTP server: server Domain name of the NTP server minpoll 4 maxpoll 10 iburst Example:

server ntp.myhuaweicloud.com minpoll 4 maxpoll 10 iburst

5. Run the following command to start the service upon system restart: For Euler and CentOS:

systemctl restart chronyd

For SUSE:

#### service chronyd restart

#### **NOTE**

Run the required command based on the OS running on the ECS.

If the message "Failed to restart chronyd.service: Unit not found." is displayed, run the **yum -y install chrony** command.

6. Run the following command to check whether the time on the NTP server has been synchronized with that on the upper-layer NTP server:

#### chronyc sources -v

If "\*" is displayed, the time has been synchronized.

Figure 11-5 Modification result

210 Number of sources = 1	ti stifu	# chronyc so	ources -v 🛞
Source mode '^' = server, / Source state '*' = current	'=' = peer, synced, '+'	'#' = local cl = combined ,	.ock. -' = not combined,
<pre>// / = unreachable, x = th // // // Reachability register (oc</pre>	tal)	- xxxx - xxxx   xxxx	[ yyyy ] +/- zzzz = adjusted offset.
<pre>   Log2(Polling interval)   </pre>	•   \	I yyyy I zzzz	<pre>= measured offset, = estimated error.</pre>
 MS Name/IP address Stratu	M Poll Read	h LastRx Last s	sample
·· Jangtangalan	3 5 377	3 <u>6</u> –88us	[ -96us] +/- 248ms

#### D NOTE

It takes several minutes to perform NTP time synchronization for the first time.

7. Set the automatic startup of the chronyd service.

For Euler and CentOS: **systemctl enable chronyd** For SUSE:

#### chkconfig chronyd on

----End

#### Linux (ntpd)

The following section uses CentOS 7.3 as an example.

- **Step 1** Check whether the IP address of the DNS server is correct on the ECS.
  - 1. Log in to the Linux ECS.
  - 2. Run the following command to open the **resolv.conf** file:

#### vi /etc/resolv.conf

- 3. Check whether the **nameserver** value in the file is the same as the IP address of the DNS server provided in **What Are Huawei Cloud Private DNS Server** Addresses?
  - If yes, go to Step 3.
  - If no, go to Step 2.
- **Step 2** (Optional) Configure the DNS server for the ECS.
  - 1. Log in to the Linux ECS.
  - Run the following command to edit the resolv.conf configuration file: vi /etc/resolv.conf
  - 3. Add the following statement to configure the DNS server:
    - nameserver IP address of the DNS server
      - Example:

Consider the **CN North** region as an example. Add the following statement: nameserver 100.125.1.250

- **Step 3** Configure the NTP server for the ECS.
  - 1. Log in to the Linux ECS.
  - Run the following commands to stop the chronyd process: systemctl stop chronyd systemctl disable chronyd
  - Run the following command to edit the ntp.conf configuration file: vim /etc/ntp.conf
  - Add the following statement to configure the NTP server: server Domain name of the NTP server
     Example: server ntp.myhuaweicloud.com

5. Run the following command to start the NTP service upon system restart:

For Euler and CentOS: systemctl restart ntpd

For SUSE:

#### service ntpd restart

#### D NOTE

Run the required command based on the OS running on the ECS.

If the message "Failed to restart ntpd.service: Unit not found." is displayed, run the **yum -y install ntp** command.

6. Run the following command to check whether the time on the NTP server has been synchronized with that on the upper-layer NTP server:

#### ntpq -p

If "\*" is displayed, the time has been synchronized.

It takes several minutes to perform NTP time synchronization for the first time.

- 7. Set the automatic startup of the NTP service.
  - For Euler and CentOS:

chkconfig ntpd on

For SUSE:

chkconfig ntpd on

----End

#### Windows

Take an ECS running Windows Server 2012 as an example.

- **Step 1** Log in to the Windows ECS as user **Administrator**.
- **Step 2** Enable the local area connection.
  - 1. In the lower right corner of the taskbar, right-click the network connection icon.
  - 2. Click Open Network and Sharing Center.

Figure 11-6 Open Network and Sharing Center



3. In the navigation pane on the left, click **Change adapter settings**.

**Step 3** Configure the DNS server for the ECS.

- 1. Double-click network connections.
- 2. Click **Properties** in the lower left corner, as shown in **Figure 11-7**.
| <b>9</b> E         | Ethernet 2 | 2 Status          |
|--------------------|------------|-------------------|
| General            |            |                   |
| Connection         |            |                   |
| IPv4 Connectivity: |            | Internet          |
| IPv6 Connectivity: |            | No network access |
| Media State:       |            | Enabled           |
| Duration:          |            | 00:05:30          |
| Speed:             |            | 100.0 Gbps        |
| Details            |            |                   |
|                    | Sent —     | Received —        |
| Bytes:             | 903,226    | 19,394,223        |
| Properties (       | 🗿 Disable  | Diagnose          |
|                    |            | Close             |

Figure 11-7 Local area connection

3. Select Internet Protocol Version 4 (TCP/IPv4) and click Properties, as shown in Figure 11-8.

Ethernet 2 Properties	(
Networking	_
Connect using:	
Red Hat VirtIO Ethernet Adapter	
Configure	
This connection uses the following items:	
<ul> <li>Client for Microsoft Networks</li> <li>File and Printer Sharing for Microsoft Networks</li> <li>QoS Packet Scheduler</li> <li>Microsoft Network Adapter Multiplexor Protocol</li> <li>Link-Layer Topology Discovery Mapper I/D Driver</li> <li>Link-Layer Topology Discovery Responder</li> <li>Internet Protocol Version 6 (TCP/IPv6)</li> <li>Internet Protocol Version 4 (TCP/IPv6)</li> </ul>	
Install Uninstall Properties	
Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	
OK Cancel	

Figure 11-8 Selecting a protocol type

4. Select **Use the following DNS server addresses** and set the IP addresses of the DNS servers as prompted, as shown in **Figure 11-9**.

Internet Protocol Version 4 (TCP/IPv4) Properties
General Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
O Use the following IP address:
IP address:
Subnet mask:
Default gateway:
O Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit Advanced
OK Cancel

Figure 11-9 Setting the IP addresses of the DNS servers

**Step 4** Configure the NTP server for the ECS.

- 1. Start the **Run** dialog box. Enter **regedit** and click **OK**.
- 2. Modify the registry entries.
  - In HKEY\_LOCAL\_MACHINE > SYSTEM > CurrentControlSet > Services > W32Time > TimeProviders > NtpClient, set the value of Enabled to 1, indicating that the NTP client is used.
  - In HKEY\_LOCAL\_MACHINE > SYSTEM > CurrentControlSet > Services > W32Time > TimeProviders > NtpServer, set the value of Enabled to 0, indicating that the NTP server is stopped.
  - Choose the HKEY\_LOCAL\_MACHINE > SYSTEM > CurrentControlSet > Services > W32Time > Parameters file and set the NtpServer data. For example, set its data to ntp.myhuaweicloud.com. Set the data of TYPE to NTP.
  - In HKEY\_LOCAL\_MACHINE \ SYSTEM \ CurrentControlSet \ Services \ W32Time \ TimeProviders \ NtpClient, set the value of SpecialPollInterval to 3600 and that of Base to Decimal, indicating the clock synchronization cycle is 3600s.
  - In HKEY\_LOCAL\_MACHINE \ SYSTEM \ CurrentControlSet \ Services \ W32Time \ config, set the values of MaxPosPhaseCorrection and MaxNegPhaseCorrection to ffffffff and that of Base to Hexadecimal.

- 3. Open the **Run** dialog box, enter **services.msc**, and click **OK**. The **Services** window is displayed.
- 4. View the service named **Windows Time** and set the **Start Type** to **Automatic** to synchronize time from the NTP server.
- 5. Open the **Run** dialog box and run the following commands in sequence to restart the Windows Time service:

net stop w32time

#### net start w32time

6. Manually change the time on the client to make it different from that on the NTP server. One minute later, check whether the time on the client is the same as that on the NTP server. If yes, the time is synchronized.

----End

# **Follow-up Procedure**

After the ECS is restarted, the DNS configuration is reset, and its IP address is changed to the IP address of the DNS server in the VPC subnet. Therefore, before restarting the ECS, check whether the DNS configuration in the VPC subnet is the same as the target DNS configuration. If they are different, modify the DNS configuration in the VPC subnet. For details, see **Modifying a Subnet**.

# 11.3 How Do I Configure DNS for an ECS?

A DNS server is used to resolve domain names of file systems. For details about DNS server IP addresses, see What Are Private DNS Servers and What Are Their Addresses?

# Scenarios

By default, the IP address of the DNS server used to resolve domain names of file systems is automatically configured on ECSs when creating ECSs. No manual configuration is needed except when the resolution fails due to a change in the DNS server IP address.

Windows Server 2012 is used as an example in the operation procedures for Windows.

# Procedure (Linux)

- **Step 1** Log in to the ECS as user **root**.
- Step 2 Run the vi /etc/resolv.conf command to edit the /etc/resolv.conf file. Add the DNS server IP address above the existing nameserver information. See Figure 11-10.

#### Figure 11-10 Configuring DNS

; generated by /sbi search openstackloc	n/dhclient-script al
nameserver	
nameserver	114.114
n <mark>ameserver 🚺 🗐 👘</mark>	115-115

The format is as follows: nameserver 100.125.1.250

- Step 3 Press Esc, input :wq, and press Enter to save the changes and exit the vi editor.
- **Step 4** Run the following command to check whether the IP address is successfully added:

cat /etc/resolv.conf

**Step 5** Run the following command to check whether an IP address can be resolved from the file system domain name:

nslookup File system domain name

**NOTE** 

Obtain the file system domain name from the file system mount point.

- Step 6 (Optional) In a network environment that uses the DHCP server, edit the /etc/ resolv.conf file to prevent the file from being automatically modified upon an ECS startup, and prevent the DNS server IP address added in Step 2 from being reset.
  - 1. Run the following command to lock the file:

#### chattr +i /etc/resolv.conf

#### D NOTE

Run the chattr -i /etc/resolv.conf command to unlock the file if needed.

2. Run the following command to check whether the editing is successful:

## lsattr /etc/resolv.conf

If the information shown in **Figure 11-11** is displayed, the file is locked.

#### Figure 11-11 A locked file



----End

## **Procedure (Windows)**

- **Step 1** Go to the ECS console and log in to the ECS running Windows Server 2012.
- Step 2 Click This PC in the lower left corner.
- Step 3 On the page that is displayed, right-click Network and choose Properties from the drop-down list. The Network and Sharing Center page is displayed, as shown in Figure 11-12. Click Local Area Connection.



Figure 11-12 Page for network and sharing center

Step 4 In the Activity area, select Properties. See Figure 11-13.

Figure	11-13	Local	area	connection
<b>••••</b>				

Activity			
	Sent —	<b>y</b> –	Received
Bytes:	97,881		10,220
Properties	🛞 Disable	Diagnose	]
			Close

Step 5 In the Local Area Connection Properties dialog box that is displayed, select Internet Protocol Version 4 (TCP/IPv4) and click Properties. See Figure 11-14.

igure II-I+ Local area connection properties
Local Area Connection Properties
Networking
Connect using:
😰 Hen Net Device Entrer
Configure
This connection uses the following items:
🗹 🖳 Client for Microsoft Networks
File and Printer Sharing for Microsoft Networks
🗹 🚚 QoS Packet Scheduler
🔲 🛥 Microsoft Network Adapter Multiplexor Protocol
Link-Layer Topology Discovery Mapper I/O Driver
🗹 🔺 Link-Layer Topology Discovery Responder
Internet Protocol Version 6 (TCP/IPv6)
Internet Protocol Version 4 (TCP/IPv4)
Install Uninstall Properties
Description
Transmission Control Protocol/Internet Protocol. The default
wide area network protocol that provides communication

Figure 11-14 Local area connection properties

**Step 6** In the dialog box that is displayed, select **Use the following DNS server addresses:** and configure DNS, as shown in Figure 11-15. The DNS server IP address is 100.125.1.250. After completing the configuration, click **OK**.

11

Figure 11-15 Configuring DNS on Windows

omatically
idresses:
100.128.1.23
100 - 125 - 1 - 23
Advanced
OK Cancel



# 11.4 Can the ECSs of Different Accounts in Different VPCs Communicate over an Intranet?

No. The ECSs of different accounts in different VPCs cannot communicate with each other over an intranet.

To enable the communication over an intranet, use the methods provided in the following table.

Scenario	Billing	Method
In the same	Free of charge	Use VPC peering to enable the communication over an intranet.
region		VPC Peering Connection Overview
		<ul> <li>Creating a VPC Peering Connection with a VPC in Another Account</li> </ul>
In Billed Use different an i		Use Cloud Connect to enable the communication over an intranet.
regions		What Is Cloud Connect?
		<ul> <li>Using a Cloud Connection to Connect VPCs in Different Regions and Accounts</li> </ul>
In the Billed Use VPC Endpoin same		Use VPC Endpoint to enable the communication over an intranet.
region		• What Is VPC Endpoint?
		• Configuring a VPC Endpoint for Communications Across VPCs of Different Accounts
		• What Are the Differences Between VPC Endpoints and VPC Peering Connections?
In	Billed	Use VPN to enable the communication over an intranet.
different		• What Is VPN?
regions		<ul> <li>Does a VPN Allow for Communications Between Two VPCs?</li> </ul>

# 11.5 Will My ECSs Be Deployed in the Same Subnet?

You can configure whether ECSs are in the same subnet when purchasing them.

When purchasing ECSs, you can set a VPC and primary network interface to customize the subnet for the ECSs.

You can also create a VPC and subnet in advance and deploy the ECSs in that subnet when purchasing ECSs.

# 11.6 How Do I Change the CIDR Block of an ECS Subnet?

# Scenarios

You want to change the CIDR block of an ECS subnet. After you create a subnet, you cannot directly change its CIDR block.

To change a CIDR block, you need to change the subnet.

# Prerequisites

The ECS has been stopped.

## Procedure

- 1. Log in to the management console.
- 2. Under Compute, click Elastic Cloud Server.
- 3. In the search box above the ECS list, enter the ECS name, IP address, or ID, and click  $\stackrel{\circ}{\sim}$  for search.
- 4. Click the name of the ECS whose subnet needs to be modified. The page providing details about the ECS is displayed.
- 5. Click the **NICs** tab. Locate the row containing the NIC and click **Modify Private IP**.

The Modify Private IP dialog box is displayed.

6. Change the subnet and private IP address of the primary NIC as required.

D NOTE

- You can only change to a subnet within the same VPC.
- If you do not specify the target private IP address, the system will automatically assign one to the primary NIC.

For example, the original subnet is **subnet-demo (192.168.0.0/24)** and the new subnet is **subnet-fe21 (192.168.6.0/25)**. Therefore, you change the ECS subnet CIDR block by changing the ECS subnet.

# 11.7 How Do I Configure Port Mapping?

# Symptom

It is expected that the EIP and port on ECS 1 accessed from the public network can be automatically redirected to the EIP and port on ECS 2.

# Windows

For example, to redirect port 8080 on ECS 1 bound with EIP 192.168.10.43 to port 18080 on ECS 2 bound with EIP 192.168.10.222, perform the following operations on ECS 1.

#### **NOTE**

Ensure that the desired ports have been enabled on the ECS security group and firewall.

1. Open the **cmd** window on the ECS and run the following command: The ECS running Windows Server 2012 is used as an example.

netsh interface portproxy add v4tov4 listenaddress=192.168.10.43 listenport=8080 connectaddress=192.168.10.222 connectport=18080

To cancel port redirection, run the following command:

netsh interface portproxy delete v4tov4 listenaddress=192.168.10.43 listenport=8080

2. Run the following command to view all port redirections configured on the ECS:

netsh interface portproxy show v4tov4

#### Figure 11-16 Port redirections on Windows

C53		Administrator: Con	nmand Prompt			×
Microsoft Windo <c> 2013 Micros</c>	ows [Version soft Corpora	6.3.9600] tion. All rights	reserved.			<u>^</u>
C:\Users\Admin: 68.10.43 lister	C:\Users\Administrator>netsh interface portproxy add v4tov4 listenaddress=192.1 68.10.43 listenport=8080 connectaddress=192.168.10.222 connectport=18080					
C:\Users\Admin:	istrator>net	sh interface por	tproxy show	v4tov4		
Listen on ipv4	:	Connect to ipv4	£ =			
Address	Port	Address	Port			
192.168.10.43	8080	192.168.10.222	18080			
C:\Users\Admin;	istrator>_					

## Linux

For example, to redirect port 1080 on ECS 1 to port 22 on ECS 2 with the following configurations:

Private IP address and EIP of ECS 1: 192.168.72.10 and 123.xxx.xxx.456

Private IP address of ECS 2: 192.168.72.20

#### **NOTE**

- Ensure that the desired ports have been enabled on the ECS security group and firewall.
- Ensure that the source/destination check function is disabled.

On the ECS details page, click **Network Interfaces** and disable **Source/Destination Check**.

By default, the source/destination check function is enabled. When this function is enabled, the system checks whether source IP addresses contained in the packets sent by ECSs are correct. If the IP addresses are incorrect, the system does not allow the ECSs to send the packets. This mechanism prevents packet spoofing, thereby improving system security. However, this mechanism prevents the packet sender from receiving returned packets. You need to disable the source/destination check.

• The operations involve modifying kernel parameters, which may cause kernel unstability. Evaluate risks before performing this operation.

**Step 1** Log in to Linux ECS 1.

1. Run the following command to modify the configuration file:

vi /etc/sysctl.conf

- 2. Add **net.ipv4.ip\_forward = 1** to the file.
- 3. Run the following command to complete the modification:

sysctl -p /etc/sysctl.conf

**Step 2** Run the following commands to add rules to the **nat** table in **iptables** so that the access to port 1080 on ECS 1 can be redirected to port 22 on ECS 2:

iptables -t nat -A PREROUTING -d 192.168.72.10 -p tcp --dport 1080 -j DNAT --to-destination 192.168.72.20:22

iptables -t nat -A POSTROUTING -d 192.168.72.20 -p tcp --dport 22 -j SNAT -to 192.168.72.10

Step 3 Run the following command to log in to port 1080 on ECS 1 for check:

ssh -p 1080 123.xxx.xxx.456

Figure 11-17 Port redirections on Linux



Enter the password to log in to ECS 2 with hostname ecs-inner.

Figure 11-18 Logging in to ECS 2

[root@ecs-inner ~]#

----End

# 11.8 How Can I Obtain the MAC Address of My ECS?

This section describes how to obtain the MAC address of an ECS.

## 

The MAC address of an ECS cannot be changed.

# Linux (CentOS 6)

- 1. Log in to the Linux ECS.
- 2. Run the following command to view the MAC address of the ECS: **ifconfig**

### Figure 11-19 Obtaining the MAC address

[root@Ce	ntOS68-XEN ~]# ifconfig
eth0	Link encap:Ethernet HWaddr FA:16:3E:2A:36:DE
	inet addr:192.168.22.227 Bcast:192.168.22.255 Mask:255.255.255.0
	inet6 addr: fe80::f816:3eff:fe2a:36de/64 Scope:Link
	UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
	RX packets:4699 errors:0 dropped:0 overruns:0 frame:0
	TX packets:2213 errors:0 dropped:0 overruns:0 carrier:0
	collisions:0 txqueuelen:1000
	RX bytes:472826 (461.7 KiB) TX bytes:438396 (428.1 KiB)
lo	Link encap:Local Loopback
	inet addr:127.0.0.1 Mask:255.0.0.0
	inet6 addr: ::1/128 Scope:Host
	UP LOOPBACK RUNNING MTU:65536 Metric:1
	RX packets:1 errors:0 dropped:0 overruns:0 frame:0
	TX packets:1 errors:0 dropped:0 overruns:0 carrier:0
	collisions:0 txqueuelen:0
	RX bytes:28 (28.0 b) TX bytes:28 (28.0 b)

# Linux (CentOS 7)

- 1. Log in to the Linux ECS.
- 2. Run the following command to view the MAC address of the ECS: **ifconfig**

Figure 11-20 Obtaining the NIC information

[root@ecs-683a ~]# ifconfig
eth0: flags=4163 <up,broadcast,running,multicast> mtu 1500</up,broadcast,running,multicast>
inet 192.168.0.65 netmask 255.255.255.0 broadcast 192.168.0.255
<pre>inet6 fe80::f816:3eff:fec3:46fc prefixlen 64 scopeid 0x20<link/></pre>
ether fa:16:3e:c3:46:fc txqueuelen 1000 (Ethernet)
RX packets 14457 bytes 20617950 (19.6 MiB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 1867 bytes 245185 (239.4 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
lo: flags=73 <up,loopback,running> mtu 65536</up,loopback,running>
inet netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10 <host></host>
loop txqueuelen 1000 (Local Loopback)
RX packets 0 bytes 0 (0.0 B)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 0 bytes 0 (0.0 B)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

3. Run the following command to view the MAC address of NIC eth0:

ifconfig eth0 |egrep "ether"

Figure 11-21	Obtaining <sup>•</sup>	the MAC	address	of eth0
--------------	------------------------	---------	---------	---------



Obtain the returned MAC address.
 ifconfig eth0 |egrep "ether" |awk '{print \$2}'

Figure 11-22 Obtaining the MAC address of ethe	Figure	11-22	Obtaining	the	MAC	address	of eth0
--	--------	-------	-----------	-----	-----	---------	---------

[root@ecs-683a ~]#	ifconfig	eth0	egrep	"ether"	awk	'{print	\$2}'
fa:16:3e:c3:46:fc	<u></u>						
[root@ecs-683a ~]#							

# Windows

- 1. Press **Win+R** to start the **Run** text box.
- 2. Enter **cmd** and click **OK**.
- 3. Run the following command to view the MAC address of the ECS:

#### ipconfig /all

thernet adapter Ethernet 2;
Connection-specific DNS Suffix .:
Description
Physical Address
DHCP Enabled
Autoconfiguration Enabled :
Link-local IPv6 Address :
IPv4 Address
Subnet Mask
Lease Obtained :
Lease Expires
Default Gateway :
DHCP Server
DHCPv6 IAID
DHCPv6 Client DUID
DNS Servers
NetBIOS over Tcpip

# 11.9 How Can I View and Modify Kernel Parameters of a Linux ECS?

This document describes common Linux kernel parameters and how to view and modify them.

## 

Modify the kernel parameters only if the parameter settings affect your services. If the parameter settings must be modified, perform the following:

- Ensure that the target parameter settings meet service requirements.
- Modify the correct kernel parameters. For details about common kernel parameters, see Table 11-2.
- Back up key ECS data before modifying kernel parameter settings.

# Background

Parameter	Description
net.core.rmem_default	Specifies the default size (in bytes) of the window for receiving TCP data.
net.core.rmem_max	Specifies the maximum size (in bytes) of the window for receiving TCP data.
net.core.wmem_default	Specifies the default size (in bytes) of the window for transmitting TCP data.
net.core.wmem_max	Specifies the maximum size (in bytes) of the window for transmitting TCP data.
net.core.netdev_max_bac klog	Specifies the maximum number of packets that can be sent to a queue when the rate at which each network port receives packets is faster than the rate at which the kernel processes these packets.
net.core.somaxconn	Defines the maximum length of the listening queue for each port in the system. This parameter applies globally.
net.core.optmem_max	Specifies the maximum size of the buffer allowed by each socket.
net.ipv4.tcp_mem	Uses the TCP stack to show memory usage in memory pages (4 KB generally).
	The first value is the lower limit of memory usage.
	The second value is the upper limit of the load added to the buffer when the memory is overloaded.
	The third value is the upper limit of memory usage. When this value is reached, packets can be discarded to reduce memory usage. For a large BDP, increase the parameter value as needed. The unit of this parameter is memory page but not byte.

 Table 11-2
 Common Linux kernel parameters

Parameter	Description
net.ipv4.tcp_rmem	Specifies the memory used by sockets for automatic optimization.
	The first value is the minimum number of bytes allocated to the socket buffer for receiving data.
	The second value is the default value, which is overwritten by <b>rmem_default</b> . The buffer size can increase to this value when the system load is not heavy.
	The third value is the maximum number of bytes allocated to the socket buffer for receiving data. This value is overwritten by <b>rmem_max</b> .
net.ipv4.tcp_wmem	Specifies the memory used by sockets for automatic optimization.
	The first value is the minimum number of bytes allocated to the socket buffer for transmitting data.
	The second value is the default value, which is overwritten by <b>wmem_default</b> . The buffer size can increase to this value when the system load is not heavy.
	The third value is the maximum number of bytes allocated to the socket buffer for transmitting data. This value is overwritten by <b>wmem_max</b> .
net.ipv4.tcp_keepalive_ti me	Specifies the interval at which keepalive detection messages are sent in seconds for checking TCP connections.
net.ipv4.tcp_keepalive_int vl	Specifies the interval at which keepalive detection messages are resent in seconds when no response is received.
net.ipv4.tcp_keepalive_pr obes	Specifies the maximum number of keepalive detection messages that are sent to determine a TCP connection failure.
net.ipv4.tcp_sack	Enables selective acknowledgment (value <b>1</b> indicates enabled). This configuration allows the transmitter to resend only lost packets, thereby improving system performance. However, this configuration will increase the CPU usage. You are suggested to enable selective acknowledgment for WAN communication.
net.ipv4.tcp_fack	Enables forwarding acknowledgment for selective acknowledgment (SACK), thereby reducing congestion. You are suggested to enable forwarding acknowledgment.

Parameter	Description
net.ipv4.tcp_timestamps	Specifies a TCP timestamp, which will add 12 bytes in the TCP packet header. This configuration calculates RTT using RFC1323, a more precise retransmission method upon timeout than retransmission. You are suggested to enable this parameter for higher system performance.
net.ipv4.tcp_window_scali ng	Enables RFC1323-based window scaling by setting the parameter value to <b>1</b> if the TCP window is larger than 64 KB. The maximum TCP window is 1 GB. This parameter takes effect only when window scaling is enabled on both ends of the TCP connection.
net.ipv4.tcp_syncookies	Specifies whether to enable TCP synchronization ( <b>syncookie</b> ). This configuration prevents socket overloading when a large number of connections are attempted to set up. <b>CONFIG_SYN_COOKIES</b> must be enabled in the kernel for compilation. The default value is <b>0</b> , indicating that TCP synchronization is disabled.
net.ipv4.tcp_tw_reuse	Specifies whether a <b>TIME-WAIT</b> socket ( <b>TIME-</b> <b>WAIT</b> port) can be used for new TCP connections. <b>NOTE</b>
	This parameter is valid only for clients and takes effect only when <b>net.ipv4.tcp_timestamps</b> is enabled.
	This parameter cannot be set to <b>1</b> if NAT is enabled. Otherwise, an error will occur in remote ECS logins. For details, see Why Are Connections to a Linux ECS Using SSH or to Applications on the ECS Interrupted Occasionally?
net.ipv4.tcp_tw_recycle	Allows fast recycle of <b>TIME-WAIT</b> sockets.
	NOTE This parameter is valid only when net.ipv4.tcp timestamps is enabled.
	Do not set this parameter to 1 if NAT is enabled. Otherwise, an error will occur during remote ECS logins. For details, see Why Are Connections to a Linux ECS Using SSH or to Applications on the ECS Interrupted Occasionally?
net.ipv4.tcp_fin_timeout	Specifies the time (in seconds) during which a socket TCP connection that is disconnected from the local end remains in the <b>FIN-WAIT-2</b> state. Process suspension may be caused by the disconnection from the peer end, continuous connection from the peer end, or other reasons.
net.ipv4.ip_local_port_ran ge	Specifies local port numbers allowed by TCP/UDP.

Parameter	Description
net.ipv4.tcp_max_syn_bac klog	Specifies the maximum number of connection requests that are not acknowledged by the peer end and that can be stored in the queue. The default value is <b>1024</b> . If the server is frequently overloaded, try to increase the value.
net.ipv4.tcp_low_latency	This option should be disabled if the TCP/IP stack is used for high throughput, low latency.
net.ipv4.tcp_westwood	Enables the congestion control algorithm on the transmitter end to evaluate throughput and improve the overall bandwidth utilization. You are suggested to enable the congestion control algorithm for WAN communication.
net.ipv4.tcp_bic	Enables binary increase congestion for fast long- distance networks so that the connections with operations being performed at a rate of Gbit/s can be functional. You are suggested to enable binary increase congestion for WAN communication.
net.ipv4.tcp_max_tw_buc kets	Specifies the number of TIME_WAIT buckets, which defaults to <b>180000</b> . If the number of buckets exceeds the default value, extra ones will be cleared.
net.ipv4.tcp_synack_retrie s	Specifies the number of times that SYN+ACK packets are retransmitted in <b>SYN_RECV</b> state.
net.ipv4.tcp_abort_on_ove rflow	When this parameter is set to <b>1</b> , if the system receives a large number of requests within a short period of time but fails to process them, the system will send reset packets to terminate the connections. It is recommended that you improve system processing capabilities by optimizing the application efficiency instead of performing reset operations. Default value: <b>0</b>
net.ipv4.route.max_size	Specifies the maximum number of routes allowed by the kernel.
net.ipv4.ip_forward	Forward packets between interfaces.
net.ipv4.ip_default_ttl	Specifies the maximum number of hops that a packet can pass through.
net.netfilter.nf_conntrack_ tcp_timeout_established	Clears iptables connections that are inactive for a specific period of time.
net.netfilter.nf_conntrack_ max	Specifies the maximum value of hash entries.

# **Viewing Kernel Parameters**

• Method 1: Run the cat command in /proc/sys to view file content.

/proc/sys/ is a pseudo directory generated after the Linux kernel is started. The net folder in this directory stores all kernel parameters that have taken effect in the system. The directory tree structure is determined based on complete parameter names. For example, net.ipv4.tcp\_tw\_recycle corresponds to the /proc/sys/net/ipv4/tcp\_tw\_recycle file, and the content of the file is the parameter value.

Example:

To view the **net.ipv4.tcp\_tw\_recycle** value, run the following command:

cat /proc/sys/net/ipv4/tcp\_tw\_recycle

• Method 2: Use the **/etc/sysctl.conf** file.

Run the following command to view all parameters that have taken effect in the system:

#### /usr/sbin/sysctl -a

```
net.ipv4.tcp_syncookies = 1
net.ipv4.tcp_max_tw_buckets = 4096
net.ipv4.tcp_tw_reuse = 1
net.ipv4.tcp_tw_recycle = 1
net.ipv4.tcp_keepalive_time = 1800
net.ipv4.tcp_fin_timeout = 30
.....
net.ipv4.tcp_keepalive_time = 1200
net.ipv4.tcp_max_syn_backlog = 8192
net.ipv4.tcp_rmem = 16384 174760 349520
net.ipv4.tcp_wmem = 16384 131072 262144
net.ipv4.tcp_mem = 262144 524288 1048576
```

# **Modifying Kernel Parameter Settings**

• Method 1: Run the echo command in **/proc/sys** to modify the file for the target kernel parameters.

The parameter values changed using this method take effect only during the current running and will be reset after the system is restarted. To make the modification take effect permanently, see method 2.

/proc/sys/ is a pseudo directory generated after the Linux kernel is started. The net folder in this directory stores all kernel parameters that have taken effect in the system. The directory tree structure is determined based on complete parameter names. For example, net.ipv4.tcp\_tw\_recycle corresponds to the /proc/sys/net/ipv4/tcp\_tw\_recycle file, and the content of the file is the parameter value.

Example:

To change the **net.ipv4.tcp\_tw\_recycle** value to **0**, run the following command:

#### echo "0" > /proc/sys/net/ipv4/tcp\_tw\_recycle

• Method 2: Use the /etc/sysctl.conf file.

The parameter values changed using this method take effect permanently.

a. Run the following command to change the value of a specified parameter:

/sbin/sysctl -w kernel.domainname="example.com"

Example:

sysctl -w net.ipv4.tcp\_tw\_recycle="0"

b. Run the following command to change the parameter value in the **/etc/** sysctl.conf file:

vi /etc/sysctl.conf

 c. Run the following command for the configuration to take effect: /sbin/sysctl -p

# 11.10 Why Is the NIC Not Working?

# Symptom

The NIC equipped on a D1 or H1 ECS does not work.

# **Possible Causes**

The NIC driver has not been correctly installed.

# Solution

D1 and H1 ECSs use passthrough network interfaces to improve network performance. You must install the passthrough network interface driver on the ECSs or the image that is used for creating the ECSs.

#### **NOTE**

If you mount the CD/DVD-ROM driver over a VPN, ensure that the VPN bandwidth is greater than 8 Mbit/s.

**Step 1** Obtain the passthrough NIC driver.

Passthrough NIC driver versions vary depending on the OS. For details, see **Table 11-3**.

NIC Driver Version	OS	How to Obtain
ixgbevf 2.16.4	CentOS 7.2 64bit	https://sourceforge.net/ projects/e1000/files/ ixgbevf%20stable/ 2.16.4/

 Table 11-3 NIC driver versions and OSs

- Step 2 Log in to the ECS.
- **Step 3** Install the passthrough NIC driver on the ECS. In this procedure, CentOS 7.2 64bit is used as an example.
  - 1. Configure the passthrough NIC.

Not all ECS OSs identify passthrough NICs using the standard NIC naming rule of **eth***x*, where *x* is a number. If this is the case, you must configure the ECS so that it can identify the passthrough NIC. The procedure is as follows:

a. Run the following command to view all NICs on the ECS and identify the passthrough NIC:

ifconfig -a

b. Run the following command to switch to the directory where configuration files are stored:

#### cd /etc/sysconfig/network-scripts/

c. Run the following command to create a configuration file for the passthrough NIC:

cp ifcfg-eth0 ifcfg-N/C\_name

In the preceding command, *NIC\_name* specifies the name of the passthrough NIC.

d. Use the vi editor to edit this configuration file:

vi ifcfg-N/C\_name

- e. Set the **DEVICE** parameter in the configuration file to the name of the passthrough NIC. The following is an example configuration: DEVICE="*NIC\_name*" BOOTPROTO="dhcp" ONBOOT="yes" STARTMODE="onboot"
- f. Run the following command to restart the network service and allow the configuration to take effect:

#### service network restart

- 2. Upload the obtained passthrough NIC driver to a directory on the ECS, for example, **/home**.
- 3. Switch to user **root** on the ECS CLI and open the target directory.

In this example, the passthrough NIC driver is stored in the **/home** directory. Run the **cd** */home* command to switch to the target directory.

4. Run the following command to decompress the software package.

#### tar -zxvf ixgbevf-2.16.4.tar.gz

- 5. Run the following command to switch to the generated **src** directory: **cd** *ixgbevf-2.16.4***/src**
- 6. Run the following commands to install the driver:
  - make

#### make install

7. Run the following command to restart the ECS to make the drive take effect:

## reboot

8. Switch to user **root** on the ECS CLI and open the **src** directory, for example, by running the **cd** */home/ixgbevf-2.16.4/src* command. Then, run the following commands to check whether the driver has been installed:

rmmod ixgbevf

insmod ./ ixqbevf.ko

ethtool -i NIC\_name

In the preceding command, *NIC\_name* specifies the passthrough NIC name, for example, **ens5**.

#### **NOTE**

- After you run the **rmmod ixgbevf** command, the system may display an error message. This message does not affect the installation of the passthrough NIC driver and can be ignored.
- NIC\_name specifies the passthrough NIC name, for example, ens5.
- 9. Check the driver status based on the displayed information.

In this example, the driver is installed if **driver** is **ixgbevf** and **version** is **2.16.4**.

----End

# 11.11 Why Can't I Use DHCP to Obtain a Private IP Address?

# Symptom

You attempt to use DHCP to obtain a private IP address, but you cannot obtain the IP address.

- For Linux, a private IP address cannot be assigned.
- For Windows, a private IP address is changed to an IP address in the 169.254 network segment, which is different from the private IP address displayed on the ECS console.

#### **NOTE**

You are advised to use a public image to create an ECS. All public images support DHCP continuous discovery mode.

# Solution (Linux)

The following uses CentOS 7.2 as an example. For solutions about other OSs, see the corresponding help documentation.

1. Log in to the ECS and run the following command:

#### ps -ef | grep dhclient

2. If the dhclient process does not exist, restart the NIC or run any of the following commands to initiate a DHCP request:

#### dhclient eth0, ifdown eth0 + ifup eth0, or dhcpcd eth0

- 3. If the DHCP client does not send any requests for a long time, for example, the issue recurs after the NIC is restarted, do the following:
  - a. Run the following command to configure a static IP:

#### vi /etc/sysconfig/network-scripts/ifcfg-eth0

BOOTPROTO=static IPADDR=192.168.1.100 #IP address (modified) NETMASK=255.255.255.0 #Mask (modified) GATEWAY=192.168.1.1 #Gateway IP address (modified)

- b. Restart the ECS to make the network settings take effect.
- c. Select an image in which DHCP runs stably.
- 4. If the fault persists, obtain the messages in **/var/log/messages** on the affected ECS, use the MAC address of the affected NIC to filter the desired log, and check whether there is any process that prevents DHCP from obtaining an IP address.
- 5. If the fault persists, contact technical support.

## Solution (Windows)

The following uses Windows 2012 as an example. For solutions about other OSs, see the corresponding help documentation.

1. Right-click a local area connection and choose **Disable** from the shortcut menu. Then, choose **Enable**.

Organize 🔻	Disa	ble this network device	Diagnose this connection
Ethe Network	ernet : work	3	
WE Ked	۲	Disable	
		Status	
		Diagnose	
	۲	Bridge Connections	
		Create Shortcut	
	۲	Delete	
	۲	Rename	
	۲	Properties	

- 2. If the DHCP client does not send any requests for a long time, for example, the issue recurs after the NIC is restarted, do the following:
  - a. Right-click **Local Area Connection** and choose **Properties** from the shortcut menu.
  - b. In the displayed dialog box, select **Internet Protocol Version 4 (TCP/ IPv4)**, click **Properties**, and modify parameter settings.

	Network			
4				
	Internet Protocol Version 4 (TCP/IPv4) Properties			
	General			
	You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.			
	Obtain an IP address automatically			
	Use the following IP address:			
	IP address: 192 . 168 . 1 . 1			
	Subnet mask: 255 . 255 . 0			
	Default gateway: 192 . 168 . 1 . 1			
	Obtain DNS server address automatically			
	Use the following DNS server addresses:			
	Preferred DNS server:			
	Alternate DNS server:			
11	Validate settings upon exit Advanced			
	OK Cancel			

- c. Restart the ECS to make the network settings take effect.
- 3. If the fault persists, contact technical support.

# 11.12 How Can I Test the Network Performance of Linux ECSs?

Use netperf and iperf3 to test network performance between ECSs. The test operations include preparations, TCP bandwidth test, UDP PPS test, and latency test.

# Background

- Tested ECS: an ECS that is tested for network performance. Such an ECS functions as the client (TX end) or server (RX end) in netperf tests.
- Auxiliary ECSs: an ECS that is used to exchange test data with the tested ECS. The auxiliary ECS functions as the client (TX end) or server (RX end) in netperf tests.
- Table 11-4 and Table 11-5 list the common netperf and iperf3 parameters.

Parameter	Description
-р	Port number
-H	IP address of the RX end
-t	Protocol used in packet transmitting, the value of which is <b>TCP_STREAM</b> in bandwidth tests
-l	Test duration
-m	Data packet size, which is suggested to be <b>1440</b> in bandwidth tests

 Table 11-4 Common netperf parameters

Table 11-5 Common iperf3 parameters

Parameter	Description
-р	Port number
-C	IP address of the RX end
-u	UDP packets
-b	TX bandwidth
-t	Test duration
-l	Data packet size, which is suggested to be <b>16</b> in PPS tests
-A	ID of the vCPU used by iperf3
	In this section, the maximum number of 16 vCPUs is used as an example for each ECS. If an ECS has 8 vCPUs, the <b>-A</b> value ranges from 0 to 7.

# **Test Preparations**

Step 1 Prepare ECSs.

Ensure that both type and specifications of the tested ECS and auxiliary ECSs are the same. In addition, ensure that these ECSs are deployed in the same ECS group with anti-affinity enabled.

Category	Quantity	Image	Specifications	IP Address
Tested ECS	1	CentOS 7.4 64bit (recommended)	At least eight vCPUs	192.168.2.10

Category	Quantity	Image	Specifications	IP Address	
Auxiliary	8	CentOS 7.4 64bit	At least 8	192.168.2.11-19	
ECS		(recommended)	vCPUs	2.168.2.18	

**Step 2** Install the netperf, iperf3, and sar test tools on both the tested ECS and auxiliary ECSs.

 Table 11-7 lists the procedures for installing these tools.

 Table 11-7 Installing test tools

Tool	Procedure
netperf	<ol> <li>Run the following command to install gcc: yum -y install unzip gcc gcc-c++</li> </ol>
	<ol> <li>Run the following command to download the netperf installation package: wget https://github.com/HewlettPackard/netperf/archive/ refs/tags/netperf-2.7.0.zip</li> </ol>
	<ol> <li>Run the following commands to decompress the installation package and install netperf: unzip netperf-2.7.0.zip</li> </ol>
	cd netperf-netperf-2.7.0/
	./configure && make && make install
iperf3	<ol> <li>Run the following command to download the iperf3 installation package: wgetno-check-certificate https://codeload.github.com/ esnet/iperf/zip/master -O iperf3.zip</li> </ol>
	<ol> <li>Run the following commands to decompress the installation package and install iperf3: unzip iperf3.zip</li> </ol>
	cd iperf-master/
	./configure && make && make install
sar	Run the following command to install sar:
	yum -y install sysstat

**Step 3** Enable NIC multi-queue.

Perform the following operations on both tested ECS and auxiliary ECSs.

1. Run the following command to check the number of queues supported by the ECSs:

```
ethtool -l eth0 | grep -i Pre -A 5 | grep Combined
```

Run the following command to enable NIC multi-queue:
 ethtool -L eth0 combined X

In the preceding command, X is the number of queues obtained in Step 3.1.

----End

# TCP Bandwidth Test (Using netperf)

Perform the test on multiple flows. This section considers 16 flows that are evenly distributed to eight ECSs, as an example.

#### **NOTE**

The TCP bandwidth test uses the multi-flow model.

- When testing the TCP transmission (TX) bandwidth, use the one-to-many model to ensure that the capability of the receiver is sufficient.
- When testing the TCP receiver (RX) bandwidth, use the many-to-one model to ensure that the capability of the sender is sufficient.

**Step 1** Test the TCP TX bandwidth.

1. Run the following commands on all auxiliary ECSs to start the netserver process:

netserver -p 12001

netserver -p 12002

In the preceding commands, -p specifies the listening port.

2. Start the netperf process on the tested ECS and specify a netserver port for each auxiliary ECS. For details about common netperf parameters, see Table 11-4.

##The IP address is for the first auxiliary ECS.

```
netperf -H 192.168.2.11 -p 12001 -t TCP_STREAM -l 300 -- -m 1440 & netperf -H 192.168.2.11 -p 12002 -t TCP_STREAM -l 300 -- -m 1440 &
```

##The IP address is for the second auxiliary ECS.

netperf -H 192.168.2.12 -p 12001 -t TCP\_STREAM -l 300 -- -m 1440 & netperf -H 192.168.2.12 -p 12002 -t TCP\_STREAM -l 300 -- -m 1440 &

##The IP address is for the third auxiliary ECS.

netperf -H 192.168.2.13 -p 12001 -t TCP\_STREAM -l 300 -- -m 1440 & netperf -H 192.168.2.13 -p 12002 -t TCP\_STREAM -l 300 -- -m 1440 &

##The IP address is for the fourth auxiliary ECS.

netperf -H 192.168.2.14 -p 12001 -t TCP\_STREAM -l 300 -- -m 1440 & netperf -H 192.168.2.14 -p 12002 -t TCP\_STREAM -l 300 -- -m 1440 &

##The IP address is for the fifth auxiliary ECS.

netperf -H 192.168.2.15 -p 12001 -t TCP\_STREAM -l 300 -- -m 1440 & netperf -H 192.168.2.15 -p 12002 -t TCP\_STREAM -l 300 -- -m 1440 &

##The IP address is for the sixth auxiliary ECS.

netperf -H 192.168.2.16 -p 12001 -t TCP\_STREAM -l 300 -- -m 1440 & netperf -H 192.168.2.16 -p 12002 -t TCP\_STREAM -l 300 -- -m 1440 & ##The IP address is for the seventh auxiliary ECS.

```
netperf -H 192.168.2.17 -p 12001 -t TCP_STREAM -l 300 -- -m 1440 &
            netperf -H 192.168.2.17 -p 12002 -t TCP_STREAM -l 300 -- -m 1440 &
            ##The IP address is for the eighth auxiliary ECS.
            netperf -H 192.168.2.18 -p 12001 -t TCP_STREAM -l 300 -- -m 1440 &
            netperf -H 192.168.2.18 -p 12002 -t TCP_STREAM -l 300 -- -m 1440 &
Step 2 Test the TCP RX bandwidth.
       1.
           Start the netserver process on the tested ECS.
            ##The port number is for the first auxiliary ECS.
            netserver -p 12001
            netserver -p 12002
            ##The port number is for the second auxiliary ECS.
            netserver -p 12003
            netserver -p 12004
            ##The port number is for the third auxiliary ECS.
            netserver -p 12005
            netserver -p 12006
            ##The port number is for the fourth auxiliary ECS.
            netserver -p 12007
            netserver -p 12008
            ##The port number is for the fifth auxiliary ECS.
            netserver -p 12009
            netserver -p 12010
            ##The port number is for the sixth auxiliary ECS.
            netserver -p 12011
            netserver -p 12012
            ##The port number is for the seventh auxiliary ECS.
            netserver -p 12013
            netserver -p 12014
            ##The port number is for the eighth auxiliary ECS.
            netserver -p 12015
            netserver -p 12016
       2. Start the netperf process on all auxiliary ECSs.
            Log in to auxiliary ECS 1.
            netperf -H 192.168.2.10 -p 12001 -t TCP_STREAM -l 300 -- -m 1440 &
            netperf -H 192.168.2.10 -p 12002 -t TCP_STREAM -l 300 -- -m 1440 &
            Log in to auxiliary ECS 2.
            netperf -H 192.168.2.10 -p 12003 -t TCP_STREAM -l 300 -- -m 1440 &
            netperf -H 192.168.2.10 -p 12004 -t TCP_STREAM -l 300 -- -m 1440 &
```

Log in to auxiliary ECS 3. netperf -H 192.168.2.10 -p 12005 -t TCP STREAM -l 300 -- -m 1440 & netperf -H 192.168.2.10 -p 12006 -t TCP\_STREAM -l 300 -- -m 1440 & Log in to auxiliary ECS 4. netperf -H 192.168.2.10 -p 12007 -t TCP\_STREAM -l 300 -- -m 1440 & netperf -H 192.168.2.10 -p 12008 -t TCP\_STREAM -l 300 -- -m 1440 & Log in to auxiliary ECS 5. netperf -H 192.168.2.10 -p 12009 -t TCP STREAM -l 300 -- -m 1440 & netperf -H 192.168.2.10 -p 12010 -t TCP\_STREAM -l 300 -- -m 1440 & Log in to auxiliary ECS 6. netperf -H 192.168.2.10 -p 12011 -t TCP\_STREAM -l 300 -- -m 1440 & netperf -H 192.168.2.10 -p 12012 -t TCP\_STREAM -l 300 -- -m 1440 & Log in to auxiliary ECS 7. netperf -H 192.168.2.10 -p 12013 -t TCP STREAM -l 300 -- -m 1440 & netperf -H 192.168.2.10 -p 12014 -t TCP\_STREAM -l 300 -- -m 1440 & Log in to auxiliary ECS 8. netperf -H 192.168.2.10 -p 12015 -t TCP\_STREAM -l 300 -- -m 1440 & netperf -H 192.168.2.10 -p 12016 -t TCP\_STREAM -l 300 -- -m 1440 &

Step 3 Analyze the test result.

After the test is complete, the output of the netperf process on one TX end is shown in Figure 11-23. The final result is the sum of the test results of the netperf processes on all TX ends.

Figure 11-23 Output of the netperf process on one TX end

```
Recv Send Send
Socket Socket Message Elapsed
Size Size Size Time Throughput
bytes bytes bytes secs. 10^6bits/sec
TX buffer Test duration Throughput
87380 16384 1440 120.02 956.30
RX buffer Data packet size
```

#### **NOTE**

There are a large number of netperf processes. To facilitate statistics collection, it is a good practice to run the following command to view test data on the tested ECS using sar: sar -n DEV 1 60

----End

# UDP PPS Test (Using iperf3)

```
Step 1 Test the UDP TX PPS.
```

- 1. Log in to an auxiliary ECS.
- 2. Run the following commands on all auxiliary ECSs to start the server process: iperf3 -s -p 12001 &

```
iperf3 -s -p 12002 &
```

In the preceding commands, **-p** specifies the listening port.

3. Start the client process on the tested ECS. For details about common iperf3 parameters, see **Table 11-5**.

##Auxiliary ECS 1

iperf3 -c 192.168.2.11 -p 12001 -u -b 100M -t 300 -l 16 -A 0 &

iperf3 -c 192.168.2.11 -p 12002 -u -b 100M -t 300 -l 16 -A 1 &

##Auxiliary ECS 2

iperf3 -c 192.168.2.12 -p 12001 -u -b 100M -t 300 -l 16 -A 2 & iperf3 -c 192.168.2.12 -p 12002 -u -b 100M -t 300 -l 16 -A 3 &

#### ##Auxiliary ECS 3

iperf3 -c 192.168.2.13 -p 12001 -u -b 100M -t 300 -l 16 -A 4 & iperf3 -c 192.168.2.13 -p 12002 -u -b 100M -t 300 -l 16 -A 5 &

#### ##Auxiliary ECS 4

iperf3 -c 192.168.2.14 -p 12001 -u -b 100M -t 300 -l 16 -A 6 & iperf3 -c 192.168.2.14 -p 12002 -u -b 100M -t 300 -l 16 -A 7 &

#### ##Auxiliary ECS 5

iperf3 -c 192.168.2.15 -p 12001 -u -b 100M -t 300 -l 16 -A 8 & iperf3 -c 192.168.2.15 -p 12002 -u -b 100M -t 300 -l 16 -A 9 &

#### ##Auxiliary ECS 6

iperf3 -c 192.168.2.16 -p 12001 -u -b 100M -t 300 -l 16 -A 10 & iperf3 -c 192.168.2.16 -p 12002 -u -b 100M -t 300 -l 16 -A 11 &

#### ##Auxiliary ECS 7

iperf3 -c 192.168.2.17 -p 12001 -u -b 100M -t 300 -l 16 -A 12 & iperf3 -c 192.168.2.17 -p 12002 -u -b 100M -t 300 -l 16 -A 13 &

#### ##Auxiliary ECS 8

iperf3 -c 192.168.2.18 -p 12001 -u -b 100M -t 300 -l 16 -A 14 & iperf3 -c 192.168.2.18 -p 12002 -u -b 100M -t 300 -l 16 -A 15 &

#### **Step 2** Test the UDP RX PPS.

1. Start the server process on the tested ECS. For details about common iperf3 parameters, see Table 11-5. ##The port number is for the first auxiliary ECS. iperf3 -s -p 12001 -A 0 -i 60 & iperf3 -s -p 12002 -A 1 -i 60 & ##The port number is for the second auxiliary ECS. iperf3 -s -p 12003 -A 2 -i 60 & iperf3 -s -p 12004 -A 3 -i 60 & ##The port number is for the third auxiliary ECS. iperf3 -s -p 12005 -A 4 -i 60 & iperf3 -s -p 12006 -A 5 -i 60 & ##The port number is for the fourth auxiliary ECS. iperf3 -s -p 12007 -A 6 -i 60 & iperf3 -s -p 12008 -A 7 -i 60 & ##The port number is for the fifth auxiliary ECS. iperf3 -s -p 12009 -A 8 -i 60 & iperf3 -s -p 12010 -A 9 -i 60 & ##The port number is for the sixth auxiliary ECS. iperf3 -s -p 12011 -A 10 -i 60 & iperf3 -s -p 12012 -A 11 -i 60 & ##The port number is for the seventh auxiliary ECS. iperf3 -s -p 12013 -A 12 -i 60 & iperf3 -s -p 12014 -A 13 -i 60 & ##The port number is for the eighth auxiliary ECS. iperf3 -s -p 12015 -A 14 -i 60 & iperf3 -s -p 12016 -A 15 -i 60 & Start the client process on all auxiliary ECSs. For details about common iperf3 2. parameters, see Table 11-5. Log in to auxiliary ECS 1. iperf3 -c 192.168.2.10 -p 12001 -u -b 100M -t 300 -l 16 -A 0 & iperf3 -c 192.168.2.10 -p 12002 -u -b 100M -t 300 -l 16 -A 1 & Log in to auxiliary ECS 2. iperf3 -c 192.168.2.10 -p 12003 -u -b 100M -t 300 -l 16 -A 0 & iperf3 -c 192.168.2.10 -p 12004 -u -b 100M -t 300 -l 16 -A 1 & Log in to auxiliary ECS 3. iperf3 -c 192.168.2.10 -p 12005 -u -b 100M -t 300 -l 16 -A 0 & iperf3 -c 192.168.2.10 -p 12006 -u -b 100M -t 300 -l 16 -A 1 & Log in to auxiliary ECS 4.

```
iperf3 -c 192.168.2.10 -p 12007 -u -b 100M -t 300 -l 16 -A 0 &
iperf3 -c 192.168.2.10 -p 12008 -u -b 100M -t 300 -l 16 -A 1 &
Log in to auxiliary ECS 5.
iperf3 -c 192.168.2.10 -p 12019 -u -b 100M -t 300 -l 16 -A 1 &
Log in to auxiliary ECS 6.
iperf3 -c 192.168.2.10 -p 12011 -u -b 100M -t 300 -l 16 -A 0 &
iperf3 -c 192.168.2.10 -p 12012 -u -b 100M -t 300 -l 16 -A 1 &
Log in to auxiliary ECS 7.
iperf3 -c 192.168.2.10 -p 12013 -u -b 100M -t 300 -l 16 -A 0 &
iperf3 -c 192.168.2.10 -p 12013 -u -b 100M -t 300 -l 16 -A 1 &
Log in to auxiliary ECS 7.
iperf3 -c 192.168.2.10 -p 12014 -u -b 100M -t 300 -l 16 -A 0 &
iperf3 -c 192.168.2.10 -p 12015 -u -b 100M -t 300 -l 16 -A 1 &
Log in to auxiliary ECS 8.
iperf3 -c 192.168.2.10 -p 12015 -u -b 100M -t 300 -l 16 -A 0 &
iperf3 -c 192.168.2.10 -p 12015 -u -b 100M -t 300 -l 16 -A 0 &
```

**Step 3** Analyze the test result.

Figure 11-24 shows an example of the UDP PPS test result.





#### **NOTE**

There are a large number of iperf3 processes. To facilitate statistics collection, it is a good practice to run the following command to view test data on the tested ECS using sar: sar -n DEV 1 60

----End

# Latency Test

**Step 1** Run the following command to start the qperf process on the tested ECS:

#### qperf &

**Step 2** Log in to auxiliary ECS 1 and run the following command to perform a latency test:

qperf 192.168.2.10 -m 64 -t 60 -vu udp\_lat

After the test is complete, the **lat** value in the command output is the latency between ECSs.

----End

# 11.13 What Should I Do If NIC Flapping Occurs After My ECS Specifications Are Modified?

# Symptom

Take a Linux ECS as an example. After the user modified ECS specifications and ran the **ifconfig** command, the user found that the original eth0 and eth1 NICs were changed to eth2 and eth3 NICs, indicating that NIC flapping occurred.

# **Root Cause**

NIC flapping occurs because NIC retaining is enabled in the image from which the ECS is created.

# Solution to Windows

For a Windows ECS, delete the directories in the following registries and restart the ECS to resolve this issue:

HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion \NetworkList\Profiles

HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion \NetworkList\Signatures\Unmanaged



# **Solution to Linux**

For a Linux ECS, perform the following operations and restart the ECS to resolve this issue:

1. Run the following command to view the files in the network rule directory:

#### ls -l /etc/udev/rules.d

2. Run the following commands to delete the files with both **persistent** and **net** included in file names from the network rule directory:

#### rm -fr /etc/udev/rules.d/\*net\*persistent\*.rules

#### rm -fr /etc/udev/rules.d/\*persistent\*net\*.rules

3. Run the following command to check whether the initrd image file with a name starting with **initrd** and ending with **default** contains both **persistent** and **net** network rules (change the italic data in the following command to the actual OS version):

#### lsinitrd /boot/initrd-2.6.32.12-0.7-default |grep persistent|grep net

- If yes, go to steps 4 and 5.
- If no, no further action is required.
- 4. Run the following command to back up the initrd image file (change the italic data in the following command to the actual OS version):

cp /boot/initrd-2.6.32.12-0.7-default /boot/initrd-2.6.32.12-0.7-default\_bak

5. Run the following command to regenerate the initrd image file:

#### mkinitrd

Perform the following operations when an OS, such as Ubuntu, uses the initramfs image:

1. Run the following command to check whether the initramfs image file with a name starting with **initrd** and ending with **generic** contains both **persistent** and **net** network rules:

lsinitramfs /boot/initrd.img-3.19.0-25-generic|grep persistent|grep net

- If yes, go to steps 2 and 3.
- If no, no further action is required.
- 2. Run the following command to back up the initrd image file:

# cp /boot/initrd.img-3.19.0-25-generic /boot/initrd.img-3.19.0-25-generic\_bak

3. Run the following command to regenerate the initramfs image file: **update-initramfs -u** 

# 11.14 Will NICs Added to an ECS Start Automatically?

Based on test results, if the ECS runs CentOS 7.0, NICs added to the ECS cannot start automatically. You must start the NICs manually.

# 11.15 How Can I Check Whether the Network Communication Is Normal Between Two ECSs Equipped with an InfiniBand NIC Driver?

For high-performance H2 ECSs equipped with an InfiniBand NIC driver (InfiniBand ECSs for short), perform the following operations to check whether the driver installation is successful and whether the network communication between the ECSs is normal.

#### **NOTE**

During the check, if your ECS has no command tool installed, such as ibstat, obtain the tool from the installation package for the InfiniBand NIC driver and install the tool.

- **Step 1** Check whether the NICs of the InfiniBand ECSs are functional.
  - 1. Log in to the ECS.
  - 2. Run the following command to check whether the NIC is functional: **ibstat** 
    - If it is functional, go to Step 2.
    - If it is not functional, contact customer service for technical support.
- **Step 2** Check whether the network communication between two InfiniBand ECSs is normal.
  - 1. Log in to one InfiniBand ECS and run the following command:

### ib\_write\_bw -x 0 --pkey\_index 0

- 2. Log in to the other InfiniBand ECS and run the following command:
  - ib\_write\_bw -x 0 --pkey\_index 0ip\_addr

In the preceding command, *ip\_addr* is the NIC IP address of the first InfiniBand ECS.

3. Check whether the terminal display is correct.

#### Figure 11-25 Normal network communication

	RDMA W	ite BW Test			
Dual-port	: OFF	Device	: mlx5_0		
Number of qps		Transport ty	pe : IB		
Connection type	: RC	Using SRQ	: 0FF		
TX depth	: 128				
CQ Moderation	: 188				
Mtu	: 4896[B]				
Link type	: I8				
GID index	: 0				
Max inline data	: 0[B]				
rdma_cm QPs	: OFF				
Data ex. method	: Ethernet				
local address: GID: 254:128:00 remote address: GID: 254:128:00	LID 0x05 QF :00:00:00:0 LID 0x05 Q :00:00:00:0	N 0x0067 PSN 0xaa 00:00:00:00:00:00:03: 0PN 0x006a PSN 0xe 00:00:00:00:01:03:	ccfb RKey 0x001c0c VA 00:135:40:170 bbf6d RKey 0x001c10 V 00:135:40:170	ddr 0x007fb3cd1b0000 Addr 0x007fdad599000	0
		Did analy IND (eas)	Phi autorage [NP/coc]	Mc aData [Manc1	
Thursday 21100		The second			

- If the terminal display is shown in **Figure 11-25**, the network communication between the two InfiniBand ECSs is normal.

- If the InfiniBand network is inaccessible, contact customer service for technical support.

----End

# 11.16 How Can I Manually Configure an IP Address for an InfiniBand NIC?

IP over InfiniBand (IPoIB) allows IP data transmission over InfiniBand. For SUSE high-performance H2 and HL1 ECSs, if IPoIB is required, you must manually configure an IP address for the InfiniBand NIC after installing the InfiniBand NIC driver.

# Prerequisites

The InfiniBand NIC driver has been installed on the high-performance H2 or HL1 ECSs.

# Background

To prevent IP address conflict of the InfiniBand NICs configured for the ECSs of a tenant, determine the IP address to be configured for an InfiniBand NIC according to the IP addresses available in the VPC. The method is as follows:

For example, if the first two eight-bits of the IP address (specified by **IPADDR**) to be configured for the InfiniBand NIC are consistently **169.254**, the latter two eight-bits must be the same as those of the **eth0** IP address, and the subnet mask must be the same as that of the **eth0** NIC.

An example is provided as follows:

If the IP address of the **eth0** NIC is 192.168.0.100/24, the IP address to be configured for the InfiniBand NIC is 169.254.0.100/24.

# Procedure

- 1. Log in to the ECS.
- Run the following command to switch to user root: sudo su -
- 3. Run the following command to edit the **/etc/sysconfig/network/ifcfg-ib0** file:

#### vi /etc/sysconfig/network/ifcfg-ib0

4. Enter the following information:

DEVICE=ib0 BOOTPROTO=static IPADDR=/P address to be configured for the InfiniBand NIC NETMASK=Subnet mask STARTMODE=auto

#### D NOTE

For instructions about how to obtain the IP address and subnet mask for an InfiniBand NIC, see **Background**.

5. Run the following command to restart the network for the configuration to take effect:

service network restart

# 11.17 How Can I Handle the Issue that a Windows 7 ECS Equipped with an Intel 82599 NIC Reports an Error in SR-IOV Scenarios?

# Symptom

When the 20.4.1 driver package downloaded at Intel website https:// downloadcenter.intel.com/search?keyword=Intel++Ethernet+Connections+CD was installed in a Windows 7 64bit ECS with SR-IOV passthrough enabled, the system displayed the message "No Intel adapter found".

## **Cause Analysis**

The OS identifies an Intel 82599 passthrough NIC without a driver installed as an Ethernet controller. When the 20.4.1 driver package was installed, the OS did not identify the Intel NIC, leading to the error.

## Solution

Run **Autorun.exe** in the folder where the 20.4.1 driver package is stored. Install a driver on the NIC before installing the driver package so that the NIC can be identified as an Intel 82599 virtual function (VF) device by the OS. Use either of the following methods to install the driver:

- Method 1: Update the version.
  - a. Download the 18.6 driver package at the Intel website.
  - b. Run **Autorun.exe**.
  - c. Run **Autorun.exe** in the folder where the 20.4.1 driver package is stored to update the driver.
- Method 2: Use the device manager.
  - a. Start the Windows resource manager. Right-click **Computer** and choose **Manage** from the shortcut menu. In the **Device Manager** window, locate the NIC. When the NIC has no driver installed, the NIC locates in **Other devices** and is named **Ethernet Controller**.
  - b. Right-click **Ethernet Controller** and choose **Update Driver Software**.
  - c. Click **Browse**, select the path where the driver package is stored, and click **Next**.
  - d. Locate the NIC in Network Adapter of Device Manager.
  - e. Run **Autorun.exe** to install the 20.4.1 driver package.
# 11.18 How Can I Add a Static Route to a CentOS 6.5 OS?

#### Scenarios

After the system restarts, non-static routes are lost, affecting network availability. To prevent this issue from occurring, you must add static routes to the system.

#### Procedure

The following section uses a CentOS 6.5 OS as an example.

- 1. Log in to the ECS.
- 2. Create or modify the static route configuration file.

If the **static-routes** configuration file is not in the **/etc/sysconfig/** directory, create this file. If such a file is available, run the following command to add a static route into this file:

any net 192.168.2.0 netmask 255.255.255.0 gw 192.168.1.34

After the configuration, save and exit the file. The following figure shows the modified file content.

[root@lsw-centos65-0001 sysconfig]# cat static-routes any net 192.168.2.0 netmask 255.255.255.0 gw 192.168.1.34

3. Run the following command to restart the network service to make the static route take effect:

service network restart



4. Run the following command to view routes:

route -n

[root@lsw-centos65-0001 susconfig]# route -n										
Kernel IP routin	ng table	· · · · · · · · · · · · · · · · · · ·								
Destination	Ğateway	Genmask	Flags	Metric	Ref	Use	Iface			
169.254.169.254	192.168.1.1	255.255.255.255	UGH	0	0	0	eth0			
192.168.2.0	192.168.1.34	255.255.255.0	UG	0	0	0	eth0			
192.168.1.0	0.0.0.0	255.255.255.0	U	0	0	0	eth0			
169.254.0.0	0.0.0.0	255.255.0.0	U	1002	0	0	eth0			
0.0.0.0	192.168.1.1	0.0.0.0	UG	0	0	0	eth0			

# **12** EIP

### 12.1 Can Multiple EIPs Be Bound to an ECS?

#### **Scenarios**

Multiple EIPs can be bound to an ECS, but this operation is not recommended.

If an ECS has multiple network interfaces attached and you want to bind multiple EIPs to this ECS, you need to configure policy-based routes for these network interfaces so that these extension network interfaces can communicate with external networks.

#### **Operation Guide**

**Table 12-1** provides the operation guides on how to configure policy-based routes for Linux and Windows ECSs.

ОЅ Туре	IP Address Version	Procedure				
Linux	IPv4	Take an ECS running CentOS 8.0 (64-bit) as				
	IPv6	Configuring Policy-based Routes for a Linux ECS with Multiple Network Interfaces (IPv4/IPv6)				
Windows	IPv4	Take an ECS running Windows Server 2012				
	IPv6	<ul> <li>(64-bit) as an example.</li> <li>Configuring Policy-based Routes for a Windows ECS with Multiple Network Interfaces (IPv4/IPv6)</li> </ul>				

Table 12-1 Operation instructions on how to configure policy-based routes

# 12.2 Can an ECS Without an EIP Bound Access the Internet?

Yes.

You can use the NAT Gateway service to allow ECSs in a VPC to access the Internet using an EIP. The SNAT function provided by the NAT Gateway service allows the ECSs in a VPC to access the Internet without requiring an EIP. Additionally, SNAT supports a large number of concurrent connections for applications that have a large number of requests and connections. For more information about NAT Gateway, see *NAT Gateway Service Overview*.

### 12.3 What Should I Do If an EIP Cannot Be Pinged?

#### Symptom

After you purchase an EIP and bind it to an ECS, the local host or other cloud servers cannot ping the EIP of the ECS.

#### Fault Locating

#### **Checking EIPs**

- Check whether the EIP is blocked. For details, see How Do I Unblock an EIP?
- Check whether the EIP is frozen. For details, see Why My EIPs Are Frozen?
   How Do I Unfreeze My EIPs?

#### **Checking EIP Connectivity**

The following fault causes are sequenced based on their occurrence probability.

If the fault persists after you have ruled out a cause, check other causes.





Possible Causes	Solution
ICMP access rules are not added to the security group.	Add ICMP access rules to the security group. For details, see <b>Checking Security Group Rules</b> .
Ping operations are prohibited on the firewall.	Allow ping operations on the firewall. For details, see Checking Firewall Settings.
Ping operations are prohibited on the ECS.	Allow ping operations on the ECS. For details, see Checking Whether Ping Operations Have Been Disabled on the ECS.
Network ACL is associated.	If the VPC is associated with a network ACL, check the network ACL rules. For details, see <b>Checking Network ACL Rules</b> .
A network exception occurred.	Use another ECS in the same region to check whether the local network is functional. For details, see <b>Checking</b> <b>Whether the Network Is Functional</b> .
Routes are incorrectly configured if multiple NICs are used.	If the network is inaccessible due to an extension NIC, the fault is generally caused by incorrect route configurations. To resolve this issue, see <b>Checking the</b> <b>ECS Route Configuration If Multiple NICs Are Used</b> .
The domain name is not ICP licensed.	If the domain name cannot be pinged or cannot be resolved, see Checking Domain Name Resolution If the Domain Name Cannot Be Pinged to resolve this issue.

Table 1	2-2	Method	of	locating	the	failure	to	ping	an	EIP
			•••					P9	•••••	

#### **Checking Security Group Rules**

ICMP is used for the ping command. Check whether the security group accommodating the ECS allows ICMP traffic.

- 1. Log in to the management console.
- 2. Click 💿 in the upper left corner and select your region and project.
- 3. Click  $\equiv$  . Under Compute, choose Elastic Cloud Server.
- 4. On the **Elastic Cloud Server** page, click the name of the target ECS. The page providing details about the ECS is displayed.
- 5. Click the **Security Groups** tab, expand the information of the security group, and view security group rules.
- 6. Click the security group ID.

The system automatically switches to the **Security Group** page.

7. On the **Outbound Rules** page, click **Add Rule**. In the displayed dialog box, set required parameters to add an outbound rule.

Table 12-3 Security group rules

Transfer Direction	Туре	Protocol/Port Range	Destination
Outboun d	IPv4	ICMP/Any	0.0.0.0/0 0.0.0.0/0 indicates all IP addresses.

8. On the **Inbound Rules** tab, click **Add Rule**. In the displayed dialog box, set required parameters to add an inbound rule.

Table 12	2-4 Sec	urity ar	oup rules
----------	---------	----------	-----------

Transfer Direction	Туре	Protocol/Port Range	Source
Inbound	IPv4	ICMP/Any	0.0.0.0/0 0.0.0.0/0 indicates all IP addresses.

9. Click **OK** to complete the security rule configuration.

#### **Checking Firewall Settings**

If a firewall is enabled on the ECS, check whether the firewall blocks the ping operations.

#### Linux

1. Consider CentOS 7 as an example. Run the following command to check the firewall status:

#### firewall-cmd --state

If **running** is displayed in the command output, the firewall has been enabled.

2. Check whether there is any ICMP rule blocking the ping operations.

#### iptables -L

If the command output shown in **Figure 12-2** is displayed, there is no ICMP rule blocking the ping operations.

#### Figure 12-2 Checking firewall rules

[root@ecs-	3c4e ~]# iptables -L		
Chain INPU	T (policy ACCEPT)		
target	prot opt source	destination	
ACCEPT	icmp anywhere	anywhere	icmp echo-request
Chain FORW	ARD (policy ACCEPT)		
target	prot opt source	destination	
Chain OUTP	UT (policy ACCEPT)		
target	prot opt source	destination	
ACCEPT	icmpanywhere	anywhere	icmp echo-reply
[root@ecs-	3c4e ~]#		

If the ping operations are blocked by an ICMP rule, run the following commands to modify the rule for unblocking:

#### iptables -A INPUT -p icmp --icmp-type echo-request -j ACCEPT iptables -A OUTPUT -p icmp --icmp-type echo-reply -j ACCEPT

#### Windows

- 1. Log in to the Windows ECS, click the Windows icon in the lower left corner of the desktop, and choose **Control Panel** > **Windows Firewall**.
- 2. Click Turn Windows Firewall on or off.

View and set the firewall status.

- 3. If the firewall is **On**, go to **4**.
- 4. Check the ICMP rule statuses in the firewall.
  - a. In the navigation pane on the **Windows Firewall** page, click **Advanced settings**.
  - b. Enable the following rules:

Inbound Rules: File and Printer Sharing (Echo Request - ICMPv4-In) Outbound Rules: File and Printer Sharing (Echo Request - ICMPv4-Out)

If IPv6 is enabled, enable the following rules:

Inbound Rules: File and Printer Sharing (Echo Request - ICMPv6-In) Outbound Rules: File and Printer Sharing (Echo Request - ICMPv6-Out)

#### Figure 12-3 Inbound Rules



#### Figure 12-4 Outbound Rules

e Action View Help								
Windows Firewall with Advanc	Outbound Rules					Actions		_
Inbound Rules	Name	Group	Profile	Enabled	A. ^	Outbound Rule:		
Connection Security Bular	🔮 Core Networking - Time Exceeded (ICMPv6-Out)	Core Networking	All	Yes	AI	Kew Rule		
Monitoring	🕑 Cortana	Cortana	All	Yes	AI	Eilber hu. Der	<i>6</i> 1.	
	🔮 Connected User Experiences and Telemetry	DiagTrack	All	Yes	AJ	- Filter by Price	me	
	Distributed Transaction Coordinator (TCP-Out)	Distributed Transaction Coo	All	No	AJ	Filter by Sta	te	
	🔮 Email and accounts	Email and accounts	All	Yes	AJ	🛛 🍸 🛛 Filter by Gri	up	
	File and Printer Sharing (Echo Request - ICMPv4-Out)	File and Printer Sharing	All	Yes	Al	View		
	Sile and Printer Sharing (Echo Request - ICMPv6-Out)	File and Printer Sharing	All	Yes	AI	Different		
	File and Printer Sharing (LLMNR-UDP-Out)	File and Printer Sharing	All	No	AI	G Kerresh		
	File and Printer Sharing (NB-Datagram-Out)	File and Printer Sharing	All	No	AJ	📑 Export List.	·	
	File and Printer Sharing (NB-Name-Out)	File and Printer Sharing	All	No	AJ	🛛 🛛 Help		
	File and Printer Sharing (NB-Session-Out)	File and Printer Sharing	All	No	AJ		the state	
	File and Printer Sharing (SMB-Out)	File and Printer Sharing	All	No	AI	File and Printer	sharing (E.,	ł
	iSCSI Service (TCP-Out)	iSCSI Service	All	No	AI	🕘 🕘 Disable Rul	:	
	🔮 mDNS (UDP-Out)	mDNS	All	Yes	AI	🔏 Cut		
	Network Discovery (LLMNR-UDP-Out)	Network Discovery	All	No	AI	Com.		
	Network Discovery (NB-Datagram-Out)	Network Discovery	All	No	AI	Copy		
	Network Discovery (NB-Name-Out)	Network Discovery	All	No	AI	👗 Delete		
	Network Discovery (Pub WSD-Out)	Network Discovery	All	No	AI	Properties		

#### Checking Whether Ping Operations Have Been Disabled on the ECS

#### Windows

Enable ping operations using the CLI.

- 1. Start the **Run** dialog box. Enter **cmd** and press **Enter**.
- Run the following command to enable ping operations: netsh firewall set icmpsetting 8

#### Linux

Check the ECS kernel parameters.

- Check the net.ipv4.icmp\_echo\_ignore\_all value in the /etc/sysctl.conf file. Value 0 indicates that ping operations are allowed, and value 1 indicates that ping operations are prohibited.
- 2. Allow ping operations.
  - Run the following command to temporarily allow the ping operations:
     #echo 0 >/proc/sys/net/ipv4/icmp\_echo\_ignore\_all
  - Run the following command to permanently allow the ping operations: net.ipv4.icmp\_echo\_ignore\_all=0

#### **Checking Network ACL Rules**

By default, no ACL is configured for a VPC. If a network ACL is associated with a VPC, check the ACL rules.

1. Check whether the subnet of the ECS has been associated with a network ACL.

If an ACL name is displayed, the network ACL has been associated with the ECS.

#### Figure 12-5 Network ACL

SI	ubnets								
			vpc-l	b945	•	Name		•	
	Name	VPC		IPv4 CIDR	IPv6 CID	St	AZ	Network ACL	Route Table
	subnet-b981	vpc-b945		192.168.0.0/24		Av	AZ1	fw-51ce	rtb-vpc-b945 Default

2. Click the ACL name to view its status.

#### Figure 12-6 Enabled network ACL

< fw	51ce			
Name	fw-51ce 🖉	Status	Enabled	
ID	02a3469d-db57-4797-8bea-e2e3e81e4e7e 🗇	Description	🖉	

3. If the network ACL is enabled, add an ICMP rule to allow traffic.

#### Figure 12-7 Adding an ICMP rule

< fw-51ce											
Name         Nv-51ce を         Status         Enabled           ID         02a3469d-dbp5r-4797-8bea-e2e3e81e4e7e         ①         Description         - を											
Inbound Rules         Outbound Rules         Associated Subnets           Add Rule         Deteter         Default Rule         Learn more about security group configuration.											
Priority ⑦	Status	Туре	Action	Protocol	Source	Source Port F	tange		Destination		
1	Enabled	IPv4	Allow	All	0.0.0.0/0 ⑦	All			0.0.0.0/0 ⑦		
2	Enabled	IPv4	Allow	ICMP	0.0.0.0/0 ⑦	All			0.0.0.0/0 ⑦		
<b>•</b> •	Enabled	-	Deny	All	0.0.0.0/0 ⑦	All			0.0.0.0/0 ⑦		

#### **NOTE**

The default network ACL rule denies all incoming and outgoing packets. If a network ACL is disabled, the default rule is still effective.

#### **Checking Whether the Network Is Functional**

1. Use another ECS in the same region to check whether the local network is functional.

Use another ECS in the same region to ping the affected EIP. If the EIP can be pinged, the VPC is functional. In such a case, rectify the local network fault and ping the affected EIP again.

2. Check whether the link is accessible.

A ping failure is caused by packet loss or long delay, which may be caused by link congestion, link node faults, or heavy load on the ECS.

For details, see How Do I Troubleshoot a Ping Failure or Packet Loss Using a Link Test?

#### Checking the ECS Route Configuration If Multiple NICs Are Used

Generally, the default route of an OS will preferentially select the primary NIC. If an extension NIC is selected in a route and the network malfunctions, this issue is typically caused by incorrect route configuration.

- If the ECS has multiple NICs, check whether the default route is available.
  - a. Log in to the ECS and run the following command to check whether the default route is available:

ip route

Figure 12-8 Default route

```
[root@do-not-del-scy ~]# ip route
default via 192.168.2.1 dev eth0
169.254.0.0/16 dev eth0 scope link metric 1002
169.254.169.254 via 192.168.2.1 dev eth0 proto static
192.168.2.0/24 dev eth0 proto kernel scope link src 192.168.2.112
```

b. If the route is unavailable, run the following command to add it: ip route add default via XXXX dev eth0

In the preceding command, XXXX specifies a gateway IP address.

• If the ECS has multiple NICs and the EIP is bound to an extension NIC, configure policy routing on the ECS for network communication with the extension NIC.

For details, see **How Do I Configure Policy-Based Routes for an ECS with Multiple NICs?** 

#### Checking Domain Name Resolution If the Domain Name Cannot Be Pinged

If you can ping the EIP but not the domain name, the possible cause is that an error occurred in domain name resolution.

1. Check the domain name resolution.

If the domain name records are incorrectly configured, the domain name may fail to be resolved.

Switch to the DNS management console to view details about the domain name resolution.

2. Check the DNS server configuration.

If the system shows no server found after you ping a domain name, this issue may be caused by slow response from the DNS server. In such a case, see **Troubleshooting Slow Access of a Website Outside the Chinese Mainland over an ECS**.

# 12.4 Why Can I Remotely Access an ECS But Cannot Ping It?

#### Symptom

You can remotely access an ECS, but when you ping the EIP bound to the ECS, the ping operation fails.

#### **Possible Causes**

A desired inbound rule is not added for the security group, and ICMP is not enabled.

#### Solution

- 1. Log in to the management console.
- 2. Under Compute, click Elastic Cloud Server.
- 3. On the **Elastic Cloud Server** page, click the name of the target ECS. The page providing details about the ECS is displayed.
- 4. Click the **Security Groups** tab, expand the information of the security group, and click the security group ID.
- 5. On the **Inbound Rules** tab of the **Security Group** page, click **Add Rule**.
- 6. Add an inbound rule for the security group and enable ICMP.
  - Protocol: ICMP
  - Source: IP address 0.0.0/0

### 12.5 Why Is Outbound Access on TCP Port 25 Blocked?

#### Symptom

You cannot access an external address on TCP port 25. For example, running the **Telnet smtp.\*\*\*.com 25** command fails.

#### Cause

For security reasons, TCP port 25 is disabled in the outbound direction by default.

You do not need to enable TCP port 25, unless you want to deploy an email service on the cloud.

**NOTE** 

Outbound traffic over TCP port 25 is only blocked in CN North-Beijing1.

#### Solution

Use port 465 supported by the third-party email service provider.

# 12.6 How Do I Query the Egress Public IP Address of My ECS?

#### Scenarios

After servers are migrated to the cloud, they usually use EIPs to access the Internet.

You can log in to the management console and view the EIP bound to the ECS in the ECS list. For details, see **Viewing ECS Details (List View)**.

If you want to query the EIP bound to the ECS without logging in to the management console, do as follows.

This section uses an ECS running CentOS 7.5 as an example.

#### Procedure

- 1. Log in to an ECS.
- 2. Run any of the following commands to query the EIP of the ECS:
  - curl icanhazip.com
  - curl ifconfig.me
  - curl ipinfo.io/ip
  - curl ipecho.net/plain
  - curl www.trackip.net/i

# 12.7 Why My EIPs Are Frozen? How Do I Unfreeze My EIPs?

EIP resources are frozen in the following situations:

- In arrears
  - Yearly/Monthly EIPs

If you do not renew yearly/monthly EIPs after the grace period ends, the EIPs enter a retention period and are frozen. Frozen EIPs cannot be used, modified, or released. If you still do not renew your EIPs before the retention period ends, they will be released and cannot be restored. To ensure the availability of your EIPs, renew them before they expire.

Pay-per-use EIPs

If your pay-per-use EIPs are still in arrears after the grace period ends, the EIPs enter the retention period and are frozen. Frozen EIPs cannot be used, modified, or released. If you still do not top up and pay off the arrears before the retention period ends, the EIPs will be released and cannot be restored. To ensure the availability of your EIPs, top up your account and pay off the arrears before they expire.

- Frozen EIPs will be available after you renew them or top up your account. You can renew your resources on the management console. For more details, see **Renewal Management**.

#### • Attacks

EIPs will be frozen if their associated instances have security violations, such as attacks. Frozen EIPs are unavailable and cannot be modified or released. To unfreeze EIPs, **create a service ticket**.

You can change an EIP for an instance by referring to Changing an EIP.

#### • Violations

The server bound to the EIP is suspected of violations and the EIP is frozen by the national supervision department. If you have confirmed that you have not been involved in any violation, contact the national supervision department to file an appeal. If the appeal is successful, Huawei Cloud will receive an unsealing instruction to unfreeze your resources.

You can change an EIP for an instance by referring to Changing an EIP.

# **13** Password and Key Pair

# 13.1 How Can I Change the Password for Logging In to a Linux ECS?

#### Solution

- 1. Use the existing key file to log in to the Linux ECS as user **root**.
- 2. Run the following command to reset the password of user **root**:

passwd

To reset the password of another user, replace **passwd** with **passwd** *username*.

3. Enter the new password as prompted. New password: Retype new password:

If the following information is displayed, the password has been reset: passwd: all authentication tokens updates successfully

# 13.2 What Is the Default Password for Logging In to a Linux ECS?

The default username for logging in to an ECS running Linux (such as CentOS or Ubuntu) is **root**, and the password is the one you set during the ECS creation.

If you forgot the login password or did not set a password when creating the ECS, you can **reset the password**.

# 13.3 How Can I Set the Validity Period of the Image Password?

If an ECS cannot be logged in because of expired image password, you can contact the administrator for handling.

If the ECS can still be logged in, you can perform the following operations to set the password validity period.

#### Procedure

The following operations use EulerOS 2.2 as an example.

- 1. Log in to the ECS.
- 2. Run the following command to check the password validity period:

#### vi /etc/login.defs

The value of parameter **PASS\_MAX\_DAYS** is the password validity period.

3. Run the following command to change the value of parameter **PASS\_MAX\_DAYS**:

chage -M 99999 user\_name

*99999* is the password validity period, and *user\_name* is the system user, for example, user **root**.

**NOTE** 

You are advised to configure the password validity period as needed and change it at a regular basis.

4. Run command **vi /etc/login.defs** to verify that the configuration has taken effect.





# 13.4 Resetting the Password for Logging In to an ECS in the OS

#### **Scenarios**

This section describes how to reset the password for logging in to an ECS in the OS when the password is about to expire, the password is forgotten, or you are logging in to the ECS for the first time. It is a good practice to change the initial password upon the first login.

You are advised to reset the ECS login password on the management console by referring to **Resetting the Password for Logging In to an ECS on the Management Console**.

#### Prerequisites

The ECS can be logged in.

#### Background

Table 13-1 shows the ECS password complexity requirements.

Parameter	Requirement
Password	Consists of 8 to 26 characters.
	• Contains at least three of the following character types:
	<ul> <li>Uppercase letters</li> </ul>
	<ul> <li>Lowercase letters</li> </ul>
	– Digits
	<ul> <li>Special characters for Windows ECSs: !@\$%^=+     [{()}]:,./?~#*</li> </ul>
	<ul> <li>Special characters for Linux ECSs: !@\$%^=+[{}]:,./?</li> <li>~#*</li> </ul>
	<ul> <li>Cannot contain the username or the username spelled backwards.</li> </ul>
	• Cannot contain more than two consecutive characters in the same sequence as they appear in the username. (This requirement applies only to Windows ECSs.)

 Table 13-1 Password complexity requirements

#### Windows

1. Log in to the ECS.

For details, see **Logging In to a Windows ECS**.

- 2. Press **Win+R** to start the **Run** dialog box.
- 3. Enter **cmd** to open the command-line interface (CLI) window.
- 4. Enter a new password that meets the requirements listed in **Table 13-1**. **net user Administrator** *New password*

#### Linux

- Use the existing key file to log in to the ECS as user **root** through SSH. For details, see Login Using an SSH Key.
- 2. Run the following command to reset the password of user **root**: **passwd**

To reset the password of another user, replace **passwd** with **passwd username**.

3. Enter a new password that meets the requirements listed in **Table 13-1** as prompted.

New password: Retype new password:

If the following information is displayed, the password has been changed: passwd: all authentication tokens updates successfully

### 13.5 Resetting the Password for Logging In to a Windows ECS Without the Password Reset Plug-in Installed

#### **Scenarios**

If the password reset plug-in is not installed on a Windows ECS or a password reset does not take effect, you can reset the password following the instructions provided in this section.

The method described in this section can only be used to change the password of a local Windows account, but not the password of a domain account.

For details about the operations performed on Linux ECSs, see **Resetting the Password for Logging In to a Linux ECS Without the Password Reset Plug-in Installed**.

#### **NOTE**

- If your ECS has the password reset plug-in installed, follow the instructions provided in Resetting the Password for Logging In to an ECS on the Management Console to obtain a new password.
- If your ECS was created using a public image, the password reset plug-in was installed on the ECS by default. For details, see **Resetting the Password for Logging In to an ECS on the Management Console**.
- Before performing operations in this section, you are advised to back up the system disk or create a system disk snapshot to prevent data loss.

#### Prerequisites

• A temporary Linux ECS running Ubuntu 14.04 or later is available. It is located in the same AZ and has the same CPU architecture as the target ECS.

**NOTE** 

- Currently, this operation can be performed only for Ubuntu 16.04 and Ubuntu 18.04 public images.
- You can select an existing ECS or purchase a temporary ECS. After the password of the purchased ECS is reset, you are advised to delete the ECS to avoid additional billing.
- You have bound an EIP to the temporary ECS and configured the apt-get source.
- You have used either of the following methods to install **ntfs-3g** and **chntpw** software packages on the temporary ECS:

Method 1:

Run the following command to install the **ntfs-3g** and **chntpw** software packages:

#### sudo apt-get install ntfs-3g chntpw

Method 2:

Download the ntfs-3g and chntpw software packages of the version required by the temporary ECS OS.

#### **Process Flow**



#### Figure 13-2 Process flow of resetting a password

#### Procedure

- 1. Stop the original ECS and detach the system disk.
  - a. Log in to the management console.
  - b. Click 💿 in the upper left corner and select your region and project.
  - c. Click = . Under **Compute**, click **Elastic Cloud Server**.
  - d. Stop the original Windows ECS, switch to the page providing details about the ECS, and click the **Disks** tab.

**NOTE** 

Do not forcibly stop the Windows ECS. Otherwise, password reset may fail.

e. Locate the row containing the system disk to be detached and click **Detach** to detach the system disk from the ECS.

- 2. Attach the system disk to the temporary ECS.
  - a. On the temporary ECS details page, click the **Disks** tab.
  - b. Click **Attach Disk**. In the displayed dialog box, select the system disk detached in step **1.e** and attach it to the temporary ECS.
  - c. Remotely log in to the temporary ECS.
  - d. Run the following command to view the directory of the system disk detached from the original Windows ECS now attached to the temporary ECS:

#### fdisk -l

e. Run the following command to mount the file system of the detached system disk to the temporary ECS:

#### mount -t ntfs-3g /dev/Result obtained in step 2.d /mnt/

For example, if the result obtained in step **2.d** is **xvde2**, run the following command:

#### mount -t ntfs-3g /dev/xvde2 /mnt/

If the following error information is displayed after the preceding command is executed, the NTFS file systems may be inconsistent. In such a case, rectify the file system inconsistency.

The disk contains an unclean file system (0, 0). Metadata kept in Windows cache, refused to mount. Failed to mount '/dev/xvde2': Operation not permitted The NTFS partition is in an unsafe state. Please resume and shutdown Windows fully (no hibernation or fast restarting), or mount the volume read-only with the 'ro' mount option.

Back up the disk data, run the following command to rectify the NTFS file system inconsistency, and attach the system disk:

#### ntfsfix /dev/Result obtained in step 2.d

For example, if the result obtained in step **2.d** is **xvde2**, run the following command:

#### ntfsfix /dev/xvde2

- 3. Change the password of the specified user and clear the original password.
  - a. Run the following command to back up the SAM file:

#### cp /mnt/Windows/System32/config/SAM /mnt/Windows/System32/ config/SAM.bak

b. Run the following command to change the password of the specified user:

#### chntpw -u Administrator /mnt/Windows/System32/config/SAM

c. Enter **1**, **q**, and **y** as prompted, and press **Enter**.

The password has been reset if the following information is displayed:

Select: [q] > 1
Password cleared!
Select: [q] > q
Hives that have changed:
#Name
0 <sam></sam>
Write hive files? (y/n) [n] : y
0 <sam> - OK</sam>

4. Stop the temporary ECS, detach the system disk, and attach the system disk to the original Windows ECS.

- a. Stop the temporary ECS, go to the ECS details page, and click the **Disks** tab.
- b. Click **Detach** to detach the data disk temporarily attached in step **2.b**.
- c. On the original Windows ECS details page, click the **Disks** tab.
- d. Click **Attach Disk**. In the displayed dialog box, select the data disk detached in step **4.b** and attach it to the original ECS as the system disk.
- 5. Start the original Windows ECS and set a new login password.
  - a. Click **Start** to start the original Windows ECS. After the status becomes **Running**, click **Remote Login** in the **Operation** column.
  - b. Click Start. Enter CMD in the search box and press Enter.
  - c. Run the following command to set a new password. The new password must meet the password complexity requirements described in **Application Scenarios for Using Passwords**.

net user Administrator New password

### 13.6 Resetting the Password for Logging In to a Linux ECS Without the Password Reset Plug-in Installed

#### Scenarios

If the password reset plug-in is not installed on a Linux ECS or a password reset does not take effect, you can reset the password following the instructions provided in this section.

This section describes how to reset the password of user **root**. After resetting the password, you can log in to the ECS, and change the private key or reset the password of a non-**root** user.

For details about the operations performed on Windows ECSs, see **Resetting the Password for Logging In to a Windows ECS Without the Password Reset Plugin Installed**.

#### D NOTE

- If your ECS has the password reset plug-in installed, follow the instructions provided in **Resetting the Password for Logging In to an ECS on the Management Console** to obtain a new password.
- If your ECS was created using a public image, the password reset plug-in was installed on the ECS by default. For details, see **Resetting the Password for Logging In to an ECS on the Management Console**.
- Before performing operations in this section, you are advised to back up the system disk or create a system disk snapshot to prevent data loss.

#### Prerequisites

• A temporary Linux ECS is available. It is located in the same AZ and has the same CPU architecture as the target ECS.

#### **NOTE**

You can select an existing ECS or purchase a temporary ECS.

After the password of the purchased ECS is reset, you are advised to delete the ECS to avoid additional billing.

• You have bound an EIP to the temporary ECS.

#### **Process Flow**



#### Figure 13-3 Process flow of resetting a password

#### Procedure

1. Download the script for resetting the password and upload the script to the temporary ECS.

**Download and decompress the password reset script.** Use a connection tool, such as WinSCP, to upload the obtained **changepasswd.sh** script to the temporary ECS.

To download WinSCP, log in at https://winscp.net/.

- 2. Stop the original Linux ECS, detach the system disk from it, and attach the system disk to the temporary ECS.
  - a. Log in to the management console.
  - b. Click 💿 in the upper left corner and select your region and project.
  - c. Click = . Under Compute, click Elastic Cloud Server.
  - d. Stop the original ECS, switch to the page providing details about the ECS, and click the **Disks** tab.

**NOTE** 

Do not forcibly stop the original ECS. Otherwise, password reset may fail.

- e. Locate the row containing the system disk to be detached and click **Detach** to detach the system disk from the ECS.
- 3. Attach the system disk to the temporary ECS.
  - a. On the page providing details about the temporary ECS, click the **Disks** tab.
  - b. Click **Attach Disk**. In the displayed dialog box, select the system disk detached in step **2.e** and attach it to the temporary ECS.
- 4. Log in to the temporary ECS remotely and reset the password.
  - a. Locate the row containing the temporary ECS and click **Remote Login** in the **Operation** column.
  - But the following command to view the directory of the system disk detached from the original Linux ECS now attached to the temporary ECS:
     fdisk -l

Figure 13-4 Viewing the directory of the system disk

```
root@ecs-___:~# fdisk -l
Disk /dev/vda: 40 GiB, 42949672960 bytes, 83886080 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x43591807
Device
           Boot Start
                           End Sectors Size Id Type
∕dev∕vda1
                 2048 83884031 83881984 40G 83 Linux
           ×
Disk /dev/vdb: 40 GiB, 42949672960 bytes, 83886080 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x5e9a7bb5
Device
           Boot Start
                          End Sectors Size Id Type
                2048 83886079 83884032 40G 83 Linux
∕dev/vdb1 ×
```

c. Run the following commands in the directory where the changepasswd.sh script is stored to run the script for resetting the password:

chmod +x changepasswd.sh

#### ./changepasswd.sh

When you run the password reset script, if the system displays a message indicating that there is no command related to logical volume manager (LVM), such as the message "no lvs command", install an LVM tool on the temporary ECS. The LVM2 tool is recommended, which can be installed by running the **yum install lvm2** command.

#### D NOTE

If the original ECS and the temporary ECS both run CentOS 7, a mount failure may occur during script execution. To resolve this issue, replace **mount \$dev \$mountPath** with **mount -o nouuid \$dev \$mountPath** in the script.

d. Enter the new password and the directory obtained in step **4.b** as prompted.

If the following information is displayed, the password has been changed: set password success.

5. (Optional) Enable remote root login for non-root users.

#### vi /etc/ssh/sshd\_config

Modify the following settings:

- Change PasswordAuthentication no to PasswordAuthentication yes.
   Alternatively, uncomment PasswordAuthentication yes.
- Change PermitRootLogin no to PermitRootLogin yes.
   Alternatively, uncomment PermitRootLogin yes.
- Change the value of AllowUsers to root.
   Search for AllowUsers in the file. If AllowUsers is missing, add AllowUsers root at the end of the file.
- 6. Stop the temporary ECS, detach the system disk, attach the system disk to the original Linux ECS, and restart the original Linux ECS.
  - a. Stop the temporary ECS, switch to the page providing details about the ECS, and click the **Disks** tab.
  - b. Click **Detach** to detach the data disk temporarily attached in step **3**.
  - c. On the page providing details about the original Linux ECS, click the **Disks** tab.
  - d. Click **Attach Disk**. In the displayed dialog box, select the data disk detached in **6.b**.
- 7. Restart the original Linux ECS.

### 13.7 What Should I Do If the System Displays a Message Indicating that the Password Is Incorrect When I Remotely Log In to My ECS?

#### Solution

Check the network configuration of the ECS and determine whether the fault is caused by a **Cloud-Init** failure.

• Verify that port 80 is bypassed in both inbound and outbound directions in the security group to which the target ECS belongs.

#### Figure 13-5 Port 80

Transfer Direction	Туре	Protocol	Port Range/ICMP Type	Remote End
Outbound	IPv4	TCP	80	0.0.0.0/0 🥐
Inbound	IPv4	ТСР	80	0.0.0.0/0 ⑦

• Verify that DHCP is enabled in the subnet to which the target ECS belongs.

#### Figure 13-6 Checking DHCP status

Gateway and DNS	Information			
DHCP	Enabled	Gateway		
DNS Server Address		DHCP Lease Time	1day 🖉	?

#### D NOTE

After verifying the preceding configurations, restart the ECS, wait for 3 to 5 minutes, and remotely log in to the ECS using a password or key.

### 13.8 What Should I Do If I Cannot Log In to My ECS Using the Initial Password After I Use It for a Period of Time?

#### Solution

Check whether the remote login page can be displayed.

- If the login page cannot be displayed, an error may have occurred in the GuestOS process on the ECS. In such a case, contact customer service for troubleshooting.
- If the login page can be displayed, log in to the OS in single-user mode for troubleshooting. The procedure is as follows:
  - Check whether the password can be changed in single-user mode.

If the password can be changed, change it and contact customer service to check whether the password has been maliciously changed due to an attack.

- If the password cannot be changed, verify that the values of **hard** and **soft** in **/etc/security/limits.conf** are not greater than 65535.

# <domain> #</domain>	<type></type>	<item></item>	<∪a lue>	
‡×	soft	core	0	
<b>#</b> *	hard	rss	10000	
#@student	hard	nproc	20	
#@faculty	soft	nproc	20	
#@faculty	hard	nproc	50	
#ftp	hard	nproc	0	
#@student		maxlogins	4	

Change the password in single-user mode and try to log in to the ECS again.

### 13.9 Why Does Login to My ECS Using the Reset Password Fail?

#### Scenarios

You cannot use the new password that you set to log in to the ECS.

#### **NOTE**

Ensure that the one-click password reset plug-in is not blocked by security software. Otherwise, the one-click password reset function is unavailable. After the password is reset, you must restart the ECS for the new password to take effect.

#### Windows

Perform the following operations to locate the fault:

- **Step 1** Check whether port 80 in the outbound direction of the security group is permitted.
  - 1. Log in to the management console.
  - 2. Select the target ECS to switch to the page that provides details about the ECS.
  - 3. On the **Security Groups** tab, check whether the outbound rule allows access from port 80.

In the default security group rule, all ports are allowed in the outbound direction.

Figure 13-7 All ports allowed in the outbound direction

Security Group Rules						
Inbound Rules Outbou	nd Rules					
Security Group Name	Priority	Action	Protocol & Port (?)	Туре	Destination (?)	Description
-	100	Permit	All	IPv4	All	-
-	100	Permit	All	IPv6	All	-

**Step 2** Check whether DHCP is enabled in the VPC of the ECS.

- 1. On the ECS details page, click the VPC name to navigate to the VPC console.
- 2. In the VPC list, click the VPC name.
- 3. In the **Networking Components** area, click the number in the **Subnets** row to go to the **Subnets** page.
- 4. In the subnet list, click the subnet name to view its details.
- 5. In the **Gateway and DNS Information** area, check whether DHCP is enabled.
- **Step 3** If both the security group and DHCP are properly configured but one-click password reset fails to take effect, use the original password to log in to the ECS.
  - If the original password is invalid, reset the password. For details, see Resetting the Password for Logging In to a Windows ECS Without the Password Reset Plug-in Installed.
  - If the original password is valid, use it to log in to the ECS and reset the password. For details, see **Resetting the Password for Logging In to an ECS in the OS**.
- **Step 4** Check whether the password reset plug-in CloudResetPwdAgent has been installed on the ECS. To do so, perform the following operations:

Start the **Task Manager** and check whether **cloudResetPwdAgent** is displayed on the **Services** tab. As shown in the **Figure 13-8**, the password reset plug-in has been installed on the ECS. If no, the one-click password reset plug-in has not been installed on the ECS.

For details, see Installing the One-Click Password Reset Plug-in on an ECS.

File Options View					^	
Processes Performance Users Details	Services					
Name		PID	Description	Status		^
🔍 PerfHost			Performance Counter DLL Host	Stopped		
RetTcpPortSharing			Net.Tcp Port Sharing Service	Stopped		
🔍 Netlogon			Netlogon	Stopped		
S msiserver			Windows Installer	Stopped		
S MSDTC		2728	Distributed Transaction Coordinator	Running		
🔆 Keylso			CNG Key Isolation	Stopped		
G HostWatch		1632	HostWatch Service	Running		
🔅 HostGuard		1648	HostGuard Service	Running		
🔍 EFS			Encrypting File System (EFS)	Stopped		
aliagnosticshub.standardcollector.servic	e		Microsoft (R) Diagnostics Hub Stand	Stopped		
COMSysApp		2260	COM+ System Application	Running		
🔍 cloudResetPwdAgent			cloud reset password agent	Stopped		
😪 cloudbase-init			cloudbase-init	Stopped		
AppVClient			Microsoft App-V Client	Stopped		
ALG .			Application Layer Gateway Service	Stopped		
WalletService			WalletService	Stopped		
端 tiledatamodelsvc		1760	Tile Data model server	Running		
StateRepository		1760	State Repository Service	Running		
C EntAppSvc			Enterprise App Management Service	Stopped		
AppReadiness			App Readiness	Stopped		
AxInstSV			ActiveX Installer (AxInstSV)	Stopped		~
<					>	

Figure 13-8 Successful plug-in installation

#### Linux

Perform the following operations to locate the fault:

- **Step 1** Check whether port 80 in the outbound direction of the security group is permitted.
  - 1. Log in to the management console.
  - 2. Select the target ECS to switch to the page that provides details about the ECS.
  - 3. On the **Security Groups** tab, check whether the outbound rule allows access from port 80.

In the default security group rule, all ports are allowed in the outbound direction.

#### Figure 13-9 All ports allowed in the outbound direction

Security Group Rules							
Inbound Rules	Outboun	d Rules					
Security Group Nam	ie	Priority	Action	Protocol & Port (?)	Туре	Destination (?)	Description
_		100	Permit	All	IPv4	All	-
-		100	Permit	All	IPv6	All	

- Step 2 Check whether DHCP is enabled in the VPC of the ECS.
  - 1. On the ECS details page, click the VPC name to navigate to the VPC console.
  - 2. In the VPC list, click the VPC name.
  - 3. In the **Networking Components** area, click the number in the **Subnets** row to go to the **Subnets** page.
  - 4. In the subnet list, click the subnet name to view its details.
  - 5. In the Gateway and DNS Information area, check whether DHCP is enabled.
- **Step 3** If both the security group and DHCP are properly configured but one-click password reset fails to take effect, use the original password to log in to the ECS.
  - If the original password is invalid, enter the single-user mode and reset the password.

For details, see How Do I Reset the Password for User root in Single-User Mode on a Linux ECS?

- If the original password can be used, perform the following operations for further check:
  - a. Use the original password to log in to the ECS.
  - b. Run the **curl http://169.254.169.254/openstack/latest/resetpwd\_flag** command to check whether the one-click password reset function is available.
    - If the returned value is true, the password can be reset with a few clicks.
    - If any other value is returned, the password cannot be reset.



#### **Step 4** Check whether **CloudResetPwdAgent** has been installed.

- 1. Check whether the **CloudrResetPwdAgent** directory is available in the root directory on the ECS.
  - If the directory is available, go to **Step 4.2**.
  - If the directory is not available, the one-click password reset plug-in has not been installed on the ECS.

For details, see Installing the One-Click Password Reset Plug-in on an ECS.

2. Run the following command to check the CloudResetPwdAgent status:

#### service cloudResetPwdAgent status

If the command output is "unrecognized service", the one-click password reset plug-in has not been installed on the ECS.

For details, see Installing the One-Click Password Reset Plug-in on an ECS.

----End

## 13.10 Why Am I Seeing the Message Indicating That the Port Is Used by a One-Click Password Reset Plugin?

#### Symptom

When you attempt to run an application on an ECS, the system displays a message indicating that the required port is used by a one-click password reset plug-in.

#### **Possible Causes**

If an ECS works in AUTO mode, when its one-click password reset plug-in starts, the plug-in randomly uses a port, which may be a service port.

#### **NOTE**

The one-click password reset plug-in has been upgraded to work in PIPE mode by default.

- Newly created ECSs run in PIPE mode by default, and their one-click password reset plug-ins will not use service ports.
- Existing ECSs still work in AUTO mode, in which the plug-ins randomly select idle ports with the smallest port numbers ranging from 31000 to 32999.

#### Method 1 (Recommended): Modifying the wrapper Files of the One-Click Password Reset Plug-in for the PIPE Mode

In the wrapper files, change **AUTO (SOCKET)** to **PIPE**. After the change, the plugin will not use service ports.

- 1. Open CloudResetPwdAgent configuration files.
  - Linux

#### /CloudrResetPwdAgent/conf/wrapper.conf and / CloudResetPwdUpdateAgent/conf/wrapper.conf

Windows

C:\CloudrResetPwdAgent\conf\wrapper.conf and C:\CloudResetPwdUpdateAgent\conf\wrapper.conf

2. Add the following data to the end of the files:

#### wrapper.backend.type=PIPE

- 3. Restart CloudResetPwdUpdateAgent.
  - Linux

## /CloudResetPwdUpdateAgent/bin/cloudResetPwdUpdateAgent.script restart

- Windows
  - i. Press **Win+R** to start the **Run** text box.
  - ii. Enter Services.msc and click OK.

#### Figure 13-10 Run

	Run 🗙
	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	Services.msc
	OK Cancel Browse

iii. Right-click **cloud reset password update agent** and choose **Restart** from the shortcut menu.



-						
<b>Q</b> .		Servir	ces			
File Action View	Helo	001410				
at the lateral sector of						
silve mile   [1132] [232] [23						
Services (Local)	Services (Local)					
	cloud reset parameted update agent	Name	Description	Status	Startup Type	Log On As
		C App Readiness	Gets apps re		Manual	Local Syste
	Description:	Chapplication Experience	Processes e		Manual (Trig	Local System
	cloud reset password update agent	C. Application Identity	Determines		Manual (Trig	Local Service
		C. Application Information	Facilitates t	Running	Manual (Trig	Local System
	1	C. Application Laver Gateway	Provides su		Manual	Local Service
	1	C Application Management	Processes in		Manual	Local Syste
		C AppX Deployment Service (	Provides inf		Manual	Local System
		Ca. Background Intelligent Tran	Transfers fil		Manual	Local Syste
		Co, Background Tasks Infrastru	Windows in	Running	Automatic	Local System
		Call Base Filtering Engine	The Base Fil	Running	Automatic	Local Service
		Certificate Propagation	Copies user	Running	Manual	Local Syste
		Cloud Initialization Service	Service wra		Automatic	Acloudbas
		🖏 cloud reset password agent	cloud reset		Automatic	Local Syste
		Ch elected repet concentration	and according to a second to a second			
		CNG Key Start	ING Ke	Running	Manual (Trig	Local Syste
		COM+ E Stop	prts Sy	Running	Automatic	Local Service
		COM+ 5 Pause	ges th	Running	Manual	Local Syste
		Comput Resume	ceins e		Disabled	Local Syste
		Credenti Restart	des se		Manual	Local System
		Cryptog	des thr	Running	Automatic	Network S
		COM S All Tasks	* +COM	Running	Automatic	Local Syste
		Ch Device A Refresh	es pair		Manual (Trig	Local Syste
	1	Ca. Device In Descention	es a c		Manual (Trig	Local Syste
		CR. Device S	es the		Manual (Trig	Local System
		C DHCP C Help	ters an	Running	Automatic	Local Service
1		Ch. Diagnostic Policy Service	The Diagno	Running	Automatic (D	Local Service

#### Method 2: Modifying the Configuration to Change the Port Range

Modify the CloudResetPwdAgent configuration to change the default port range (31000–32999) for the password reset plug-in so that the service port is out of the port range.

For example, to change the port range for the password reset plug-in to 40000–42000, perform the following operations:

- 1. Open CloudResetPwdAgent configuration files.
  - Linux

/CloudrResetPwdAgent/conf/wrapper.conf and / CloudResetPwdUpdateAgent/conf/wrapper.conf

- Windows

C:\CloudrResetPwdAgent\conf\wrapper.conf and C:\CloudResetPwdUpdateAgent\conf\wrapper.conf

2. Add the following data to the configuration files:

wrapper.port.min=40000 wrapper.port.max=41000 wrapper.jvm.port.min=41001 wrapper.jvm.port.max=42000

Figure 13-12 Modifying the configuration files



- 3. Restart CloudResetPwdUpdateAgent.
  - Linux

/CloudResetPwdUpdateAgent/bin/cloudResetPwdUpdateAgent.script restart

- Windows
  - i. Press Win+R to start the Run text box.
  - ii. Enter Services.msc and click OK.

#### Figure 13-13 Run

	Run 🗙
	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	Services.msc 🗸
	🚱 This task will be created with administrative privileges.
	OK Cancel Browse

iii. Right-click **cloud reset password update agent** and choose **Restart** from the shortcut menu.





# 13.11 Why Does the One-Click Password Reset Plug-in Use Too Much VIRT and SHR?

#### Symptom

The one-click password reset plug-in uses too much VIRT and SHR.

<b>Iguic 13 13</b> viewing the virtual memory asac	virtual memory usage
--	----------------------

top - 14:56 Tasks: <b>1</b>	:06 up 4 total,	l day 0 r	s, 3:22 running,	, 1 use 1 slee	er, loa eping,	ad avera 0 stop	age: 0 oped.	.00, 0.02, 0 zombie	0.05	
%Cpu(s): 0 KiB Mem : KiB Swap:	.5 us, 3864028 0	0.5 tota tota	sy, 0.0 al, 137 al,	ni, 99. 704 free 0 free	0 id, e, 183 e,	0.0 wa 268 use 0 use	, 0.0 ed, 3 ed. 3	hi, 0.0 543056 buf 358852 ava	si, <b>0.0</b> f/cache il Mem	st
PID USER	PR	NI	VIRT	RES	SHR S	%CPU	%MEM	TIME+	COMMAND	
18240 root	20	0	2513828	61876	13036 S	0.0	1.6	0:00.75	java	

#### **Root Causes**

Memory used by applications is from the glibc memory pool. In versions earlier than glibc 2.10, there is only one memory pool named main arena. In glibc 2.10 and later versions, there is a memory pool named thread arena. Therefore, applications can use memory from two memory pools, which results in high usage of VIRT and SHR. You can limit the memory that can be used by the one-click password reset plug-in.

#### Procedure

- 1. Modify the parameters of the one-click password reset plug-in.
  - Run the following command to view the configuration file.
     vim /CloudResetPwdUpdateAgent/conf/wrapper.conf

Figure 13-16 wrapper.conf before modification



b. Delete the comment tag (#) at the beginning of wrapper.java.initmemory=16 and wrapper.java.maxmemory=64.

```
Figure 13-17 wrapper.conf after modification
```



Run the following commands to restart the one-click password reset plug-in.
 cd /CloudResetPwdUpdateAgent/bin/
 ./cloudResetPwdUpdateAgent.script restart

### **13.12 Disabling SELinux**

#### 

SUSE does not have the SELinux configuration files. You can skip this section.

#### Procedure

- Use the vi editor to open /etc/selinux/config.
   vi /etc/selinux/config
- 2. Press i to enter insert mode and set the value of SELINUX to disabled.

```
# This file controls the state of SELinux on the system.
# SELINUX- can take one of these three values:
# enforcing - SELinux security policy is enforced.
# permissive - SELinux prints warnings instead of enforcing.
# disabled - No SELinux policy is loaded.
SELINUX-disabled
# SELINUXTYPE- can take one of three two values:
# targeted - Targeted processes are protected,
# minimum - Modification of targeted policy. Only selected processes
# mls - Multi Level Security protection.
SELINUXTYPE-targeted
```

- 3. Press **Esc** and enter :wq to save and exit the file.
- 4. Run the following command to restart the cloud server to apply the change: **reboot**

### 13.13 What Should I Do If the One-Click Password Reset Plug-ins Installed on a Linux ECS Fail to Be Started?

#### **Scenarios**

The one-click password reset plug-ins installed on a Linux ECS fail to be started.

#### Symptom

When a user ran **sudo sh setup.sh** to install one-click password reset plug-ins, the following error message is displayed:

In the /var/log/message file, the following error information is displayed:

systemd[1]: Starting cloudResetPwdAgent... systemd[2324]: cloudResetPwdAgent.service: Failed to execute command: **Permission denied** systemd[2324]: cloudResetPwdAgent.service: Failed at step EXEC spawning /CloudrResetPwdAgent/bin/./ cloudResetPwdAgent.script: **Permission denied** systemd[1]: cloudResetPwdAgent.service: Control process exited, code=exited status=203 systemd[1]: cloudResetPwdAgent.service: Failed with result 'exit-code'. systemd[1]: Failed to start cloudResetPwdAgent.

The password reset plug-ins can be executed in the root directory only after Security-Enhanced Linux (SELinux) is disabled.

#### Solution

Step 1 Disable SELinux temporarily.

#### setenforce 0

- Step 2 Disable SELinux permanently.
- Step 3 Install the password reset plug-ins again.

#### sudo sh setup.sh

- If "cloudResetPwdAgent install successfully." is displayed and "Failed to start service cloudResetPwdAgent" is not displayed, the installation is successful.
- If the installation failed, check whether the installation environment meets requirements and install the plug-in again.

----End

### 13.14 How Can I Obtain the Key Pair Used by My ECS?

#### Symptom

You have created multiple key pairs, and you are trying to find the key pair to log in to the target ECS.

#### Procedure

- 1. Log in to the management console.
- 2. Click 🔍 in the upper left corner and select your region and project.
- 3. Under Compute, click Elastic Cloud Server.
- 4. On the **Elastic Cloud Server** page, select the target ECS.
- Click the name of the target ECS.
   The page providing details about the ECS is displayed.
- Obtain the Key Pair value.
   The value is the key pair used by the ECS.

### 13.15 How Can I Use a Key Pair?

#### Symptom

When you purchase an ECS, the system asks you to select a login mode. If you select **Key pair**, you are required to select an existing key pair or create a new pair.

If no key pair is available, create one on the management console.

#### Solution

1. In the navigation pane of the ECS console, choose **Key Pair**. Then, click **Create Key Pair**.



Figure 13-18 Creating a key pair

2. After the key pair is created, download the private key to a local directory.

Figure 13-19 Downloading a key pair



3. When purchasing an ECS, select the created or existing key pair in **Key pair**.

I acknowledge that I have the private key file KeyPair-e5a3.pem and that I will not be able to log in to my ECS without this file.							
After a Linux ECS is created, use this key pair to log in to the ECS. After a Windows ECS is created, locate the row that contains the ECS in password.							
i							

#### Figure 13-20 Selecting a key pair

### 13.16 Can I Download a Key Pair from My Phone?

No. This operation is not supported.

You can download the private key file only once when creating an ECS.

# 13.17 What Should I Do If a Key Pair Cannot Be Imported?

If you use Internet Explorer 9 to access the management console, the key pair may fail to import. In this case, perform the following steps to modify browser settings and then try again:

- 1. Click 🗱 in the upper right corner of the browser.
- 2. Select Internet Options.
- 3. Click the **Security** tab in the displayed dialog box.
- 4. Click Internet.
- 5. If the security level indicates **Custom**, click **Default Level** to restore to the default settings.
- 6. Move the scroll bar to set the security level to **Medium** and click **Apply**.
- 7. Click **Custom Level**.
- 8. Set Initialize and script ActiveX controls not marked as safe for scripting to Prompt.
- 9. Click Yes.

# 13.18 Why Does the Login to My Linux ECS Using a Key File Fail?

#### Symptom

When you use the key file created during your Linux ECS creation to log in to the ECS, the login fails.

#### **Possible Causes**

Possible causes vary depending on the image used to create the Linux ECS.

- Cause 1: The image that you used to create the Linux ECS is a private image, on which Cloud-Init is not installed.
- Cause 2: Cloud-Init is installed on the image, but you did not obtain the key pair when you created the ECS.

#### Solution

• If the issue is a result of cause 1, proceed as follows:

If you created a private image without installing Cloud-Init, you cannot customize the ECS configuration. As a result, you can log in to the ECS only using the original image password or key pair.

The original image password or key pair is the OS password or key pair you configured when you created the private image.

If you have forgotten the original image password or the key pair is lost, reset the password on the ECS console.

- If the issue is a result of cause 2, proceed as follows:
  - a. Locate the row containing the target ECS, click **More** in the **Operation** column, and select **Restart**.
  - b. Use the key file to log in to the ECS again and check whether the login is successful.
    - If the login is successful, no further action is required.
    - If the login fails, contact customer service for technical support.

# 13.19 What Should I Do If I Cannot Download a Key Pair?

The private key file of a key pair can be downloaded only once.

If your private key file has been lost, create a key pair and download the private key file again.

#### Solution

1. Log in to the management console and choose Key Pair.

#### Figure 13-21 Key Pair

	Key Pair @	+ Create Key Pair Import Key Pair		
Cloud Server Console				Enter a name. Q
Dashboard	Name	Fingerprint		Operation
Elastic Cloud Server	KeyPair-9c2b	9b.o4.3c.ce.a4.01.dc.55.fa.a4.36.4b.16.af.41.39		Delete
Dedicated Host				
Cloud Server Backup Service				
Bare Metal Server				
Elastic Volume Service 🛛 👻				
Dedicated Distributed Storage Service				
Volume Backup Service				
Image Management Service				
Auto Scaling ~				
Elastic Load Balance				
Key Pairs				

2. Click Create Key Pair.
#### Figure 13-22 Creating a key pair

Key Pair 🕲	+ Create Key Pair	Import Key Pair
Create Key Pair		×
Name Kepfail:85e4		

3. Click **OK** to save the private key to your local directory.

#### Figure 13-23 Saving the private key

Key Pair				
		Information	×	
Name KeyPair-938f	Fin bb:	downloaded the private key to your local directory. The private key can be downloaded only once so keep it secure.		
		ОК		

### 13.20 Why Does a Key Pair Created Using puttygen.exe Fail to Be Imported on the Management Console?

#### Symptom

When you try to import a key pair that you created using **puttygen.exe** on the management console, the system displays a message indicating that the import failed.

#### **Possible Causes**

The format of the public key content does not meet system requirements.

If you store a public key by clicking **Save public key** on PuTTY Key Generator, the format of the public key content will change. You cannot import the key on the management console.

#### Solution

Use the locally stored private key and **PuTTY Key Generator** to restore the format of the public key content. Then, import the public key to the management console.

1. Double-click **puttygen.exe** to open **PuTTY Key Generator**.

5	PuTTY Key Generator	? X
File Key Conversions	Help	
Key		
No key.		
Actions		
Generate a public/private ke	y pair	Generate
Load an existing private key	file	Load
Save the generated key	Save public k	ey Save private key
Parameters		
Type of key to generate:		25519 🔿 SSH-1 (RSA)
Number of bits in a generate	d key:	2048

Figure 13-24 PuTTY Key Generator

2. Click **Load** and select the private key.

The system automatically loads the private key and restores the format of the public key content in **PuTTY Key Generator**. The content in the red box in **Figure 13-25** is the public key whose format meets system requirements.

PuTTY Key Gene	rator		- ? - <b> </b>
e Key Conver	sions Help		
Key			
Public key for pastin	g into OpenSSH authorized	_keys file:	
ssh-rsa AAAAB3NzaC1yc2	EAAAAbus		
Key fingerprint:	ssh-rsa 1024 d3:07:0f:	1e:e9	and the s
Key comment:	rsa-key-20160919		
Key passphrase:			
Confirm passphrase:			
Actions			
Generate a public/p	rivate key pair		Generate
Load an existing priv	vate key file		Load
Save the generated	key	Save public key	Save private key
Parameters			
Type of key to gene	rate:	@ SS	4.2 DSA
SSH-1 (RSA)	S20-2 U24		TE DOM

Figure 13-25 Restoring the format of the public key content

- 3. Copy the public key content to a .txt file and save the file in a local directory.
- 4. Import the public key to the management console.
  - a. Log in to the management console.
  - b. Click 🔍 in the upper left corner and select your region and project.
  - c. Under Compute, click Elastic Cloud Server.
  - d. In the navigation pane on the left, choose Key Pair.
  - e. On the key pair page, click Import Key Pair.
  - f. Copy the public key content in the .txt file to **Public Key Content** and click **OK**.

### 13.21 What Is the Cloudbase-Init Account in Windows ECSs Used for?

#### Description

In Windows ECSs, **cloudbase-init** is the default account of the Cloudbase-Init agent program. It is used to obtain the metadata and execute configurations when an ECS starts.

#### **NOTE**

This account is unavailable on Linux ECSs.

Do not modify or delete this account or uninstall the Cloudbase-Init agent program. Otherwise, you will be unable to insert data to initialize an ECS created using a Windows private image.

#### Security Hardening for Randomized cloudbase-init Passwords

In Cloudbase-Init 0.9.10, the security of randomized **cloudbase-init** passwords has been hardened to ensure that the hash values (LM-HASH and NTLM-HASH) of the passwords are different.

In Windows, the hash passwords are in the format of "Username:RID:LM-HASH value:NT-HASH value".

For example, in "Administrator:500:C8825DB10F2590EAAAD3B435B51404EE:683020925C5D8569C 23AA724774CE9CC:::",

- Username: Administrator
- RID: 500
- LM-HASH value: C8825DB10F2590EAAAD3B435B51404EE
- NT-HASH value: 683020925C5D8569C23AA724774CE9CC

Use an image to create two ECSs, ecs01 and ecs02. Then, verify that the hash values of the **cloudbase-init** account for the two ECSs are different.

• LM-HASH and NTLM-HASH values of the cloudbase-init account for ecs01

#### Figure 13-26 ecs01



• LM-HASH and NTLM-HASH values of the **cloudbase-init** account for ecs02

#### Figure 13-27 ecs02

### 13.22 What Should I Do If Cloud-Init Does Not Work After Python Is Upgraded?

#### Symptom

Take an ECS running CentOS 6.8 as an example. After Python was upgraded from 2.6 to 2.7, Cloud-Init did not work. Data, such as the login password, key, and hostname could not be imported to the ECS using Cloud-Init.

After the **cloud-init -v** command was executed to view the Cloud-Init version, the system displayed errors, as shown in **Figure 13-28**.

Figure 13-28 Improper running of Cloud-Init

[root@ecs-8560 <u>1#_cloud_init_v</u>
Fraceback (most recent call last):
File "/usr/bin/cloud-init", line 39, in <module> from eloudinit import patcher</module>
ImportError: No module_named_cloudinit
[root@ecs-8560 <u>1#_cloud_init_initlo</u> cal
Traceback (most recent call last):
File/"/usr/bin/cloud-init", line 39, in <module></module>
from cloudinit import patcher
ImportError: No module named cloudinit
CrootGecs-8560 "1#

#### **Possible Causes**

The Python version used by Cloud-Init was incorrect.

#### Solution

Change the Python version used by Cloud-Init to the source version. To do so, change the environment variable value of **/usr/bin/cloud-init** from the default value **#!/usr/bin/python** to **#!/usr/bin/python2.6**.

Figure 13-29 Changing the Python version

[root@ecs-8	566	8 ~]#	head	-n 1	/usi	r/b	in/clou	d-init
#i/usr/bin/	pyt	thon2	.6					
Iroot@ecs-8	561	11 B	Is /	Isr/b	in/p	yth	m* -1h	
Irwxrwxrwx	1	root	root	24	Jul	19	10:55	/usr/bin/python 4 /usr/local/bin/python2.7
Irwxrwxrwx.	1	root	root	6	Jun	9	2017	/usr/bin/python2 -> python
-rwxr-xr-x	1	root	root	8.9K	Aug	18	2016	/usr/bin/python2.6

# **14** Application Deployment and Software Installation

#### 14.1 Can a Database Be Deployed on an ECS?

Yes. You can deploy a database of any type on an ECS.

#### 14.2 Does an ECS Support Oracle Databases?

Yes. You are advised to perform a performance test beforehand to ensure that the Oracle database can meet your requirements.

## 14.3 What Should I Do If a Msg 823 Error Occurs in Oracle, MySQL, or SQL Server System Logs After a Disk Initialization Script Is Executed?

#### Symptom

After a disk is added to an ECS and the disk initialization script is automatically executed upon ECS startup, the Msg 823 error occurs in the database system logs of the Oracle, MySQL, and SQL Server databases.

#### **Possible Causes**

During the execution of the disk initialization script **WinVMDataDiskAutoInitialize.ps1**, diskpart is invoked to enable the virtual disk service. After the execution is complete, diskpart exits and the virtual disk service is disabled. The automatic startup period of the built-in WinVMDataDiskAutoInitialize.ps1 overlaps the automatic startup period of the customer's database services, which may cause I/O operation errors.

The database uses Windows APIs (for example, ReadFile, WriteFile, ReadFileScatter, WriteFileGather) to perform file I/O operations. After performing

these I/O operations, the database checks for any error conditions associated with these API calls. If the API calls fail with an operating system error, the database reports error 823. To obtain Microsoft official instructions, see **MSSQLSERVER** error 823.

The 823 error message contains the following information:

- Whether the I/O operation is a read or write request
- The offset within the file where the I/O operation was attempted
- The database file against which the I/O operation was performed
- The operating system error code and error description in parentheses

The 823 error message usually indicates that there is a problem with underlying storage system or the hardware or a driver that is in the path of the I/O request. You can encounter this error when there are inconsistencies in the file system or if the database file is damaged.

#### Solution

- 1. Log in to the ECS, open the **Run** dialog box, enter **services.msc**, and press **Enter**.
- 2. Search for the virtual disk service and ensure that it has been stopped.

Figure 14-1 Checking the virtual disk status

🤜 🖦 🚺 🔝 👘 👘							
Console Root	Q Services (Local)						
See Component Services     Event Viewer (Local)	Virtual Disk	Name	Description	Status	Startup Type	Log On As	^
Services (Local)	Start the centice	💁 User Experience Virtualizatio	Provides su		Disabled	Local Syste.	
	Statt the service	🎱 User Manager	User Manag	Running	Automatic (T	Local Syste.	
		🖳 User Profile Service	This service	Running	Automatic	Local Syste.	
	Description:	🍓 Virtual Disk	Provides m		Manual	Local Syste.	
	Provides management services for	🔍 vm-agent	Enables inte	Running	Automatic	Local Syste.	
1	disks, volumes, file systems, and	🖏 VMTools Daemon Service	VMTools Da	Running	Automatic	Local Syste.	

If the virtual disk service is running, stop it in either of the following ways:

- On the Services page of the Windows operating system, right-click
   Virtual Disk and choose Stop.
- Open PowerShell and run the following command to stop the virtual disk service:

Get-Service -Name "vds" | Where {\$\_.status -eq 'Running'} | Stop-Service -Force

- 3. Disable the disk initialization script WinVMDataDiskAutoInitialize.ps1 from automatically initializing Windows data disks upon ECS startup.
  - a. Open the **Run** dialog box, enter **taskschd.msc**, and press **Enter**. The **Task Scheduler** window is displayed.
  - b. Open **Task Scheduler Library**, right-click **WinVMDataDiskInitialize** in the scheduled task list, and choose **End**.

① Task Scheduler		– 🗆 X
File Action View Help		
🗢 🄿 🞽 🖬 🚺 🖬		
Task Scheduler (Local)	Name       Status       Triggers         User Feed S       Ready       At 4:48 AM every day - Trigger expires at 3/9/20         WinVMData       Ready       At         End       Disable       Export         General       Triggers       Actions         General       Triggers       Actions         Name:       WinVMDataDiskInitialize       tory (disabled)         Name:       ECS-FDES\Administrator       Description:         Security options       Security options       Security options	Actions       Task Scheduler Library       Image: Scheduler Sched
	When running the task, use the following user account: $\checkmark$	Properties     Delete
	< >>	

Figure 14-2 Ending WinVMDataDiskInitialize

- 4. Restart the ECS or take the data disk offline and then online.
  - a. Open the **Run** dialog box, enter **diskmgmt.msc**, and press **Enter**. The **Disk Management** window is displayed.
  - b. Right-click the block to which the disk belongs and choose Offline.

Figure 14-3 Setting disk offline



c. Right-click the block to which the disk belongs and choose **Online**.

#### Figure 14-4 Setting disk online

<b>Disk 0</b> Basic 40.00 GB Online	<b>System Reserved</b> 549 MB NTFS Healthy (System, Activ
Olisk 1 Basic 100.00 GB Offline	Online Properties Help

# **15** File Upload/Data Transfer

#### 15.1 How Do I Upload Files to My ECS?

#### Windows

• File transfer tool

Install a file transfer tool, such as FileZilla on both the local computer and the Windows ECS and use it to transfer files. For details, see How Can I Use FTP to Transfer Files from a Local Windows Computer to a Windows or Linux ECS?

• (Recommended) Local disk mapping

Use MSTSC to transfer files. This method does not support resumable transmission. Do not use this method to transfer large files.

For details, see How Can I Transfer Files from a Local Windows Computer to a Windows ECS?

• FTP site

Transfer files through an FTP site. Before transferring files from a local computer to a Windows ECS, set up an FTP site on the ECS and install FileZilla on the local computer.

For details, see How Can I Use FTP to Transfer Files from a Local Windows Computer to a Windows or Linux ECS?

• OBS

You can use OBS to store any type of data. After storing data such as images and videos in OBS buckets, you can access OBS from the ECS and download data from the buckets. For details, see **How Can I Use OBS to Transfer Files from a Local Windows Computer to a Windows ECS?** 

• From a local Mac

If your local computer runs macOS, use Microsoft Remote Desktop for Mac to transfer files to the Windows ECS. For details, see **How Can I Transfer Files from a Local Mac to a Windows ECS?** 

#### Linux

• From a local Windows computer

Use WinSCP to transfer the files to the Linux ECS. For details, see **How Can I** Use WinSCP to Transfer Files from a Local Windows Computer to a Linux ECS?

Before transferring files from a local computer to a Linux ECS, set up an FTP site on the ECS and install FileZilla on the local computer. For details, see How Can I Use FTP to Transfer Files from a Local Windows Computer to a Windows or Linux ECS?

• From a local Linux computer

Use SCP to transfer the files to the Linux ECS. For details, see **How Can I Use** SCP to Transfer Files Between a Local Linux Computer and a Linux ECS?

Use SFTP to transfer the files to the Linux ECS. For details, see **How Can I Use SFTP to Transfer Files Between a Local Linux Computer and a Linux ECS?** 

Use FTP to transfer the files to the Linux ECS. For details, see **How Can I Use FTP to Transfer Files Between a Local Linux Computer and a Linux ECS?** 

#### Does an ECS Support FTP-based File Transferring by Default?

No. You need to install and configure FTP so that the ECS supports FTP-based file transfer.

### 15.2 How Can I Transfer Files from a Local Windows Computer to a Windows ECS?

#### **Scenarios**

You want to transfer files from a local Windows computer to a Windows ECS through an MSTSC-based remote desktop connection.

#### Prerequisites

- The target ECS is running.
- You have bound an ECS to the EIP. For details about how to bind an EIP, see **Binding an EIP**.
- Access to port 3389 is allowed in the inbound direction of the security group which the ECS belongs to. For details, see **Configuring Security Group Rules**.

#### Solution

1. On the local Windows computer, click **Start**. In the **Search programs and files** text box, enter **mstsc**.

The Remote Desktop Connection window is displayed.

2. Click **Options**.

😼 Remote 🛙	Desktop Connection	_ 🗆 X
	Remote Desktop Connection	
<u>C</u> omputer:	Example: computer.fabrikam.com	
User name:	None specified	
The compute name.	er name field is blank. Enter a full remote computer	
💽 Show <u>C</u>	Options Connect	<u>H</u> elp

3. On the **General** tab, enter the EIP bound to the ECS and username **Administrator** for logging in to the ECS.

🛼 Remote	Desktop Connectio	n		_ 🗆 X
	Remote De Connect	sktop <b>ion</b>		
General [ Logon se	Display Local Resour ttings Enter the name of the	ces Program: e remote comp	s Experience   uter.	Advanced
	Computer: Exam User name: Admin	ple: computer. nistrator	fabrikam.com	
	The computer name name.	field is blank. E	inter a full remote	computer
_ ⊢ Connectio	on settings			
	Save the current con saved connection.	nection setting	ps to an RDP file	or open a
	Save	Save As		pen
🕒 Hide Op	otions		Connect	Help

4. Click the Local Resources tab and verify that Clipboard is selected in the Local devices and resources pane.

🔙 Remote De	esktop Connection 📃 🔲	×
	Remote Desktop Connection	
General Dis	splay Local Resources Programs Experience Advanced	_
Remote aud	dio Configure remote audio settings. Settings	
- Keyboard -	Apply Windows key combinations: Only when using the full screen Example: ALT+TAB	
Local devic	es and resources Choose the devices and resources that you want to use in your remote session.	
	Printers     Clipboard     More	
🔺 Hide Optio	ons Connect Help	

- 5. Click More.
- 6. In the **Drives** pane, select the local disk where the file to be transferred to the Windows ECS is located.

😼 Remote Desktop Connection	×
Remote Desktop Connection	
<ul> <li>Local devices and resources</li> <li>Choose the devices and resources on this computer that you want to use in your remote session.</li> </ul>	
<ul> <li>✓ Smart cards</li> <li>Ports</li> <li>□ Drives</li> <li>✓ Local Disk (C:)</li> <li>□ Drives that I plug in later</li> <li>④ Other supported Plug and Play (PnP) devices</li> </ul>	
OK Cance	:

- 7. Click **OK** and log in to the Windows ECS.
- 8. Choose **Start** > **Computer**.

The local disk is displayed on the Windows ECS.

9. Double-click the local disk to access it and copy the file to be transferred to the Windows ECS.

### 15.3 How Can I Use OBS to Transfer Files from a Local Windows Computer to a Windows ECS?

#### **Scenarios**

Through an intranet, an ECS can access OBS in which any type of data can be stored. After storing data such as images and videos in OBS, you can access OBS from the ECS and download data from OBS. The intranet access is free of charge and prevents data transmission interruptions caused by unstable networks. This maximizes transmission performance, reduces traffic costs, and minimizes data transmission failures.

#### **NOTE**

When you access OBS through an intranet, ensure that the target OBS resources are in the region where the ECS resides. If they are in different regions, you can access the OBS only through the Internet and traffic fees will be incurred.

#### Procedure

To transfer files to a Windows ECS using OBS Browser+, perform the following operations:

#### • Step 1: Create a Bucket on the OBS Management Console

Before transferring files from a local computer to OBS, create a bucket.

This section describes how to create a bucket on the OBS management console. For more details about how to create a bucket, see **Creating a Bucket**.

#### • Step 2: Upload Local Files to the Bucket Using OBS Browser+

After creating a bucket, you can upload files to the bucket. OBS stores the files you upload to the bucket as objects.

This section uses OBS Browser+ as an example to upload files.

#### **NOTE**

- Through the OBS management console, you can upload files with a total size lesser than 5 GB.
  - In batch upload mode, you can upload a maximum of 100 files at a time, and the total size of the files cannot exceed 5 GB.
  - In single upload mode, you can upload only one file at a time, and the file size cannot exceed 50 MB.
- Using OBS Browser+ and obsutil, you can upload files with a total size lesser than 48.8 TB.
- Using SDK/API PUT, POST, or append operations, you can upload files with a total size lesser than 5 GB.
- Using SDK/API multipart upload or API resumable upload, you can upload files with a total size lesser than 48.8 TB.

For details, see **Uploading an Object**.

#### • Step 3: Use OBS Browser+ on the Windows ECS to Access the Bucket Through the Intranet

OBS Browser+ is a GUI-based Windows desktop application for OBS resource management. After configuring the private DNS server address of your ECS, you can use OBS Browser+ to access the bucket through the intranet and download data such as images and videos from the bucket.

#### Step 1: Create a Bucket on the OBS Management Console

- 1. In the navigation pane on the OBS management console, select **Object Storage**.
- 2. Click **Create Bucket** in the upper right corner of the page.
- 3. Choose a region and set the bucket name.
- 4. Set a storage class. In this example, **Standard** is the storage class.

Standard storage is suitable for frequently accessed (multiple times per month) data such as small and essential files that require low latency.

The storage class of a bucket is inherited by objects uploaded to the bucket by default. You can also change the storage class of an object when uploading it to the bucket.

- 5. Set other parameters, such as **Bucket Policy**, **Default Encryption**, and **Direct Reading**. For details, see **Creating a Bucket**. In this example, default settings are retained.
- 6. Click **Create Now**. The created bucket is displayed on the **Object Storage Service** page.

#### Step 2: Upload Local Files to the Bucket Using OBS Browser+

**Step 1** Create access keys (AK and SK) on the management console.

When you access OBS using OBS Browser+, OBS requires the access keys (AK and SK) for authentication. Therefore, obtain the access keys (AK and SK) before you access OBS.

- 1. On the management console, click the username in the upper right corner and select **My Credentials** from the drop-down list.
- 2. In the navigation pane, select Access Keys.
- 3. Click Create Access Key.
- 4. In the Create Access Key dialog box, enter the login password.
- 5. Enter the verification code sent to your email or mobile phone.
- 6. Click **OK** to download the access key. Anyone who possesses your access keys can decrypt your login information. Therefore, keep your access keys secure.

**Step 2** Install OBS Browser+ on the local computer.

1. Download the OBS Browser+ installation package.

For details, see **Downloading OBS Browser+**.

**NOTE** 

Currently, the OBS Browser+ package is stored in a bucket in the **CN North-Beijing1** region. Servers in the **CN North-Beijing1** region can download the package through the private network. Servers not in the **CN North-Beijing1** region can download the package using EIPs. Alternatively, you can upload the package to a bucket in the same region as your server and then download the package.

- 2. Decompress the downloaded software package and run **obs-browser-plus Setup** *xxx*.exe to install OBS Browser+.
- 3. Double-click **obs-browser-plus** on the **Start** menu or the desktop shortcut to run OBS Browser+.
- Step 3 Log in to OBS Browser+.

For details, see Logging In to OBS Browser+.

**Step 4** Use OBS Browser+ to upload files.

After logging in to OBS Browser+, search for the bucket created in **Step 1: Create a Bucket on the OBS Management Console** to access data.

For details, see OBS Browser+ Best Practices.

----End

### Step 3: Use OBS Browser+ on the Windows ECS to Access the Bucket Through the Intranet

**Step 1** Log in to the Windows ECS and check whether the private DNS server address has been configured.

In the cmd window, run the **ipconfig /all** command to check whether the **DNS Server** value is the private DNS server address in the region where the ECS resides.

#### D NOTE

Huawei Cloud provides different private DNS server addresses for different regions. For details, see **What Are Huawei Cloud Private DNS Server Addresses?** 

If the private DNS server address has not been configured, **configure the intranet DNS**.

- Step 2 Install OBS Browser+ on the ECS.
  - 1. Download the OBS Browser+ installation package.

For details, see **Downloading OBS Browser+**.

- 2. Decompress the downloaded software package and run **obs-browser-plus Setup** *xxx*.exe to install OBS Browser+.
- 3. Double-click **obs-browser-plus** on the **Start** menu or the desktop shortcut to run OBS Browser+.
- **Step 3** Log in to OBS Browser+.

For details, see Logging In to OBS Browser+.

Step 4 Use OBS Browser+ to download files from the bucket.

After logging in to OBS Browser+, search for the bucket created in **Step 1: Create a Bucket on the OBS Management Console**. Then, you can access OBS through the Huawei Cloud intranet on the Windows ECS to perform basic data access operations and other advanced settings.

For details, see OBS Browser+ Best Practices.

Then, files are transferred from the local Windows computer to the Windows ECS using OBS Browser+.

----End

### 15.4 How Can I Use WinSCP to Transfer Files from a Local Windows Computer to a Linux ECS?

#### Scenarios

WinSCP can be used to securely copy-paste files across local and remote computers. Compared with FTP, WinSCP allows you to use a username and password to access the destination server without any additional configuration on the server.

To transfer a file from a local Windows computer to a Linux ECS, WinSCP is commonly used. This section describes how to transfer files from a local Windows computer to a Linux ECS using WinSCP. In this example, the ECS running CentOS 7.2 is used as an example.

#### Prerequisites

- The target ECS is running.
- You have bound an ECS to the EIP. For details about how to bind an EIP, see **Binding an EIP**.

• Access to port 22 is allowed in the inbound direction of the security group which the ECS belongs to. For details, see **Configuring Security Group Rules**.

#### Solution

- 1. **Download WinSCP**.
- 2. Install WinSCP.
- 3. Start WinSCP.

Y New Site	Eile protocol:	
	SFTP	
	<u>H</u> ost name:	Po <u>r</u> t number:
		22
	User name:	Password:
	root	•••••
	Edit	A <u>d</u> vanced

Set parameters as follows:

- File protocol: Set this to SFTP or SCP.
- **Host name**: Enter the EIP bound to the ECS. Log in to the management console to obtain the EIP.
- **Port number**: **22** by default.
- **User Name**: Enter the username for logging in to the ECS.
  - If the ECS is logged in using an SSH key pair,
    - The username is **core** for a CoreOS public image.
    - The username is **root** for a non-CoreOS public image.
  - If the ECS is logged in using a password, the username is root for a public image (including CoreOS).
- **Password**: the password set when you purchased the ECS or converted using a key.
- 4. Click **Login**.
- 5. Drag a file from the local computer on the left to the remotely logged in ECS on the right to transfer the file.

### 15.5 How Can I Transfer Files from a Local Mac to a Windows ECS?

#### Scenarios

This section describes how to use Microsoft Remote Desktop for Mac to transfer files from a local Mac to a Windows ECS.

#### Prerequisites

- The remote access tool supported by Mac has been installed on the local Mac. This section uses Microsoft Remote Desktop for Mac as an example.
   Download Microsoft Remote Desktop for Mac.
- The target Windows ECS has had an EIP bound.
- When you log in to the ECS for the first time, ensure that RDP has been enabled on it. To do so, use VNC to log in to the ECS, enable RDP, and access the ECS using MSTSC.

#### D NOTE

By default, RDP has been enabled on the ECSs created using a public image.

#### Procedure

- 1. Start Microsoft Remote Desktop.
- 2. Click Add Desktop.

888 = 4			emote besktop		
	<b>⊁ ~ + ~</b> [	PCs	Workspaces	Q Search	
				_	
				0	
	Add your first connection to	desktop get started.			
	Add Deskto	00			
			9		

#### Figure 15-1 Add Desktop

- 3. Set login parameters.
  - **PC name**: Enter the EIP bound to the target Windows ECS.
  - User account: Select Add User Account from the drop-down list.
     The Add a User Account dialog box is displayed.
    - i. Enter the username **administrator** and password for logging in to the Windows ECS and click **Add**.

Figure 15-2 Add user account

Username:	
Password:	•••••
	Show password
Friendly name:	Optional

#### Figure 15-3 Add PC

PC name:	
User account:	
General	Display Devices & Audio Folders
Friendly name:	Optional
Group:	Saved PCs
Gateway:	No gateway
	Bypass for local addresses
	Reconnect if the connection is dropped
	Swap mouse buttons

- 4. Select the folder to be uploaded.
  - a. Click **Folders** and switch to the folder list.
  - b. Click + in the lower left corner, select the folder to be uploaded, and click **Add**.
- 5. On the **Remote Desktop** page, double-click the icon of the target Windows ECS.

• • •	Microsoft R	emote Desktop	
888 ≡ * * + *	PCs	Workspaces	Q Search
✓ Saved PCs			

#### Figure 15-4 Double-click for login

6. Confirm the information and click **Continue**.

You have connected to the Windows ECS.

View the shared folder on the ECS.

Copy the files to be uploaded to the ECS. Alternatively, download the files from the ECS to your local Mac.

### 15.6 How Can I Use SCP to Transfer Files Between a Local Linux Computer and a Linux ECS?

#### Scenarios

You want to use SCP to transfer files between a local Linux computer and a Linux ECS.

#### Procedure

Log in to the management console. On the **Elastic Cloud Server** page, obtain the EIP bound to the target ECS in the **IP Address** column.

#### • Uploading files

Run the following command on the local Linux computer to upload files to the Linux ECS:

**scp** *Path in which the files are stored on the local computer Username@EIP:Path in which the files are to be stored on the Linux ECS* 

For example, to transfer the **/home/test.txt** file on the local computer to the **/home** directory on the ECS whose EIP is 139.x.x.x, run the following command:

scp /home/test.txt root@139.x.x.x:/home

Enter the login password as prompted.

#### Figure 15-5 Setting file uploading



#### • Downloading files

Run the following command on the local Linux computer to download files from the Linux ECS:

**scp** *Username@EIP:Path in which the files are stored on the Linux ECS Path in which the files are to be stored on the local computer* 

For example, to download the **/home/test.txt** file on the ECS whose EIP is 139.x.x.x to the **/home** directory on the local computer, run the following command:

#### scp root@139.x.x.x:/home/test.txt /home/

Enter the login password as prompted.

Figure 15-6 Setting file downloading



### 15.7 How Can I Use SFTP to Transfer Files Between a Local Linux Computer and a Linux ECS?

#### **Scenarios**

You want to use SFTP to transfer files between a local Linux computer and a Linux ECS. The following uses CentOS as an example.

#### Procedure

- 1. Log in to the ECS as user **root**.
- 2. Run the following command to check the OpenSSH version, which is expected to be 4.8p1 or later:

#### ssh -V

Information similar to the following is displayed: # OpenSSH\_7.4p1, OpenSSL 1.0.2k-fips 26 Jan 2017

3. Create a user group and a user (for example, **user1**).

groupadd sftp

useradd -g sftp -s /sbin/nologin user1

4. Set a password for the user.

passwd user1

#### Figure 15-7 Setting a password

```
[root@ecs-9a32-0001 ~]# passwd user1
Changing password for user user1.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: all authentication tokens updated successfully.
[root@ecs-9a32-0001 ~]#
```

5. Assign permissions to directories.

chown root:sftp /home/user1 chmod 755 -R /home/user1 mkdir /home/user1/upload chown -R user1:sftp /home/user1/upload chmod -R 755 /home/user1/upload

 Run the following command to edit the sshd\_config configuration file: vim /etc/ssh/sshd\_config

Comment out the following information: #Subsystem sftp /usr/libexec/openssh/sftp-server

Add the following information:

Subsystem sftp internal-sftp Match Group sftp ChrootDirectory /home/%u ForceCommand internal-sftp AllowTcpForwarding no X11Forwarding no

#### Figure 15-8 sshd\_config file with the added information



7. Run the following command to restart the ECS:

#### service sshd restart

Alternatively, run the following command to restart sshd: systemctl restart sshd

- Run the following command on the local computer to set up the connection: sftp root@IP address
- 9. Run the **sftp** command to check the connection.



10. Transfer files or folders.

To upload files or folders, run the **put -r** command.

sftp> put -r ceshi/				
Uploading ceshi/ to /root/ceshi				
Entering ceshi/				
ceshi/mysql57-community-release-el	100%	9224	9.0KB/s	00:00
ceshi/haha	100%	28	0.0KB/s	00:00
sftp>				

sftp> get -r s3fs\_1.80\_centos6.5\_x86\_64.rpm
Fetching /root/s3fs\_1.80\_centos6.5\_x86\_64.rpm to s3fs\_1.80\_centos6.5
x86\_64.rpm
/root/s3fs\_1.80\_centos6.5\_x86\_64.r 100% 3250KB 3.2MB/s 00:00
sftp>

### 15.8 How Can I Use FTP to Transfer Files from a Local Windows Computer to a Windows or Linux ECS?

#### **Scenarios**

You want to use FTP to transfer files from a local Windows computer to an ECS.

#### Prerequisites

- An EIP has been bound to the ECS and access to TCP port 21 is allowed in the inbound direction of the security group to which the ECS belongs.
- You have enabled FTP on the target ECS. If you have not enabled FTP, check the following links to know how to set up an FTP site:
  - If the target ECS runs Windows, see **Setting Up an FTP Site (Windows)**.
  - If the target ECS runs Linux, see Setting Up an FTP Site (Linux).

#### Procedure

- 1. Download FileZilla and install it on the local Windows computer.
- 2. On the local Windows computer, open FileZilla, enter the information about the target ECS, and click **Quickconnect**.
  - Host: EIP bound to an ECS

- **Username**: username set when the FTP site was set up
- **Password**: password of the username
- **Port**: FTP access port, which is port 21 by default

Figure 15-9 Setting connection parameters

🛃 FileZilla	Î.								_ (	X
File Edit	Transfer Server Help									
📠 • [	E 🖥 🖉 🖳 😋 🛪 🔌 🌲 –									
Host:	Username:	Passw	ord: 💽	•••••	••	Port:	21	Qu	ickconnect	•
Status:	Sending keep-alive command									
										•
Local site:	D:\dev\mingw\	▼ Re	note sit	te: /pi	ublic_html/					•
	🖻 🛅 dev	• •	<u>a</u> 1							
	🗄 🗁 mingw		ė 🙆	) public	_html					
	🖻 🛅 msys			👚 🕜 ie	bar					
	🛅 bin			👚 🕜 ki	ssa					
	🕀 🛅 doc	•		🕐 N	mkalkis					
Filename	A	▲ File	name	Δ						

3. Drag files from the local computer on the left to the target ECS on the right to transfer them.

### 15.9 How Can I Use FTP to Transfer Files Between a Local Linux Computer and a Linux ECS?

#### Scenarios

You want to use FTP on a local Linux computer to transfer files between the computer and a Linux ECS.

#### Prerequisites

You have enabled FTP on the target ECS. If you have not enabled FTP, check the following links to know how to set up an FTP site:

- An EIP has been bound to the ECS and access to TCP port 21 is allowed in the inbound direction of the security group to which the ECS belongs.
- You have enabled FTP on the target ECS. If you have not enabled FTP, check the following links to know how to set up an FTP site:
  - If the target ECS runs Windows, see **Setting Up an FTP Site (Windows)**.
  - If the target ECS runs Linux, see **Setting Up an FTP Site (Linux)**.

#### Procedure

Install FTP on the local Linux computer.
 Take CentOS 7.6 as an example. Run the following command to install FTP:

#### yum -y install ftp

Run the following command to access the ECS:
 ftp EIP bound to the ECS

Enter the username and password as prompted for login.

Uploading files

Run the following command to upload local files to the ECS:

put Path in which files are stored on the local computer

For example, to upload the **/home/test.txt** file on the local Linux computer to the ECS, run the following command:

#### put /home/test.txt

Downloading files

Run the following command to download files on the ECS to the local computer:

**get** *Path in which the files are stored on the ECS Path in which the files are to be stored on the local computer* 

For example, to download the **test.txt** file on the ECS to the local Linux computer, run the following command:

get /home/test.txt

### 15.10 How Can I Transfer Data Between a Local Computer and a Windows ECS?

#### Method 1: Install a Data Transfer Tool

Install a data transfer tool, such as FileZilla on both the local computer and the Windows ECS to transmit data.

#### Method 2: Configure Local Disk Mapping

Use MSTSC to transfer data. This method does not support resumable transmission. Do not use this method to transfer large files. If you want to transfer a large file, use FTP.

- 1. Log in to the local computer.
- 2. Press Win+R to open the Run text box.
- 3. Enter **mstsc** to start the remote desktop connection.

Figure 15-10 Remote Desktop Connection

5	Remote Desktop Co	onnection	-	
	Remote Desktop Connection			
<u>C</u> omputer: User name: You will be a:	192.168.2.1 None specified sked for credentials when you con	nect.	~	
Show O	ptions	Connect		<u>H</u> elp

- 4. In the **Remote Desktop Connection** window, click 💽 in the lower left corner.
- 5. Click the Local Resources tab and then click More in the Local devices and resources pane.

Figure 15-11 Local Resources

5	Remote Desktop Connection 🗕 🗖 🗙
	Remote Desktop Connection
General Di	splay Local Resources Programs Experience Advanced
Remote au	idio Configure remote audio settings. Settings
Keyboard	Apply Windows key combinations: Only when using the full screen Example: ALT+TAB
- Local devi	ces and resources
-	Choose the devices and resources that you want to use in your remote session.
	Printers Clipboard
	More
Hide Opt	ions Connect Help

6. Select **Drives** and **Other supported Plug and Play (PnP) devices** and click **OK** to map all disks on the local computer to the Windows ECS.

If you want to map only certain disks on the local computer to the Windows ECS, expand **Drives** and select the desired ones.

Figure 15-12 Loca	devices	and resourc	es
-------------------	---------	-------------	----

5	Remote Desktop Connection	x
4	Remote Desktop Connection	
- Local Ch	l devices and resources noose the devices and resources on this computer that you want to e in your remote session	
	<ul> <li>✓ Smart cards</li> <li>Ports</li> <li>✓ Drives</li> <li>✓ Other supported Plug and Play (PnP) devices</li> </ul>	
	OK Cance	ł

7. Open the **Remote Desktop Connection** window again and enter the EIP bound to the Windows ECS in the **Computer** text box.

Figure 15-13 Connecting a remote desktop to the Windows ECS

5	Remote Desktop Co	nnection 🗕 🗖 🗙
	Remote Desktop Connection	
<u>C</u> omputer:	192.168.2.1	~
User name:	None specified	
You will be a	sked for credentials when you conn	ect.
Show O	ptions	Connect <u>H</u> elp

8. Click Connect.

Log in to the Windows ECS.

9. Check the disks of the Windows ECS. If the disk information of the local computer is displayed, data can be transmitted between your local computer and the Windows ECS.



#### Figure 15-14 Viewing disks

#### Method 3: Set Up an FTP Site

Set up an FTP site and transfer files to the ECS.

## 15.11 What Should I Do If the Connection Between the Client and the Server Times Out When I Upload a File Using FTP?

#### Symptom

When I attempted to access the server from the client to upload a file using FTP, the connection timed out.

#### Constraints

The operations described in this section apply to FTP on local Windows only.

#### **Possible Causes**

Data is intercepted by the firewall or security group on the server.

#### Solution

- 1. Check the firewall settings on the server.
- 2. Disable the firewall or add desired rules to the security group.

### 15.12 What Should I Do If Writing Data Failed When I Upload a File Using FTP?

#### Symptom

When I attempted to upload a file using FTP, writing data failed. As a result, the file transfer failed.

#### Constraints

The operations described in this section apply to FTP on Windows ECSs only.

#### **Possible Causes**

When NAT is enabled on the FTP server, the FTP client must connect to the FTP server in passive mode. In such a case, the public IP address (EIP) of the server cannot be accessed from the router. You need to add the EIP to the public IP address list on the server. Additionally, set the port range to limit the number of ports with data forwarded by the router.

#### Solution

The EIP must be associated with the private IP address using NAT, so the server must be configured accordingly.

 Set the public IP address of the server. Choose Edit > Settings.

Figure 15-15 Setting the public IP address



2. Choose **Passive mode settings**, set the port range (for example, 50000-50100) for transmitting data, and enter the target EIP.



Figure 15-16 Setting the range of ports for data transmission

- 3. Click OK.
- 4. Allow traffic on TCP ports 50000-50100 and 21 in the security group in the inbound direction.

Figure 15-17 Enabling ports 50000-50100 and 21

TCP : 21	IPv4	0.0.0.0/0 (2)	-	Modify	Replicate
TCP : 22	IPv4	0.0.0.0/0 ⑦	Permit default Linux SSH port.	Modify	Replicate
TCP : 3389	IPv4	0.0.0.0/0 (?)	Permit default Windows remot	Modify	Replicate
TCP : 50000-50100	IPv4	0.0.0.0/0 ②	-	Modify	Replicate

5. Test the connection on the client.

### 15.13 Why Does Internet Access to an ECS Deployed with FTP Fail?

#### Symptom

- You cannot access a Windows ECS with FTP deployed by using an EIP.
- The FTP client cannot access the FTP server, and the connection times out.
- It takes a lot of time to upload files.

#### **Possible Causes**

- The security group associated with the target ECS denies inbound traffic from the Internet.
- The firewall of the ECS blocks the FTP process.

#### **Enabling FTP Firewall Support**

To allow a Huawei Cloud server to access an FTP server deployed on an ECS using an EIP, the FTP server must work in passive mode. In this case, enable FTP firewall support.

- 1. Log in to the management console and then log in to the ECS using VNC.
- 2. Choose **Start** > **Server Manager**.
- 3. In Server Manager, choose Dashboard > Tools > Internet Information Services (IIS) Manager.



#### 4. Double-click FTP Firewall Support.



- 5. Set parameters and click **Apply**.
  - Data Channel Port Range: specifies the range of ports used for passive connections. The port range is 1025-65535. Configure this parameter based on site requirements.
  - External IP Address of Firewall: specifies the public IP address of the ECS.

	Alerts				
	▲ To accept passive				
The settings on this page let you configure your FTP server to accept passive connections from an external firewall.	using FTP over SSL (FTPS) or when your firewall does not				
Data Channel Port Range:	filter packets, configure the external IPv4 address of your				
5000-6000	firewall.				
Example: 5000-6000	Actions				
External IP Address of Firewall:	🛃 Apply				
Example: 10.0.0.1	😢 Help				
Features View 💦 Content View					

6. Restart the ECS for the firewall configuration to take effect.

#### Setting the Security Group and Firewall

After deploying FTP, add a rule to the target security group to allow access to the FTP port in the inbound direction.

After **enabling FTP firewall support**, allow access to the ports used by the FTP site and the data channel ports used by the FTP firewall in the security group.

By default, the firewall allows access to TCP port 21 for FTP. If another port is used, add an inbound rule that allows access to that port on the firewall.

- 1. Log in to the management console.
- 2. Click 🔍 in the upper left corner and select your region and project.
- 3. Under Compute, click Elastic Cloud Server.
- 4. On the **Elastic Cloud Server** page, 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 the security group ID.

The system automatically switches to the **Security Group** page.

7. On the **Inbound Rules** tab, click **Add Rule** and configure the access rule for the inbound direction.

Set **Source** to the IP address segment containing the IP addresses allowed to access the ECS over the Internet.

The valid port range that can be specified in **Enabling FTP Firewall Support** is 1025-65535. For example, the configured data port range is 5000-6000.

Add Inbound Rule Learn more	about security group configuration.		
1 An inbound rule allows inbound traf	fic to instances in the security group.		
Security Group Sys-FullAccess You can import multiple rules in a batch.			
Protocol & Port ?	Source ⑦	Description	Operation
Custom TCP	IP address	•	Operation 🔻
(+) Ada	I Rule You can create 9,888 more security group r	ules. Increase quota	
	ОК	Cancel	

#### D NOTE

The default source IP address **0.0.0.0/0** indicates that all IP addresses can access ECSs in the security group.

### 15.14 Why Am I Seeing an FTP Folder Error When I Open a Folder on an FTP Server?

#### Symptom

An error occurs when you open a folder on an FTP server. The system displays a message asking you to check permissions.

Figure 15-18 FTP Folder Error



#### **Possible Causes**

The FTP firewall configured for the browser does not allow you to open the folder.

#### Solution

The following uses Internet Explorer as an example.

- 1. Open the Internet Explorer and choose **Tools** > **Internet options**.
- 2. Click the **Advanced** tab.
- 3. Deselect Use Passive FTP (for firewall and DSL modem compatibility).

#### Figure 15-19 Internet Options

		1	nternet	Options		?	×
General	Security	Privacy	Content	Connections	Programs	Adva	anced
Setting	35						
	Alway     Hover     Never     Use inline     Use inline     Use most     Use Passiv     Use smoo     TP settings     Use HTTP     Use HTTP	s AutoComp AutoComp recent orc /e FTP (fo th scrolling 1.1	olete in File olete in the ler when s r firewall a	Explorer and F Internet Explo witching tabs v nd DSL modem	Run Dialog orer Address vith Ctrl+Tal compatibilit	s Bar b y)	-
<ul> <li>✓</li> <li>✓</li> </ul>	Use SPDY, ternational* Always sh	/3 ow encod	ed address	ses		>	~
10	ines effect a	arter your	estart you	Restore	advanced s	etting	IC I
Decet	Totornat Ev	olorer cett	lines	Restore	auvanceu s	ecung	5
Res con You	ets Internet dition. should only	Explorer'	s settings f your brov	to their default wser is in an un	Res usable state	et	
			OF	( Ci	ancel	Ap	oply

4. Click **OK**, restart Internet Explorer, and open the folder on the FTP server again.
# 15.15 Why Do I Fail to Connect to a Linux ECS Using WinSCP?

#### Symptom

Connecting to a Linux ECS using WinSCP fails, while using SSH tools like Xshell succeeds.

5	Error						
0	Connection has been unexpectedly closed. Server sent command exit status						
•	Cannot initialize SFTP protocol. Is the host running a SFTP server?	^					
		~					
	OK <u>R</u> econnect (1 s) <u>H</u> elp						

#### Figure 15-20 Connection error using WinSCP

#### **Root Cause**

If you can connect to a Linux ECS using SSH tools, the SSH tools run properly. Check the SFTP configuration file because WinSCP allows you to connect your Linux ECS via SFTP protocol.

Run the following command to view the /etc/ssh/sshd\_config file:

#### vi /etc/ssh/sshd\_config

Check the SFTP configuration and the configuration file is **/usr/libexec/openssh/sftp-server**.

Figure 15-21 SFTP configuration file

```
# override default of no subsystems
Subsystem sftp /usr/libexec/openssh/sftp-server
```

If the SFTP configuration file does not exist or the file permission is not 755, connecting to a Linux ECS using WinSCP will fail.

#### Solution

- If the SFTP configuration file does not exist, you can transfer the file from an ECS that runs properly to your Linux ECS using SCP or other file transfer tools.
- If the file permission is not 755, you can run the following command to change the file permission to 755:

chmod 755 -R /usr/libexec/openssh/sftp-server

# **16** ECS Failure

# 16.1 How Do I Handle Error Messages Displayed on the Management Console?

#### Symptom

This section helps you resolve the following issues:

- An error message was displayed on the management console after you performed ECS-related operations.
- An error code was displayed after you used an ECS API (see *Elastic Cloud Server API Reference*).

#### Background

After you perform ECS-related operations on the management console, the system displays the request status on the **Elastic Cloud Server** page. You can determine the request execution status based on the information displayed in the request status.

- If the operation request is executed, the system automatically clears the task prompt.
- If an error occurs during the request execution, the system displays an error code and its description in the taskbar.

#### Solution

If an error occurs, check the error code and perform the corresponding operations listed in **Table 16-1**.

Error Code	Message Displayed on the Management Console	Solution Suggestion for Pay-per-Use ECSs	Solution Suggestion for Yearly/Monthly ECSs
Ecs.0000	Request error. Try again later or contact customer service.	Adjust the request structure as directed in <i>Elastic Cloud Server API</i> <i>Reference</i> .	Adjust the request structure as directed in <i>Elastic Cloud Server</i> <i>API Reference</i> .
Ecs.0001	The maximum number of ECSs or EVS disks has been reached. Contact customer service and request a quota increase.	Contact customer service to apply for an increased ECS quota. <b>NOTE</b> When applying for increasing your ECS quota, first determine the number of target ECSs, CPU cores (vCPUs), and memory capacity (RAM) required.	Submit a service ticket to apply for an increased ECS quota. After the submission, contact customer service for troubleshooting. <b>NOTE</b> When applying for increasing your ECS quota, first determine the number of target ECSs, CPU cores (vCPUs), and memory capacity (RAM) required.
Ecs.0005	System error. Try again later or contact customer service.	Adjust the request structure as directed in <i>Elastic Cloud Server API Reference</i> .	Adjust the request structure as directed in <i>Elastic Cloud Server</i> <i>API Reference</i> .
Ecs.0006	Invalid parameters.	If your selected ECS configuration has not been released, change the configuration and create the ECS again.	If your selected ECS configuration has not been released, change the configuration and create the ECS again.
Ecs.0010	The private IP address is in use. Select an available IP address and create the ECS again.	Use idle IP addresses to purchase your ECSs.	Contact customer service to cancel the order and use an idle IP address to purchase your ECS.

Table 16-1	Error	codes	and	solution	suggestions
------------	-------	-------	-----	----------	-------------

Error Code	Message Displayed on the Management Console	Solution Suggestion for Pay-per-Use ECSs	Solution Suggestion for Yearly/Monthly ECSs
Ecs.0011	Invalid password. Change the password to make it meet the password complexity requirements, and perform the required operation again.	Input a password that meets password complexity requirements.	Contact customer service to cancel the order, input a password that meets password complexity requirements, and perform the request again.
Ecs.0012	The number of IP addresses in the subnet is insufficient. Release IP addresses in the subnet or select another subnet, and create the ECS again.	Obtain more idle IP addresses on the target subnet or use a new subnet for purchasing ECSs.	Obtain more idle IP addresses on the target subnet and contact customer service for troubleshooting. Alternatively, contact customer service to cancel the order and use a new subnet for purchasing ECSs.
Ecs.0013	Insufficient EIP quota. Contact customer service and request an EIP quota increase.	Contact customer service to apply for an increased EIP quota.	Submit a service ticket to apply for an increased EIP quota and contact customer service for troubleshooting.
Ecs.0015	This disk type is not supported by the ECS.	Select a supported EVS disk and attach it to the ECS.	Select a supported EVS disk and attach it to the ECS.
Ecs.0100	The ECS status does not meet requirements. Change to the desired ECS status and try again.	Change to the desired ECS status and try again.	Change the ECS status to the required status and contact customer service for troubleshooting.
Ecs.0104	Insufficient number of ECS slots for attaching disks.	Detach an EVS disk from the ECS before attaching a new EVS disk.	Detach an EVS disk from the ECS before attaching a new EVS disk.

Error Code	Message Displayed on the Management Console	Solution Suggestion for Pay-per-Use ECSs	Solution Suggestion for Yearly/Monthly ECSs
Ecs.0105	No system disk found.	Reattach the EVS system disk to the ECS and perform the desired operation again.	Reattach the EVS system disk to the ECS and contact customer service for troubleshooting.
Ecs.0107	The number of shared disks to be attached to an ECS exceeds the maximum limit.	Detach an EVS disk from the ECS before attaching a new EVS disk.	Detach an EVS disk from the ECS before attaching a new EVS disk.
Ecs.0509	This operation is not allowed on a yearly/monthly system disk. Select a pay-per- use system disk and perform the required operation again.	N/A	Change the ECS billing mode to pay-per-use and perform the desired operation again.
Ecs.0510	Yearly/Monthly ECSs do not support OS changing.	N/A	Change the ECS billing mode to pay-per-use and perform the desired operation again.

# 16.2 How Can I Recover a Windows ECS with an Abnormal Virtualization Driver?

#### Background

An error occurs in the virtualization driver on a Windows ECS because of improper running of Tools. To ensure proper ECS running, handle this issue by following the instructions provided in this section.

#### Symptom

The virtualization driver of an ECS became abnormal and this affected the data security, availability, and performance of the ECS.

The impact of this issue is as follows:

1. The file system may be damaged.

When you stop or restart such an ECS on the management console, the ECS will be forcibly stopped or restarted due to the lack of the virtualization driver Tools.

2. Services on the ECS may become unavailable

The affected ECS cannot be hot migrated between physical servers. If the host accommodating such an ECS becomes faulty or the hardware of the host is maintained, the ECS cannot be migrated to another host, affecting service high availability.

3. The network and storage performance of the ECS deteriorates.

The virtualization driver can improve the ECS network and storage performance. When the virtualization driver becomes abnormal, the network and storage performance will deteriorate.

#### **Scenarios**

Scenario 1
 Tools is not installed on the W

Tools is not installed on the Windows ECS.

 Scenario 2 Tools has been uninstalled from the ECS.

#### Procedure

To install Tools on the Windows ECS, do as follows:

- Obtain the Tools installation package pvdriver-windows.zip.
   To download the installation package, log in at https://ecs-instancedriver.obs.cn-north-1.myhuaweicloud.com/pvdriver-windows.zip.
- 2. Decompress the software package and double-click **setup.exe** to start the installation.



**Figure 16-1** Installing the virtualization driver

- 3. Click Next and select "I accept the terms in the License Agreement".
- 4. Click **Install** to start the installation.

Figure 16-2 Installation progress

🔀 GPL PV Drivers for Windows 2.1.1.10 Setup							
Installing GPL PV Drivers for Windows 2.1.1.10							
Please wait while the Setup Wizard installs GPL PV Drivers for Windows 2.1.1.10.							
Status:							
Really Maryle							
Back IVexc							

5. Click **Finish** to complete the installation.

#### Figure 16-3 Installation completed



6. Restart the ECS, as shown in **Figure 16-4**.

Figure 16-4 Determining whether to restart the ECS



7. View the virtualization driver status in the bottom right corner of the ECS desktop. The yellow icon indicates that the virtualization driver is running properly.

Figure 16-5 Proper running status of the virtualization driver



# 16.3 What Should I Do If Emails Configured on an ECS Cannot Be Sent?

#### Solution

• For the emails sent using the browser:

When you use a browser to log in to your mailbox, HTTP is used, and the default port number is 80. However, SMTP is used between email servers.

If you use a browser to send emails, enable port 80 for TCP in the outbound direction.

- a. On the ECS details page, locate the security group and click the security group ID.
- b. On the **Security Group** page, click the **Outbound** tab and then **Add Rule**.
- c. In the dialog box that is displayed, set **Protocol/Application** to **TCP** and **Port** to **80**. Then, click **OK**.

#### Figure 16-6 Adding port 80

Add Inbound Rule Learn more about security group configuration.						
An inbound rule allows inbound traffic	to instances in the security group.					
Security Group sg-c997	Security Group sg-c997					
You can import multiple rules in a batch.						
Protocol & Port ⑦	Source (?)	Description	Operation			
Custom TCP	IP address	• • • • • • • • • • • • • • • • • • •	Operation 👻			
Add Rule You can create 9,888 more security group rules. Increase quota						
	ок	Cancel				

• For the emails sent and received through an email client:

The protocols used on the receiving and transmitting ends are different.

#### Protocol used on the transmitting end:

SMTPS is used, and the port number is 465. Alternatively, SMTP is used, and the port number is 25.

Port 465 is recommended. If port 25 is required, enable it. For details, see Why Is Outbound Access on TCP Port 25 Blocked?

**Protocol used on the receiving end:** POP3 is used, and the port number is 110.

For details, see steps a to c.

#### **NOTE**

Add an inbound rule with **Protocol** set to **TCP** and **Port** to **110**. Add an outbound rule with **Protocol** set to **TCP** and **Port** to **465** or **25**.

### 16.4 Why Is My Windows ECS Muted?

#### Symptom

You cannot play audio files on a Windows ECS that is remotely accessed using MSTSC.

#### Constraints

This section applies only to ECSs running Windows Server 2008 R2 or Windows Server 2016.

#### **Possible Causes**

The audio function is disabled on Windows ECSs by default. As a result, audio files cannot be played on them. To enable the audio function, perform the operations described in this section.

#### Step 1: Enable Windows Audio

Enable Windows audio and set it to run automatically.

- 1. Start the **Run** dialog box.
- 2. Enter **services.msc** to access the service management console.
- 3. Find Windows Audio and set it as follows:
  - Startup type: Automatic
  - Service status: Start

The following figure uses Windows Server 2012 as an example.



4. Disable the remote connection.

#### Step 2: Enable Audio and Video Playback

The method of enabling audio and video playback varies depending on the ECS OS.

#### Windows Server 2008

**Step 1** Enable RDP-TCP **Audio and video playback** and **Audio recording**.

- 1. Log in to the **Remote Desktop Session Host Configuration** management console.
  - a. Choose **Start** > **Control Panel**.
  - b. In the upper right corner of the page, choose **Category** for **View by**.
  - c. Choose System and Security > Administrative Tools > Remote Desktop Services > Remote Desktop Session Host Configuration.
- 2. Deselect Audio and video playback and Audio recording.

In the **Connections** pane, double-click **RDP-Tcp**. In the **RDP-Tcp Properties** dialog box, click the **Client Settings** tab and deselect **Audio and video playback** and **Audio recording**.

Figure 16-7 Remote Desktop Session Host Configuration

କୁହି RD Session Host Configuration: ଜୁଲ୍ଲି Licensing Diagnosis	Configuration for server: ecs-136f This enver is configured for Remote Deaktor You can use Remote Deaktop Sesson Host existing connections, and delete connection Connections	General   Log on Settings   Seesons   Environment Remote Control Client Settings   Network Adapter   Security Color Depth Color Depth To Limit Maximum Color Depth 16 bits per powel
	Connection Name Connection Type RDP-Top Microsoft RDP 6;	Limit maximum number of monitors per session 16 🔄 Redirection Disable the following Drive Drive Redirection
	Edit settings General	UPT Port COM Port Co
	Celete temporary folders on exit Use temporary folders per session Restrict each user to a single session Licensing	Audo and video playback     Audo recording     Supported Plug and Play Devices     Default to main client printer
د ×	Remote Desktop licensing mode	OK Cancel Apply

3. Click **OK** to enable the audio function.

Step 2 Click Send CtrlAltDel to restart the ECS and log in to it.

**Step 3** Enable the audio service.

#### Figure 16-8 Enabling the audio service

🕝 Services (Local)	Q, Services (Local)						
	Windows Audio	Name -	Description	Status	Startup Type	Log On As	
		() WebClient	Enables Wi		Manual	Local Service	
	Stop the service	Windows Audio	Manages a	Started	Manual	Local Service	
	Restart the service	Windows Audio End	Manages a	Started	Manual	Local System	

**Step 4** Play an audio file to verify the service.

----End

#### Windows Server 2012

**Step 1** Start the **Run** dialog box.

Step 2 Run the gpedit.msc command to start Local Group Policy Editor.



- Step 3 Choose Computer Configuration > Administrative Templates > Windows Components > Remote Desktop Services > Remote Desktop Session Host > Device and Resource Redirection. Then, enable Allow audio and video playback redirection.
- Step 4 Select Enabled and click Apply.

🐖 🛛 Allow audio and video playback redirection 🖉 🗕 🗖 🗙							x		
🔚 Allow audio and	video playback reo	direction		<u>P</u> revious Se	etting	<u>N</u> ext Setting			
○ Not <u>C</u> onfigured	Comment:								^
● <u>E</u> nabled									
O <u>D</u> isabled	Supported on								
	Supported on:	At least Windows Server 2003 operating systems or Windows XP Professional							
Options:			Help:						
		This policy setting allows you to specify whether users can redirect the remote computer's audio and video output in a Remote Desktop Services session.         Users can specify where to play the remote computer's audio output by configuring the remote audio settings on the Local Resources tab in Remote Desktop Connection (RDC). Users can choose to play the remote audio on the remote computer or on the local computer. Users can also choose to not play the audio. Video playback can be configured by using the videoplayback setting in a Remote Desktop Protocol (.rdp) file. By default, video playback is enabled.         By default, audio and video playback redirection is not allowed when connecting to a computer running Windows Server 2008 R2, Windows Server 2008, or Windows Server 2008, R3, Windows Server 2012 R2, Windows 7, Windows Vista, or Windows XP Professional.         If you enable this policy setting, audio and video playback redirection is allowed.				^ n o. ≡ eo i r ral.			
				[	OK	Cancel		Арр	ly

Retain the default settings of MSTSC.

**Step 5** Run the following command to update the group policy:

#### gpupdate

----End

#### Step 3: Configure Remote Audio Settings

Start the local remote desktop software MSTSC, choose **Options** > **Local Resources**, and click **Settings** in **Remote audio**. Then, select **Play on this computer** in **Remote audio playback** and click **OK**.

Nemote Desktop Connection 💶 🗖 🗙	Remote Desktop Connection
Remote Desktop Connection	Remote Desktop Connection
General         Display         Local Resources         Programs         Experience         Advanced           Remote audio         Configure remote audio settings.         Settings         Settings         Settings	Remote audio playback  Play on this computer  Do not play  Play on remote computer
Keyboard Apply Windows key combinations: Drily when using the full screen V Example: ALT+TAB	Remote audio recording  Record from this computer  Do not record
Local devices and resources Choose the devices and resources that you want to use in your remote session. Printers Clipboard More	OK Cancel
Hide Options     Connect     Help	

Log in to the ECS using MSTSC and check whether audio files can be played properly.

### 16.5 How Do I Change an ECS SID?

Microsoft identifies computers and users by security identifier (SID). The ECSs created using an image have the same SID. If such ECSs are required to join in a Windows domain, they must use different SIDs.

This section describes how to use SIDCHG to change an ECS SID.

To change SIDs in a batch, use a private image and follow the operations provided in **Running Sysprep**.

#### **NOTE**

Changing an ECS SID may lead to data loss or system damage, so back up ECS data before changing the SID.

#### Procedure

1. Click **SIDCHG** to download it.

**NOTE** 

For the server edition, download the 64-bit version.

#### Figure 16-9 Downloading SIDCHG

SIDCHG 2.00 <u>SIDCHG</u> and <u>SIDCHG64 (64-bit Windows)</u> These are directly executables of SIDCHG SID Change Utility. There is no installation program.

It is important to not interrupt SID change in process. Additionally, on Windows 10, Do not Log in into the computer during SID change! Logging in will affect Start Menu and modern Windows interfaces and apps.

2. Run the following command to change the ECS SID:

#### sidchg64-2.0n.exe /R

#### D NOTE

In the preceding command, /R indicates that the ECS will automatically restart after its SID is changed, and /S indicates that the ECS will not automatically restart.

3. Enter the trial key or license and press Enter.

Obtain the latest trial key and learn how to use SIDCHG.

4. When the system displays a message asking you whether to continue, press y.

#### Figure 16-10 Risk prompt



5. Log in to the ECS again.

#### Figure 16-11 Re-login



6. After the ECS is restarted, run the **cmd** command to open the CLI and run **whoami /user** to verify that the SID has been changed.

### 16.6 Why Does a Pay-per-Use ECS Fail to Be Started?

After a pay-per-use ECS is stopped, its resources such as vCPUs and memory are released. When it is being started the next time, the startup may fail due to insufficient resources.

If the ECS startup failed, try again later or modify the specifications.

For details about how to modify specifications, see **Modifying Individual ECS Specifications**.

### 16.7 Why Is the Memory of an ECS Obtained by Running the free Command Inconsistent with the Actual Memory?

#### Symptom

After you create an ECS, you run the **free -m** command to view the ECS memory. The ECS memory is less than the memory configured during ECS creation.

#### For example:

When you are creating an ECS, the configured memory size is 4,194,304 KB (4,096 MB). After the ECS is created, you run the **free** -**m** command to view its memory. The command output is as follows:

[root@localhost ~]# free -m total used free shared buff/cache available Mem: 3790 167 3474 8 147 3414 Swap: 1022 0 1022

The memory in the command output is 3,790 MB, which is less than the configured 4,096 MB.

Run the **dmidecode -t memory** command to check the actual memory configured for the ECS. The command output is as follows:

[root@localhost ~]# dmidecode -t memory # dmidecode 3.0 Getting SMBIOS data from sysfs. SMBIOS 2.8 present.

Handle 0x1000, DMI type 16, 23 bytes Physical Memory Array Location: Other Use: System Memory Error Correction Type: Multi-bit ECC Maximum Capacity: 4 GB Error Information Handle: Not Provided Number Of Devices: 1

Handle 0x1100, DMI type 17, 40 bytes Memory Device Array Handle: 0x1000 Error Information Handle: Not Provided Total Width: Unknown Data Width: Unknown Size: 4,096 MB Form Factor: DIMM Set: None Locator: DIMM 0 Bank Locator: Not Specified Type: RAM Type Detail: Other Speed: Unknown Manufacturer: QEMU Serial Number: Not Specified Asset Tag: Not Specified Part Number: Not Specified Rank: Unknown Configured Clock Speed: Unknown Minimum Voltage: Unknown Maximum Voltage: Unknown Configured Voltage: Unknown

The memory in the command output is the same as that configured during ECS creation.

#### **Possible Causes**

When the OS is started, related devices are initialized, which occupies memory. In addition, when the kernel is started, it also occupies memory. The memory occupied by kdump can be set. Unless otherwise specified, do not change the memory size occupied by kdump.

The command output of **free** -**m** shows the available memory of the ECS, and that of **dmidecode** -**t memory** shows the hardware memory.

The memory obtained by running the **free** -**m** command is less than the memory configured for the ECS. This is a normal phenomenon.

D NOTE

This is a normal phenomenon even for physical servers.

# 16.8 Why Is the Hostname of My ECS Restored to the Original Name After the ECS Is Restarted?

The following uses an ECS running CentOS 7 as an example:

- 1. Log in to the Linux ECS and view the Cloud-Init configuration file.
- 2. In the **/etc/cloud/cloud.cfg** file, comment out or delete **update\_hostname**.

**NOTE** 

- **update\_hostname** indicates that the hostname is changed in Cloud-Init each time the ECS is restarted.
- For an ECS created from a public image, Cloud-Init has been installed on it by default. You do not need to manually install Cloud-Init for it. For details about how to modify a private image, see Installing Cloud-Init.

# 16.9 Is an ECS Hostname with Suffix .novalocal Normal?

#### Symptom

Hostnames of ECSs created based on some types of images have the suffix **.novalocal**, whereas others do not.

For example, the hostname is set to **abc** during ECS creation. **Table 16-2** lists the hostnames (obtained by running the **hostname** command) of ECSs created using different images and those displayed after the ECSs are restarted.

Image	Hostname Before ECS Restart	Hostname After ECS Restart
CentOS 6.8	abc	abc.novalocal
CentOS 7.3	abc.novalocal	abc.novalocal
Ubuntu 16	abc	abc

Table 16-2 Hostnames of ECS	created from	different images
-----------------------------	--------------	------------------

#### Troubleshooting

This is a normal phenomenon.

The static hostname of a Linux ECS is user defined and injected using Cloud-Init during the ECS creation. According to the test results, Cloud-Init adapts to OSs differently. As a result, hostnames of some ECSs have suffix **.novalocal**, whereas others do not.

If you do not want to have the obtained hostnames contain suffix **.novalocal**, change the hostnames by referring to **How Can a Changed Static Hostname Take Effect Permanently?** 

# 16.10 Why Does a Forcibly-Stopped Linux ECS Fail to Be Restarted?

#### Symptom

When you try to restart a forcibly-stopped Linux ECS, the ECS failed to be restarted, as shown in **Figure 16-12**.

#### Figure 16-12 Restart failure

```
Setting up Logical Volume Management: [ OK ]

Checking filesystems

/: clean, 513826/12058624 files, 6191304/12056774 blocks

/dev/xvdb1 contains a file system with errors, check forced.

/dev/xvdb1:

Jnattached inode 22937663

/dev/xvdb1: UNEXPECTED INCONSISTENCY; RUN fsck MANUALLY.

(i.e., without -a or -p options)

[FAILED]

**** An error occurred during the file system check.

**** Dropping you to a shell: the system will reboot

*** When you leave the shell.

Give root password for maintenance

(or type Control-D to continue):

Login incorrect.

Give root password for maintenance

(or type Control-D to continue): _____
```

#### **Possible Causes**

As shown in **Figure 16-12**, the ECS cannot be restarted because the file system was damaged. Forcibly stopping or restarting an ECS is highly risky because this operation may cause inconsistent metadata in the file system, leading to the file system damage.

#### Solution

Use the disk repair tool (fsck) delivered with the Linux OS to rectify the fault.

The following procedure considers the affected disk partition as **/dev/xvdb1**, which is the partition shown in **Figure 16-12**.

- 1. Enter the password of user **root** as prompted.
- 2. Run the following command to check whether the affected disk partition has been mounted:

#### mount | grep xvdb1

- If yes, go to step 3.
- If no, go to step 4.
- Run the following command to unmount the affected disk partition: umount /dev/xvdb1
- 4. Run the following command to rectify the file system of the affected disk partition:

#### fsck -y /dev/xvdb1

5. Run the following command to restart the ECS:

reboot

**NOTE** 

If the fault persists, contact customer service for technical support.

## 16.11 How Can a Changed Static Hostname Take Effect Permanently?

#### Symptom

The static hostname of a Linux ECS is user defined and injected using Cloud-Init during the ECS creation. Although the hostname can be changed by running the **hostname** command, the changed hostname is restored after the ECS is restarted.

#### Changing the Hostname on the ECS

To make the changed hostname still take effect even after the ECS is stopped or restarted, save the changed hostname into configuration files.

The changed hostname is assumed to be **new\_hostname**.

- 1. Modify the **/etc/hostname** configuration file.
  - a. Run the following command to edit the configuration file: sudo vim /etc/hostname
  - b. Change the hostname to the new one.
  - c. Run the following command to save and exit the configuration file: :wq
- 2. Modify the **/etc/sysconfig/network** configuration file.
  - a. Run the following command to edit the configuration file: sudo vim /etc/sysconfig/network
  - b. Change the **HOSTNAME** value to the new hostname. **HOSTNAME**=*Changed hostname*

#### D NOTE

If there is no **HOSTNAME** in the configuration file, manually add this parameter and set it to the changed hostname.

For example:

HOSTNAME=new\_hostname

- c. Run the following command to save and exit the configuration file: :wq
- 3. Modify the /etc/cloud/cloud.cfg configuration file.
  - a. Run the following command to edit the configuration file: sudo vim /etc/cloud/cloud.cfg
  - b. Use either of the following methods to modify the configuration file:
    - Method 1: Change the preserve\_hostname parameter value or add the preserve\_hostname parameter to the configuration file.

If preserve\_hostname: false is already available in the /etc/cloud/ cloud.cfg configuration file, change it to preserve\_hostname: true. If preserve\_hostname is unavailable in the /etc/cloud/cloud.cfg configuration file, add preserve\_hostname: true before cloud\_init\_modules.

If you use method 1, the changed hostname still takes effect after the ECS is stopped or restarted. However, if the ECS is used to create a private image and the image is used to create a new ECS, the hostname of the new ECS is the hostname (**new\_hostname**) used by the private image, and user-defined hostnames cannot be injected using Cloud-Init.

 Method 2 (recommended): Delete or comment out update\_hostname.

If you use method 2, the changed hostname still takes effect after the ECS is stopped or restarted. If the ECS is used to create a private image and the image is used to create a new ECS, the changed hostname permanently takes effect, and user-defined hostnames (such as **new\_new\_hostname**) can be injected using Cloud-Init.

#### 

After a user-defined name of ECS using some OS versions is injected using Cloud-Init, the host name obtained by running the **hostname** command may contain the **.novalocal** suffix. For details, see **Is an ECS Hostname** with Suffix .novalocal Normal?

In this case, you can modify the configuration by referring to **Installing Cloud-Init** so that the host name created using a private image does not contain the **.novalocal** suffix.

4. Run the following command to restart the ECS:

#### sudo reboot

5. Run the following command to check whether the hostname has been changed:

#### sudo hostname

If the changed hostname is displayed in the command output, the hostname has been changed and the new name permanently takes effect.

### Modifying the Mapping Between the ECS Hostname and IP Address (Modifying the hosts File)

If you want to use the changed hostname as the preferred localhost and localhost.localdomain, update the mapping between the hostname and IP address after the hostname is changed and then save the configuration to the corresponding Cloud-Init configuration file so that the new hostname takes effect permanently.

The changed hostname is assumed to be **new\_hostname**.

- 1. Modify the **/etc/hostname** configuration file.
  - a. Run the following command to edit the configuration file: **sudo vim /etc/hostname**
  - b. Change the hostname to the new one.
  - c. Run the following command to save and exit the configuration file:
     :wq
- 2. Modify the /etc/sysconfig/network configuration file.
  - a. Run the following command to edit the configuration file: sudo vim /etc/sysconfig/network
  - b. Change the **HOSTNAME** value to the new hostname. **HOSTNAME**=*Changed hostname*

D NOTE

If there is no **HOSTNAME** in the configuration file, manually add this parameter and set it to the changed hostname.

For example:

HOSTNAME=new\_hostname

- c. Run the following command to save and exit the configuration file: :wq
- 3. Modify the /etc/cloud/cloud.cfg configuration file.
  - a. Run the following command to edit the configuration file: sudo vim /etc/cloud/cloud.cfg
  - b. Use either of the following methods to modify the configuration file:
    - Method 1: Change the preserve\_hostname parameter value or add the preserve\_hostname parameter to the configuration file.

If preserve\_hostname: false is already available in the /etc/cloud/ cloud.cfg configuration file, change it to preserve\_hostname: true. If preserve\_hostname is unavailable in the /etc/cloud/cloud.cfg configuration file, add preserve\_hostname: true before cloud\_init\_modules.

If you use method 1, the changed hostname still takes effect after the ECS is stopped or restarted. However, if the ECS is used to create a private image and the image is used to create a new ECS, the hostname of the new ECS is the hostname (**new\_hostname**) used by the private image, and user-defined hostnames cannot be injected using Cloud-Init.  Method 2 (recommended): Delete or comment out update\_hostname.

If you use method 2, the changed hostname still takes effect after the ECS is stopped or restarted. If the ECS is used to create a private image and the image is used to create a new ECS, the changed hostname permanently takes effect, and user-defined hostnames (such as **new\_new\_hostname**) can be injected using Cloud-Init.

- 4. Update the mapping between the hostname and IP address in **/etc/hosts** to an entry starting with 127.0.0.1. Use **new\_hostname** as your preferred **localhost** and **localhost.localdomain**.
  - a. Run the following command to edit **/etc/hosts**:

#### sudo vim /etc/hosts

- b. Modify the entry starting with 127.0.0.1 and replace **localhost** and **localhost.localdomain** with **new\_hostname**. ::1 localhost localhost.localdomain localhost6 localhost6.localdomain6 127.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4 127.0.1 **new\_hostname new\_hostname**
- c. Run the following command to save and exit the configuration file: :wq
- 5. Modify the /etc/cloud/cloud.cfg configuration file.
  - Run the following command to edit the configuration file:
     sudo vim /etc/cloud/cloud.cfg
  - b. Set manage\_etc\_hosts to manage\_etc\_hosts: false. manage\_etc\_hosts: false
  - c. Run the following command to save and exit the configuration file::wq
- 6. Run the following command to restart the ECS:

#### sudo reboot

7. Run the following commands to check whether the changes to **hostname** and **hosts** take effect permanently:

#### sudo hostname

#### sudo cat /etc/hosts

If the changed hostname (**new\_hostname**) and **hosts** are displayed in the command output, the changes take effect permanently.

### 16.12 Why Can't My Linux ECS Obtain Metadata?

#### Symptom

The security group of the Linux ECS has been configured based on the prerequisites in **Obtaining Metadata** in the outbound direction, but the ECS still cannot obtain the metadata through the route with the destination of 169.254.169.254.

#### **Root Cause**

Run the following command on the Linux ECS configured with a static IP address:

#### # ip route| grep 169.254

The route with the destination of 169.254.169.254 does not exist, but the route with the destination of 169.254.0.0/16 exists.

#### Figure 16-13 Route information



After the network is restarted, the original route with the destination of 169.254.169.254 is changed to the route with the destination of 169.254.0.0/16 without a next hop, as shown in **Figure 16-13**. As a result, the Linux ECS cannot obtain metadata.

#### Solution

1. Add the route with the destination of 169.254.169.254, and specify the next hop (gateway) and the output device (primary NIC of the Linux ECS). The following is an example:

#### # ip route add 169.254.169.254 via 192.168.1.1 dev eth0

192.168.1.1 is the gateway address of the subnet that the primary NIC resides, and eth0 is the primary NIC.

How Do I View the Primary NIC?

#### How Do I View the Gateway Address?

Run the following command to verify that the metadata can be obtained:
 # curl http://169.254.169.254

Figure 16-14 Obtaining metadata

-		-						
ecs-test [ ^	- ] #	ip rou	te add 1	169.254.169.2	254 via	192.168.1.1	dev	eth0
ecs-test [ •	•]#	curl h	ttp://10	59.254.169.25	54			
1.0								
2007-01-19								
2007-03-01								
2007-08-29								
2007-10-10								
2007-12-15								
2008-02-01								
2008-09-01								
2009-04-04								
latest <mark>ecs-te</mark>	est [	~]#						

3. Run the following command to create or modify the **/etc/sysconfig/network-scripts/route-eth0** file to prevent the static route from being changed after network restart:

#### # vi /etc/sysconfig/network-scripts/route-eth0

Add the following content to the file:

In this example, the primary NIC is eth0 and gateway address is 192.168.1.1. Replace them based on site requirements.

# 169.254.169.254 via 192.168.1.1

#### How Do I View the Primary NIC?

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

The page providing details about the ECS is displayed.

5. Click the **Summary** tab to view details about the primary NIC.

#### Figure 16-15 Primary NIC details

<		
Summary D	isks NICs Security Groups EIPs Monitoring Tags	
ECS Information		Stopped Monitoring   Monitoring
Region AZ Specifications	Beijing4 A23 General computing-plus   c6.large.2   2 vCPUs   4 G8	Disks System Disk High I/O   40 GB
Image VPC	vice and a second s	NICs     Primary NIC     submet-10     192.168.10.196
Billing Informatio Billing Mode Obtained Launched	n Pay-per-use Jan 28, 2021 11:34:29 GMT-08:00 Jan 28, 2021 11:34:51 GMT-08:00	Security Groups
Management Infe	ormation default	EIPs     No EIPs are bound to the ECs.     To make the ECS accessible from the internet, apply for an EIP and bind it to the
ECS Group Agency	Create ECS Group 🖉 🕜 Create Agency	Cloud Backup and Recovery

#### How Do I View the Gateway Address?

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

The page providing details about the ECS is displayed.

5. Click the VPC name to go to the VPC list page.

#### Figure 16-16 VPC name

<	
Summary Disk	s NICs Security Groups EIPs Monitoring Tags
ECS Information	
ID	
Name	
Region	Beijing4
AZ	AZ3
Specifications	General computing-plus   c6.large.2   2 vCPUs   4 GB
Image	
VPC	vpc-01

6. Locate the row that contains the target VPC and click the number in the **Subnets** column to go to the subnet list page.

#### Figure 16-17 Number in the Subnets column

Virtual Private Cloud 💿											
We would much appreciate if you could complete our questionnaire on Virtual Private Cloud. Your feedback will help us provide a better user experience.											
			All p	rojects 🔻	ID	▼ ba5efc51-0748-4					
Name	IPv4 CIDR Block	Status	Subnets	Route Tables	Servers	Enterprise Project					
vpc-01	(Primary CIDR block)	Available	1	1	4 😾	default					

7. Click the target subnet name to go to the subnet details page and view the gateway address.

#### Figure 16-18 Gateway address

subnet-10													
Summary IP Addresses Tags													
Subnet Information													
Name	subnet-10 🖉		Network ID	D									
AZ	AZ1		IPv4 Subnet ID	đ									
Status	Available		IPv6 Subnet ID										
VPC	vpc-01		Description 🖉										
Available IP Addresses	246												
IPv4 CIDR Block													
IPv6 CIDR Block													
Gateway and DNS Information													
DHCP	Enabled		Gateway 192.168.10.1										
DNS Server Address		₫ ⑦	DHCP Lease Time 365 days 🖉 💮										

# **17** Slow ECS Response

### 17.1 Why Is My Windows ECS Running Slowly?

If your ECS runs slowly or is disconnected suddenly, the possible causes are as follows:

- Your ECS is a shared ECS.
   Multiple ECSs share CPU resources. When resources are insufficient, ECSs may contend for CPU resources, causing slow responses.
- The bandwidth or CPU usage of the ECS may be excessively high.

If you have created an alarm rule in Cloud Eye, the system automatically sends an alarm to you when the bandwidth or CPU usage reaches the threshold specified in the rule.

If your ECS is a shared ECS, perform the following steps:

- 1. Fault locating: Check the instance type. For details about dedicated and shared ECSs, see **ECS Types**.
- 2. Troubleshooting: If you have high requirements on service stability, you are advised to change a shared ECS to a dedicated ECS by referring to **Modifying Individual ECS Specifications**.

To handle this issue, perform the following operations:

1. Fault locating:

Identify the drivers from unknown sources and processes leading to high bandwidth or CPU usage.

Windows offer multiple tools to locate faults, including Task Manager, Performance Monitor, Resource Monitor, Process Explorer, Xperf (supported by versions later than Windows Server 2008), and full memory dump.

- 2. Check whether the processes and drivers are malicious and handle the issue accordingly.
  - If the processes are not malicious, optimize their programs or modify ECS specifications.
  - If the processes are malicious, stop these processes manually or use a third-party tool to stop them automatically.

- If the drivers are from official sources, there is no need to deal with system built-in drivers. Determine whether to uninstall the third-party software based on your requirements.
- If the drivers are from unknown sources, you are advised to uninstall them by using commercial antivirus software or third-party security management tools.

#### **Fault Locating**

- 1. Log in to the ECS using VNC available on the management console.
- 2. Start the **Run** dialog box, and then enter **perfmon -res**.

#### Figure 17-1 Starting the Resource Monitor

C:Wsers\Administrator)	perfmon	-res
C:\Users\Administrator)	-	

3. On the **Resource Monitor** page, click the **CPU** or **Network** tab to view the CPU or bandwidth usage.

Figure 17-2 Resource Monitor

e Montor Help verview CPU Memory Disk Network Trage 006 CPU Usage 100% Maximum Prequency CPU - Total 100% perform.exe 1372 Resource Running 20 0 0.34 perform.exe 1372 Resource Running 10 0 0.10 tvchotatee (DcomLaunch) 544 Host Pro Running 13 0 0.05 system 4 NT Kerne Running 24 0 0.00 trvchost.exe (sessvcs) 2552 Host Pro Running 13 0 0.05 system 4 NT Kerne Running 10 0 0.00 trrst.exe 340 Window Running 3 0 0.00 crrst.exe 340 Client Se Running 7 0 0.000 winlint.exe 340 Window Running 3 0 0.00 crrst.exe 340 Client Se Running 7 0 0.000 wirklegon.exe 376 Window Running 7 0 0.000 services 0% CPU Usage 0% secciated Madules 0% CPU Usage 0%	Resource Moni	tor									_
verview CPU Memory Disk Network	e Monit <mark>or Help</mark>	-									
OCCESSES 0% CPU Usage 10% Maximum Frequency   Image PID Description   Perfmon.exe 1372   Resource Running   1vchottaxe (DcomLaunch) 544   Host Pro Running   100% Maximum Frequency   vichottaxes (LocalServiceNoNeL   200 0   0.10   vichottaxes (localServiceNoNeL   201 0   0.00   System   4   100% Maximum Frequency   100% Maximum Frequency   100% Occesses   100% Occesses <tr< th=""><th>verview CPU</th><th>Memory [</th><th>Disk  </th><th>Network</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></tr<>	verview CPU	Memory [	Disk	Network							
Image       PID       Description       St*       Threads       CPU       Average*         I perform.exe       1372       Resource       Running       20       0       0.34         I vichots.exe (DcomLaunch)       544       Host Pro       Running       10       0       0.10         I vichots.exe (localServiceNNet       20       Host Pro       Running       20       0       0.01         I vichots.exe (localServiceNNet       20       0       0.01       0       0.00         I vichots.exe (localServiceNNet       Running       74       0       0.00       0         I system       4       NT Kerne	ocesses	0	% CPU L	Jsage		100% Maximur	n Frequenc	у 🔺	-	•	Views 🗸
perfmon.exe       1372       Resource       Running       20       0       0.34         1vchost.exe (DconLaunch)       544       Host Pro       Running       10       0       0.10         1vchost.exe (LocalServiceNoNet       200       Host Pro       Running       13       0       0.05         System       4       NT Kerne       Running       74       0       0.00         1mss.exe       216       Windows       Running       10       0       0.00         crrss.exe       300       Client Se       Running       7       0       0.00         crrss.exe       348       Client Se       Running       7       0       0.00         winlogon.exe       376       Windows       Running       3       0       0.00         sociated Modules        Search Handles          0%/o	Image		PID	Description	St ^	Threads	CPU	Average 🔺		CPU - Total	100%
ivchost.awe (DcomLaunch)       544       Host Pro       Running       10       0       0.10         svchost.awe (LocalServiceNoNet       200       Host Pro       Running       20       0       0.10         svchost.awe (LocalServiceNoNet       200       Host Pro       Running       13       0.005         System       4       NT Kerne       Running       74       0       0.00         srss.awe       216       Windows       Running       10       0       0.00         srss.awe       300       Client Se       Running       7       0       0.00         winidogen.axe       340       Windows       Running       3       0       0.00         srss.awe       376       Windows       Running       3       0       0.00         srcieted Handles       Search Handles       seconda       9%         sociated Modules         9%       9%	perfmon.exe		1372	Resource	Running	20	0	0.34			
tvchostaxe (LocalServiceNoNet 200       Host Pro Running       20       0       0.10         svchostaxe (secsvcs)       2552       Host Pro Running       13       0       0.05         jmst.exe       216       Windows Running       74       0       0.00         crrss.axe       300       Client Se Running       10       0       0.00         crrss.axe       300       Client Se Running       3       0       0.00         crrss.axe       348       Client Se Running       3       0       0.00         crrss.axe       348       Client Se Running       3       0       0.00         svcices       376       Windows Running       3       0       0.00       service CPU Usage         sociated Handles       Search Handles       Search Handles       Search Handles       Search Handles       Search Handles       9%	svchost.exe (Dcc	mLaunch)	544	Host Pro	Running	10	0	0.10			
sychost.exe (secsvcs)       2552       Host Pro       Running       13       0       0.05         System       4       NTK Kerne       Running       74       0       0.00         smss.exe       216       Windows       Running       10       0       0.00         wininiti.axe       340       Windows       Running       3       0       0.00         uvininiti.axe       340       Windows       Running       7       0       0.00         twildogon.exe       376       Windows       Running       3       0       0.00          sociated Handles       Seciated Modules       Seciated Modules           0%	svchost.exe (Loc	alServiceNoNet	200	Host Pro	Running	20	0	0.10			
System       4       NT Kerne       Running       74       0       0.00         smss.exe       216       Windows       Running       2       0       0.00         csrss.exe       300       Client Se       Running       10       0       0.00         windogon.exe       348       Client Se       Running       7       0       0.00         windogon.exe       376       Windows       Running       7       0       0.00         sociated Handles       Search Handles       Image:	svchost.exe (secs	vcs)	2552	Host Pro	Running	13	0	0.05			
smss.exe       216       Windows       Running       10       0       0.00         wininit.exe       340       Windows       Running       3       0       0.00         wininit.exe       340       Windows       Running       7       0       0.00         wininit.exe       346       Client Se       Running       7       0       0.00         winiogon.exe       376       Windows       Running       3       0       0.00       Image: Construction of the second of the seco	System		4	NT Kerne	Running	74	0	0.00			
csrss.exe       300       Client Se       Running       10       0       0.00         winlinit.exe       340       Windows       Running       3       0       0.00         winlinit.exe       340       Client Se       Running       7       0       0.00         winlinit.exe       340       Windows       Running       7       0       0.00       Image: Client Se	swss-exe		216	Windows	Running	2	0	0.00			
wininiti.axe       340       Windows       Running       3       0       0.00         ctrst.exe       348       Client Se       Running       7       0       0.00         windogon.exe       376       Windows       Running       3       0       0.00         twices       0%       CPU Usage       Image: CPU Usage: CPU Usage       Image: CPU Usage: CPU Usa	csrss.exe		300	Client Se	Running	10	0	0.00		60 Seconds	0%
csrss.exe 348 Client Se Running 7 0 0.00   winlogon.exe 376 Windows Running 3 0 0.00   sociated Handles Search Handles Image: Color of the second	wininit.exe		340	Windows	Running	3	0	0.00		Service CPU Usa	age 100%
windogon.exe 376 Windows Running 3 0 0.00 Image: Constraint of the second secon	csrss.exe		348	Client Se	Running	7	0	0.00			
rvices 🔳 0% CPU U <sub>END</sub> e <	winlogon.exe		376	Windows	Running	3	0	0.00 💌			
sociated Modules	rvices sociated Handl	<b>es</b> 04	% CPU L	Jsage	Se	arch Handles		• •			
	sociated Modu	les						•	1		0%
									J		

- 4. Obtain the IDs and names of the processes with high CPU or bandwidth usage.
- 5. On the remote login page, click **Ctrl+Alt+Del** to start the **Windows Task Manager**.

Alternatively, start the **Run** dialog box and enter **taskmgr** to start the **Windows Task Manager**.

The following describes how to display PIDs in **Windows Task Manager**, locate a process, and check whether it is malicious.

- a. Click the **Processes** tab.
- b. Click **PID** to sort the data.
- c. Right-click the process with high CPU or bandwidth usage and choose **Open File Location** from the shortcut menu.
- d. Check whether the process is malicious.

Figure 17-3 Checking the process

HIE Options view Help											
Applications Processes Services Performance Networking Users											
Image Name	PID -	Liser Name	CPU	Memory (							
ctfmon.exe	3064		- 00	740 K							
explorer.exe	2880	Open File Location		11,628 K							
dwm.exe	2856	End Process		932 K							
rdpclip.exe	2792	End Process Tree		1,264 K							
winlogon.exe	2604	Debug		1,184 K							
csrss.exe	2580	UAC Virtualization		1,220 K							
svchost.exe	2552	Create Dump File		18,040 K							
sppsvc.exe	2424 -		_	6,804 K							
WmiPrvSE.exe	2292	Set Priority		1,804 K							
dllhost.exe	2276	Properties		3,700 K							
vm-agent.exe	2232	2232 Go to Service(s)		4,904 K							
svchost.exe	1960 -	UNETWO		2,092 K							
dllhost.exe	1928	SYSTEM	00	3,416 K							
TrustedInstall	. 1840	SYSTEM	00	7,232 K							
wuauclt.exe	1792	Administ	00	1,400 K							
java.exe *32	1664	SYSTEM	00	24,956 K							
perfmon.exe	1372	Administ	00	11,604 K							
vm-agent-dae.	1312	SYSTEM	00	716 K							
svchost.exe	1248	LOCAL	00	636 K							
dllhost.exe	1204	SYSTEM	00	1,408 K 💌							
1											
Show proces	ses from all	users		End Process							

6. Open the **Run** dialog box and enter **fltmc** to view the filter drivers of the system.

The following figure uses Windows 10 as an example. Different OSs have different built-in drivers. For details, see their official websites. If a third-party driver is installed, it is also displayed in this figure.

Figure 17-4 Viewing the system drivers

Filter Name	Num Instances	Altitude	Frame
WaFilter	3	328010	Ø
storqosflt	0	244000	0
wcifs	0	189900	0
CldFlt	0	180451	0
FileCrypt	0	141100	0
luafv	1	135000	0
npsvctrig	1	46000	0
Wof	1	40700	0

The following describes how to view a driver source and check whether the source is unknown.

- a. Go to the C:\Windows\System32\drivers directory on the local PC.
- b. Click the name of the unknown driver and choose **Properties** to view its details.
- c. Click the **Digital Signatures** tab to view the driver source.

Figure 17-5 Viewing the driver source

š	Properties				×
Gene	eral Digital Signature	s Security	Details	Previous Versions	
-5	Signature list			2	
	Name of signer:	Digest algor	ithm	Timestamp	
	(appendix) in the second			Tuesday, Decembe	r
				Details	
		0	ĸ	Cancel	Apply
				Sanoon	14440

#### Troubleshooting

Before the troubleshooting, check whether the processes or drivers leading to the high CPU or bandwidth usage are normal, and handle the issue accordingly.

#### Suggestions for non-malicious processes

- 1. If your ECS runs Windows Server 2008 or 2012, ensure that the available memory is 2 GiB or larger.
- 2. Check whether Windows Update is running.
- 3. Check whether the antivirus software is scanning files and programs on the backend.
- 4. Check whether any applications requiring high CPU or bandwidth resources are running on the ECS. If yes, **modify ECS specifications** or **increase bandwidth**.

5. If the ECS configuration meets the application requirements, deploy applications separately. For example, deploy the database and applications separately.

#### Suggestions for malicious processes

If the high CPU or bandwidth usage is caused by viruses or Trojan horses, manually stop the affected processes. You are advised to troubleshoot the issue as follows:

- 1. Use the commercial-edition antivirus software or install Microsoft Safety Scanner to scan for viruses in security mode.
- 2. Install the latest patches for Windows.
- 3. Run **MSconfig** to disable all drivers that are not delivered with Microsoft and check whether the fault is rectified. For details, see the official Microsoft document *How to perform a clean boot in Windows*.
- 4. If the ECS or site encounters a DDoS or CC attack, and a large number of access requests are generated within a short period, log in to the management console and perform the following operations:
  - Check whether Anti-DDoS has been enabled and whether the protection rules are proper. To configure a protection rule, see Configuring an Anti-DDoS Protection Policy.
  - Check whether CC attack protection has been enabled and whether the protection rules are appropriate. To configure a protection rule, see Configuring a CC Attack Protection Rule.

#### Suggestions for drivers from unknown sources

Some viruses and Trojan horses are loaded through the filter drivers of the system. If you find a driver from an unknown source, you are advised to uninstall it. You can also use commercial antivirus software or third-party security management tools to delete it.

If an unknown driver cannot be deleted, or will appear again after being deleted, it is usually a virus or Trojan horse driver. If the driver cannot be completely deleted using commercial antivirus software or third-party security management tools, you are advised to reinstall the OS and back up data before the reinstallation.

### 17.2 Why Is My Linux ECS Running Slowly?

If your ECS runs slowly or is disconnected suddenly, the possible causes are as follows:

• Your ECS is a shared ECS.

Multiple ECSs share CPU resources. When resources are insufficient, ECSs may contend for CPU resources, causing slow responses.

• The bandwidth or CPU usage of the ECS may be excessively high.

If you have created an alarm rule in Cloud Eye, the system automatically sends an alarm to you when the bandwidth or CPU usage reaches the threshold specified in the rule.

If your ECS is a shared ECS, perform the following steps:

- 1. Fault locating: Check the instance type. For details about dedicated and shared ECSs, see **ECS Types**.
- 2. Troubleshooting: If you have high requirements on service stability, you are advised to change a shared ECS to a dedicated ECS by referring to **Modifying Individual ECS Specifications**.

To handle this issue, perform the following operations:

1. Fault locating:

Identify the processes leading to high bandwidth or CPU usage.

- 2. Troubleshooting: Check whether the processes are malicious and handle the issue accordingly.
  - If the processes are normal, optimize them or **modify ECS specifications**.
  - If the processes are malicious, stop these processes manually or use a third-party tool to stop them automatically.

#### **Common Commands**

The following uses the CentOS 7.2 64bit OS as an example to describe common commands. The commands may vary depending on Linux OS editions. For details, see the official documentation for the specific OS edition.

The common commands for checking Linux ECS performance metrics, such as the CPU usage, are as follows:

- ps -aux
- ps -ef
- top

#### Locating High CPU Usage

- 1. Log in to the ECS using VNC.
- 2. Run the following command to check the OS running status:

#### top

Information similar to the following is displayed.

top -	20:5	6:02 up	37_da	ys, 9:09	), 1 us	er, lu	oad a	ive	rage:	0.00, 0.01	, 0.05
Tasks	: 80	total,	1 r	unn 1 ng ,	79 slee	ping,	<b>U</b> 3	stoj	pped,	U ZOMDIE	
×Сри (	s):	0.2 us,	0.3	sy, 0.0	ni, 99.	5 id,	0.0	wa	, 0.0	1 hi, 0.0	si, 0.0 st
KiB M	em :	3880024	tota	1, 29633	304 free	, 17	8384	usi	ed,	738336 buf	'f∕cache
KiB S	ա ար:	0	tota	1,	0 free		0	usi	ed. 3	<b>434808</b> ava	il Mem
PID	USER	i PR	NI	VIRT	RES	SHR	S %	CPU	×MEM	TIME+	COMMAND
8115	root	. 20	0	161896	2216	1564	R Ø	3.3	0.1	0:00.01	top
1	root	. 20	0	125480	3884	2604	S (	0.0	0.1	0:11.32	systemd
2	root	20	0	0	0	0	S (	0.0	0.0	0:00.00	kthreadd
Э	root	20	0	0	0	0 3	S (	0.0	0.0	0:00.04	ksoftirqd/0
5	root	. 0	-20	0	0	0	S (	0.0	0.0	0:00.00	kworker/0:0H
7	root	rt	0	0	0	0	S (	0.8	0.0	0:00.18	migration/0
8	root	. 20	0	0	0	0 :	S Ø	9.0	0.0	0:00.00	rcu bh
9	root	. 20	0	0	0	0 :	S Ø	9.0	0.0	7:32.18	rcu_sched
10	root	. 0	-20	Ø	Ø	0	S P	a.ø	0.0	0:00.00	lru-add-drain

- 3. View the command output.
  - The first line in the command output is "20:56:02 up 37 days, 1 user, load average: 0.00, 0.01, 0.05", indicating that:

The current system time is 20:56:02; the ECS has been running for 37 days; there is one login user; the last three values indicate the average CPU load in the last 1 minute, 5 minutes, and 15 minutes, respectively.

- The third line in the command output shows the overall CPU usage.
- The fourth line in the command output shows the overall memory usage.
- The lower part of the command output shows the resource usage of each process.

#### D NOTE

- 1. On the **top** page, enter **q** or press **Ctrl+C** to exit.
- 2. Alternatively, click **Input Command** in the upper right corner of the VNC login page, paste or enter commands in the displayed dialog box, and click **Send**.
- 3. Common parameters in top commands are as follows:

**s**: Change the image update frequency.

- **l**: Show or hide the first line for the top information.
- t: Show or hide the second line for tasks and the third line for CPUs.
- **m**: Show or hide the fourth line for Mem and the fifth line for Swap.
- N: Sort processes by PID in ascending or descending order.
- P: Sort processes by CPU usage in ascending or descending order.
- **M**: Sort processes by memory usage in ascending or descending order.
- h: Show help for commands.
- **n**: Set the number of processes displayed in the process list.
- 4. Run the **ll /proc**/*PID*/**exe** command to obtain the program file specified by a PID.

lroot@elb-mg@1 sysconfig]# 11 /proc/4243/exe |rwxrwxrwx 1 root root 0 Mar 18 11:46 /<mark>proc/4243/exe</mark> -> /CloudResetPwdUpdateAgent/depend/jre1.8.0\_131/bin/java

#### Troubleshooting High CPU Usage

If the processes leading to high CPU usage are malicious, run the **top** command to stop them. If the **kswapd0** process leads to high CPU usage, optimize the program for the process or upgrade the ECS specifications for a larger memory capacity.

**kswapd0** is a virtual memory management process. When the physical memory becomes insufficient, **kswapd0** runs to allocate disk swap capacity for caching. This uses a large number of CPU resources.

• For the detected malicious processes

Quickly stop such processes on the top page. To do so, perform the following operations:

- a. Press the **k** key during the execution of the **top** command.
- b. Enter the PID of the process to be stopped.

The PID of the process is the value in the first column of the top command output. For example, to stop the process with PID 52, enter **52** and press **Enter**.

toj	) –	21:0	7:38 սթ	37 day	ys, 9:2	1, 1 use	r, l	load	l aver	age: (	0.01, 0.02	, 0.05	
Tas	sks :	81	total,	1 r	unning,	<b>79</b> sleep	ing,	1	. stop	ped,	0 zombie		
2.C)	ou (s	:):	0.0 us,	3.2	sy, 0.0	ni, 96.8	id,	Ø.	0 wa,	0.0	hi, 0.0	si, 0.0	$\mathbf{st}$
Kil	3 Me	:m :	3880024	tota	1, 2961	520 free,	17	<b>'89</b> 6	0 use	d, i	7 <b>39544</b> buf	f/cache	
Kil	3 Si	ար:	0	tota	1,	Øf <u>ree</u> ,			0 use	d. 34	<b>134216</b> ava	il Mem	
ΡIJ	) ta	sig	nal/kill	[def	ault pid	= 11 52							
1	PID	USER	PR	NI	VIRT	RES	SHR	S	×CPU	×mem	TIME+	Command	
	1	root	20	0	125480	3884	2604	S	0.0	0.1	0:11.32	systemd	
	2	noot	20	Ø	Q	Q	Q	\$	aа	aа	0.00 00	kthnoadd	

c. After the operation is successful, information similar to the following is displayed. Press **Enter**.

top - 21:0	)7:38 սթ :	37 days	;, 9:21	., 1 use	r, lo	oad av	erage:	0.01, 0.02	2,0.05
Tasks: 81	total,	1 run	ming,	79 sleep	ing,	1 st	opped,	0 zombie	2
:Cpu(s)	0.0 us,	3.2 sy	, 0.0	ni, 96.8	id,	0.0 w	a, 0.0	hi, 0.0	si, 0.0 st
KiB Mem :	3880024	total,	29615	20 free,	178	<b>3960</b> u	sed,	739544 buf	f/cache
KiB Swap∶	0	total,		Ø free,		<b>0</b> u	sed. 3	<b>434216</b> ava	il Mem
Send pid 5	52 signal	[15/si	gterm]						
PID USER	R PR	NI	VIRT	RES	SHR S	S ZCP	U %MEM	TIME+	COMMAND
1 root	: 20	01	25480	3884	2604 \$	S Ø.	0 0.1	0:11.32	systemd
2 root	: 20	0	0	0	0 3	S Ø.	0 0.0	0:00.00	kthreadd

• For the **kswapd0** process

To check the memory usage of a process, perform the following operations:

- a. Run the top command to check the resource usage of the **kswapd0** process.
- b. If the process remains in non-sleeping state for a long period, you can preliminarily determine that the system is consistently paging. In such a case, the high CPU usage is caused by insufficient memory.

Tasks %Cpu(:	: 81 tota s): 0.2 u	l, s, [	1 rum 52.2 sy	ing, 7 , 0.0 i	9 sleep ni, 99.7	ing, id,	1 s 0.0	stopp wa,	ed, 0.0	0 zombie hi, 0.0	; si, 0.0	st
Kiĥ Me	em : 3880	024	total,	301482	0 free,	179	024	used	, f	686180 buf	f/cache	
KiB Su	ա ա ա ա ա ա ա ա ա ա ա ա ա ա ա ա ա ա ա	0	total,		Ø free,		0	used	. 3′	<b>133948</b> ava	uil Mem	
PID	USER	PR	NI	VIRT	RES	SHR S	<u>, %</u> C	JPU Z	MEM	TIME+	COMMAND	
36	root	20	0	0	0	0 8	, 99	1.0	0.0 °	964:10.45	kswapd0	
4595	nginy	20	Ø 12	25392	3576	1040 5	I F	1.3	0.1	60:04.91	nginx	
L I J J J	IIY IIIA	60	0 10	10030		20 20 0					- J	

c. Run the **vmstat** command to check the virtual memory usage of the system.

If the **si** and **so** values are large, the system is frequently paging and the physical memory of the system is insufficient.

- si: Volume of data written from the swap partition to the memory per second, which is transferred from the disk to the memory.
- so: Volume of data written from the memory to the swap partition per second, which is transferred from the memory to the disk.
- d. Further identify the causes of high memory usage by running commands such as **free** and **ps** to check the memory usage of the system and processes in the system.
- e. Restart the application or release the memory when traffic is light.

To handle this issue, expand the ECS memory. If memory expansion is not allowed, optimize the application and enable hugepage memory.

#### Handling High Bandwidth Usage

If the high bandwidth usage is caused by normal service access of non-malicious processes, enlarge the bandwidth to handle this issue. If the high bandwidth usage

is caused by abnormal service access, for example, malicious access from certain IP addresses, CC attacks on the ECS, or malicious processes, use the traffic monitoring tool **nethogs** to monitor the bandwidth usage of each process in real time and identify faulty processes.

- Using **nethogs** for troubleshooting
  - a. Run the following command to install **nethogs**:

#### yum install nethogs -y

After the installation, run the **nethogs** command to check bandwidth usage.

Parameters in the **nethogs** command are as follows:

- -d: Set the update interval in the unit of second. The default value is 1s.
- -t: Enable tracing.
- -c: Set the number of updates.
- **device**: Set the NIC to be monitored. The default value is **eth0**.

The following parameters are involved in command execution:

- q: Exit nethogs.
- s: Sort processes in the process list by TX traffic in ascending or descending order.
- r: Sort processes in the process list by RX traffic in ascending or descending order.
- **m**: Switch the display unit in the sequence of KB/s, KB, B, and MB.
- b. Run the following command to check the bandwidth usage of each process on the specified NIC:

nethogs *eth1* 

nethogs	Version	0.8.5			
PID	USER	PROGRAM	DEV	SENT	RECEIVED
4596	ngin×	nginx: worker process	eth1	34.360	3.267 KB/sec
?	root	192.168.0.92:90-100.125.68.19:17873		0.179	0.246 KB/sec
?	root	192.168.0.92:11211-213.32.10.149:44945		0.000	0.000 KB/sec
?	root	192.168.0.92:20101-185.176.26.66:43408		0.000	0.000 KB/sec
?	root	unknown TCP		0.000	0.000 KB/sec
TOTAL				34.540	3.512 KB/sec

The parameters in the command output are as follows:

- **PID**: ID of the process.
- **USER**: user who runs the process.
- PROGRAM: IP addresses and port numbers of the process and connection, respectively. The former is for the server and the latter is for the client.
- **DEV**: Network port to which the traffic is destined.
- **SENT**: Volume of data sent by the process per second.

- **RECEIVED**: Volume of data received by the process per second.
- c. Stop malicious programs or blacklist malicious IP addresses.
   To stop a malicious process, run the kill *PID* command.
   To blacklist a malicious IP address or limit its rate, use iptables.
- Using Web Application Firewall (WAF) to protect the ECS against CC attacks If your ECS has encountered a CC attack, enable CC security protection on the WAF console. For instructions about how to use WAF, see **Configuring a CC Attack Protection Rule**.
# **18** Specification Modification

## 18.1 How Do I Upgrade or Downgrade the Specifications of an ECS and Do I Need to Stop the ECS?

If the specifications of an existing ECS cannot meet service requirements, modify the ECS specifications as needed, for example, upgrading the vCPUs and memory.

To do so, switch to the list view on the **Elastic Cloud Server** page, locate the row containing the target ECS and choose **More** > **Modify Specifications** in the **Operation** column.

#### NOTICE

The ECS needs to be stopped during the specification modification, so you are advised to perform this operation during off-peak hours.

Specification modifications include specification upgrade and downgrade.

- For pay-per-use ECSs, the specifications upgrade and downgrade take effect immediately. You are billed based on the new specifications.
- For yearly/monthly ECSs:
  - Specifications upgrade: The price of the new specifications is higher than that of the current one. You need to pay for the price difference for the upgrade to take effect.
  - Specifications downgrade: The price of the new specifications is lower than that of the current one. You'll get a refund from Huawei Cloud.

For details, see **Pricing of a Changed Specification**.

## 18.2 What Should I Do If My Specifications Modification Request Failed to Submit?

#### Symptom

When you tried to modify specifications of a stopped ECS, the system displayed a message indicating that the system was busy, and the request failed to be submitted.

#### Solution

Check the ECS order and resources.

- If the resources specified in the order have entered the retention period, the ECS specifications cannot be modified. In such a case, renew the order and then modify the specifications.
- If your ECS is billed on a yearly/monthly basis, and the order has been renewed but the new order has not taken effect, the ECS specifications cannot be modified. In such a case, unsubscribe from the new order that has not taken effect and then modify the specifications.

## 18.3 What Should I Do If Executing a Driver Installation Script Failed on an ECS Running CentOS 5?

#### **Scenarios**

After executing the script for installing the Virtio driver on an ECS running CentOS 5, users cannot determine whether the driver has been successfully installed. This section describes how to check driver installation.

#### Procedure

- Log in to the ECS and create a temporary directory check. mkdir /check
- Copy the image file to the current directory. cp /boot/initrd-2.6.18-308.el5.img /check/
- Run the following commands to convert the file format to .gz: cd /check

mv initrd-2.6.18-308.el5.img initrd-2.6.18-308.el5.img.gz

- 4. Decompress the package.
  - gzip -d initrd-2.6.18-308.el5.img.gz
- 5. Check whether the driver has been successfully installed.

cpio -t -F initrd-2.6.18-308.el5.img | grep virtio

The check process is shown in the following figure.

Figure 18-1 Checking driver installation

111111 6.0.10 300.0		HOOLI CPIO					
lroot@sto-saas2pri	check]#	cpio -t -F	initrd-2.6	.18-308.el5.i	mg i	grep	virtio
14562 blocks							
lib/virtio.ko							
lib/virtio_pci.ko							
lib/virtio_ring.ko							
lib/virtio_blk.ko							
lib/virtio_net.ko							
[root@sto-saas2pri	check]#						

If the command output contains **virtio**, **virtio\_blk**, **virtio\_net**, and **virtio\_pci**, the driver has been successfully installed.

In the preceding figure, the image is of an early version and has no virtio\_scsi driver installed. As a result, SCSI disks cannot be attached to such an ECS.

## 18.4 What Should I Do If Executing a Driver Installation Script Failed When I Attempted to Modify the Specifications of a Linux ECS?

#### Symptom

During ECS specifications modification, a script was used to automatically install drivers on a Linux ECS.

During the installation, the following information is displayed, indicating that the script has been executed. However, the installation check failed. The possible cause is that certain drivers were not installed on the ECS.

Info:ECS modify success (mkinitrd) Info:Check xen and virtio driver again!

Error:ECS modify error!

#### Figure 18-2 Successful driver installation with a failed installation check



#### Solution

Check whether the desired drivers have been successfully installed by following the instructions provided in "Check Whether the ECS Has Been Configured" in **Manually Changing a Xen ECS to a KVM ECS (Linux)**.

If the drivers failed to install, the script may not match the ECS OS. In such a case, manually install the drivers on the Linux ECS by following the instructions provided in Manually Changing a Xen ECS to a KVM ECS (Linux).

Certain Linux ECSs do not have the virtio\_scsi driver installed because the kernel version is too early or the kernel has been modified. Such ECSs cannot be attached with SCSI disks. However, this issue will not affect the ECS specifications modification from Xen to KVM. If the ECSs do not use SCSI disks, you can still modify their specifications without the virtio\_scsi driver.

# 18.5 Why Do the Disks of a Windows ECS Go Offline After I Modify the ECS Specifications?

#### **Scenarios**

After you modify specifications of a Windows ECS, the disks may go offline. You need to check the number of disks after you modify the specifications.

#### Procedure

- 1. Check whether the number of disks displayed on the **Computer** page after you modified ECS specifications is the same as the number of disks before you modified ECS specifications.
  - If the numbers are the same, the status of the disks is properly. No further action is required.
  - If the numbers are different, the disks are offline. In this case, go to step
     2.

For example:

An ECS running Windows Server 2008 has one system disk and two data disks attached before you modified the specifications.

Figure 18-3 Disks before modifying ECS specifications



After the specifications are modified, check the number of disks.



Only one system disk is displayed. The data disks are offline after you modify the specifications.

- 2. Bring the disks online.
  - a. Click Start in the task bar. In the displayed Start menu, right-click Computer and choose Manage from the shortcut menu.
     The Server Manager page is displayed.
  - In the left navigation pane, choose Storage > Disk Management.
     The Disk Management page is displayed.
  - c. In the left pane, the disk list is displayed. Right-click the offline disk and choose **Online** from the shortcut menu to bring it online.

Figure 18-5 Bringing the disk online

File Action View Help         Image: Server Manager (ECS-WIN-C1-PAS)         Disk Hanagement       Volume Lat + Graphical View         Image: Patters       Disk Hanagement         Image: Patters       Healthy (Doct, Page File, Crash Durp, Primary Partition         Image: Patters       Disk Imagement         Image	Server Manager					الم	
Server Manager (ECS-WIN-C1-PAS Point Hanagement Volume List + Graphical View Server Manager (ECS-WIN-C1-PAS Point Hanagement Volume List + Graphical View Volume Layout Type Resystem Istatus Volume Layout Type Resyst	File Action View Help						
Server Manager (ICS-WIH-CL-PAS Roles Role	🗢 🔿 🙍 📅 📓 🖬 😰 🕽	K 🖆 😂 🔍 😼					
Image: Status       Doks       Use is system Reserved Single Basic NTFS       Healthy (Boot, Page File, Orach Durr, Healthy (System, Active, Pimary Par)         Image: Status       Device Manager       System Reserved Single Basic NTFS       Healthy (System, Active, Pimary Par)         Image: Status       Device Manager       System Reserved Single Basic NTFS       Healthy (System, Active, Pimary Par)         Image: Status       Device Manager       System Reserved Single Basic NTFS       Healthy (System, Active, Pimary Par)         Image: Status       Device Manager       System Reserved Single Basic NTFS       Healthy (System, Active, Pimary Par)         Image: Status       Device Manager       System Reserved Single Basic NTFS       Healthy (System, Active, Pimary Par)         Image: Status       Device Manager       System Reserved Single Basic NTFS       Healthy (System, Active, Pimary Par)         Image: Status       Device Manager       System Reserved Single Basic NTFS       Healthy (System, Active, Pimary Par)         Image: Status       Device Manager       System Reserved Single Basic Singl	Server Manager (ECS-WIN-C1-PAS	Disk Management	t Volume List +	Graphical Vie	w	Actions	
Constant Very Construction     Strange     Constant Very Construction     Constant Very Constant Very Construction     Constant Very Constant Very Constant Very Constant Very Constant Very Constant     Constant Very Const	Roles     Features	Volume	Layout Type	File System	Status	Disk Management	-
Cost Reinspersent	Configuration     Configuration     Configuration     Windows Server Badup	Ger (C:) Ger System Reserved	Simple Basic Simple Basic	NTFS NTFS	Healthy (Boot, Page File, Crash Dur Healthy (System, Active, Primary Pa	More Actions	•
State     Peaking Code register.       State     State	ing Disk Management	Basic     GB     Orden	System Reset	r (C:) 39.90 G8	ANTES		2
		Disk 1 Unknown 10.00 GB Offine i Helo	10.00 GB Unallocated	tion			
	101	daalaa ahaa ahaa ahaa ahaa ahaa ahaa aha					

- 3. On the **Computer** page, check whether the number of disks after you modified ECS specifications is the same as the number of disks before you modified the ECS specifications.
  - If the numbers are the same, no further action is required.
  - If the numbers are different, contact customer service.

#### Figure 18-6 Disks after you bring the disks online

Computer		×
Compute	r • 🗘 Sew	rch Computer
Organize 👻 System prop	erties Uninstall or change a program Map network drive Open Control Panel	8 · 🖬 🛛
Favorites     Favorites     Desktop     Downloads     Decent Places     Decent Places     Downloads     Decent Places     Dounloads     Masic     Protures     Videos     Videos     Videos     Computer     Computer     New Volume (D:)     Mew Volume (D:)     New Volume (D:)     New Volume (E:)     Network	Hard Dak Drives (3)     Local Dak (C:)     14.9 G6 free of 39.8 G6     New Volume (D:)     9.91 G8 free of 9.9     New Volume (E:)     9.91 G8 free of 9.99 G8	9 68
ECS-WIN-C1-P	ASS Workgroup: WORKGROUP Memory: 0.99 G8 Processor: Intel(R) Xeon(R) CPU E5	
and 💷 🗖	Ma 10	12:48 PM

# 18.6 Why Does the Disk Attachment of a Linux ECS Fail After I Modify the ECS Specifications?

#### **Scenarios**

After you modify specifications of a Linux ECS, disk attachment may fail. You need to check the disk attachment after you modify the specifications.

#### Procedure

- 1. Log in to the ECS as user **root**.
- 2. Run the following command to view the disks attached before specifications modification:

fdisk -l | grep 'Disk /dev/'

Figure 18-7 Viewing disks attached before specifications modification

[roo	t@servercf	924ffa-da	23-4d09-a7e0	-416694	a68492 ~]#	fdisk -	l grep	'Disk	/dev/'
Disk	/dev/vda:	42.9 GB,	42949672960	bytes,	83886080	sectors			
Disk	/dev/vdb:	10.7 GB,	10737418240	bytes,	20971520	sectors			
Disk	/dev/vdc:	10.7 GB,	10737418240	bytes,	20971520	sectors			
[roo	taservercf	924ffa-da	23-4d89-a7e8	-416694	a68492 ~1#	÷ 8			

As shown in **Figure 18-7**, the ECS has three disks attached: **/dev/vda**, **/dev/vdb**, and **/dev/vdc**.

3. Run the following command to view disks attached after specifications modification:

df -h| grep '/dev/'

Figure 18-8 Viewing disks attached after specifications modification

[root@servero	f924ffa-	da23-4	d09-a7	e0-41	16694a68492	~ #	df	-h	grep	'/dev/'
/dev/vda2	396	1.4G	35G	4%	1					
/dev/vdal	976M	146M	764M	16%	/boot					

As shown in Figure 18-8, only one disk /dev/vda is attached to the ECS.

- 4. Check whether the number of disks obtained in step **3** is the same as that obtained in step **2**.
  - If the numbers are the same, the disk attachment is successful. No further action is required.
  - If the numbers are different, the disk attachment failed. In this case, go to step 5.
- 5. Run the **mount** command to attach the affected disks.

For example, run the following command:

#### mount /dev/vdb1 /mnt/vdb1

In the preceding command, **/dev/vdb1** is the disk to be attached, and **/mnt/vdb1** is the path for disk attachment.

#### NOTICE

Ensure that /mnt/vdb1 is empty. Otherwise, the attachment will fail.

6. Run the following commands to check whether the numbers of disks before and after specifications modifications are the same:

#### fdisk -l | grep 'Disk /dev/'

df -h| grep '/dev/'

- If the numbers are the same, no further action is required.
- If the numbers are different, contact customer service.

Figure 18-9 Checking the number of disks attached

<pre>[root@servercf924ffa-da23-4d09-a7e0-416694a68492 ~]# mount /dev/vdb1 /mnt/vdb1</pre>	
[root@servercf924ffa-da23-4d09-a7e0-416694a68492 ~]# mount /dev/vdc1 /mnt/vdc1	
[root@servercf924ffa-da23-4d09-a7e0-416694a68492 ~]#	
[root@servercf924ffa-da23-4d09-a7e0-416694a68492 ~]# fdisk -l  grep 'Disk /dev	1.
Disk /dev/vda: 42.9 GB, 42949672960 bytes, 83886080 sectors	
Disk /dev/vdb: 10.7 GB, 10737418240 bytes, 20971520 sectors	
Disk /dev/vdc: 10.7 GB, 10737418240 bytes, 20971520 sectors	
[root@servercf924ffa-da23-4d09-a7e0-416694a68492 ~]# df -h   grep '/dev/'	
/dev/vda2 39G 1.4G 35G 4% /	
/dev/vda1 976M 146M 764M 16% /boot	
/dev/vdb1 9.8G 23M 9.2G 1% /mnt/vdb1	
/dev/vdc1 9.8G 23M 9.2G 1% /mnt/vdc1	
[root@servercf924ffa-da23-4d09-a7e0-416694a68492 ~]#	

As shown in **Figure 18-9**, the numbers of disks before and after specifications modifications are the same. The disks are **/dev/vda**, **/dev/vdb**, and **/dev/vdc**.

# **19** OS Change

### **19.1 Does OS Change Incur Fees?**

Changing an OS is not billed.

After an OS is changed, different images are used and system disk capacity may increase. You will be billed based on the new configurations.

If you change the OS from Linux to Windows, the Windows image is provided and billed by a third party.

For details about the OS change, see Changing the OS.

### 19.2 Can I Install or Upgrade the OS of an ECS?

You can install or upgrade ECS OSs provided on the cloud platform.

- When you create an ECS, you can select a public image or a private image created from a public image to install the ECS OS. Select an OS image based on the programming language in the actual application scenario. For details about image selection, see Should I Choose Windows OS or Linux OS for My ECS?
- You can change your ECS OS through the management console, for example, you can upgrade CentOS 7.2 to CentOS 7.3.

### 19.3 Can I Change the OS of an ECS?

Yes, you can change the OS of an ECS.

If the OS running on an ECS cannot meet service requirements, for example, a higher OS version is required, you can change the ECS OS.

The cloud platform allows you to change the image type (public images, private images, and shared images) and OS. You can change the OS by changing the ECS image.

For instructions about how to change an ECS OS, see Changing the OS.

### 19.4 How Long Does It Take to Change an ECS OS?

To change an ECS OS, do as follows:

- 1. Stop the ECS.
- 2. Choose **More** > **Manage Image** > **Change OS**.

This operation takes about 1 to 4 minutes.

During this process, the ECS is in **Changing OS** state.

#### Figure 19-1 Changing an OS

Change OS					
Note the following 1. All the data on 2. Not all OSs su unavailable. Lear 3. The ECS will b settings. Hide	g points before you change i the system disk, and any sr ipport SCSI disks. If the new m more be automatically restarted aff	he OS: lapshots, will be lost. Ba OS does not support S er the OS change. Any	ick up the data before y CSI disks, any SCSI dis custom settings (such a	ou continue. ks attached to the ECS wil s the DNS or hostname) w	l <mark>become</mark> III be reset to their default
Current Configuratio	on				
ECS Name	IP address	Specificatio	ns Image		System Disk
ecs-4	192.168.0.30 (P	riva 1 vCPU   2 G	iB CentOS 7.5 6	4bit (64-bit)	40 GiB
mage	Public image	Private image	Shared image	KooGallery image	~ Q
ogin Mode	Key pair Pas	ssword			
Password	Enter a password.	1			
	You can use the original p	assword or enter a new	/ one.		
Confirm Password	Enter the password ag	ain. 🕲			
				(	Cancel OK

# 19.5 Will I Lose My Disk Data If I Reinstall ECS OS, Change the OS, or Change the ECS Specifications?

ltem	OS Reinstallation	OS Change	Specifications Modification
Applicat ion scenario	Initialize an ECS. The ECS OS remains unchanged after OS change.	Change the OS of an ECS by changing its image. OS change between Windows and Linux is supported only in the Chinese mainland regions. For details about OS change constraints, see <b>Changing the OS</b> .	Change ECS specifications, such as increasing the number of vCPUs or adding memory, to meet your service requirements.
Billing	OS reinstallation is free of charge. The ECS price remains unchanged.	OS change is free of charge. However, you will be billed based on your new image type after OS change. For details, see <b>Product Price Details</b> .	Modifying ECS specifications is free of charge. However, you will be billed based on the new specifications after modification. For details, see <b>Pricing of a</b> <b>Changed</b> <b>Specification.</b>
IP address	The private IP address, EIP, and MAC address remain unchanged.	The private IP address, EIP, and MAC address remain unchanged.	The private IP address, EIP, and MAC address remain unchanged.
System disk	Reinstalling the OS clears the data in all partitions of the system disk, including the system partition. Back up data before reinstalling the OS.	Changing the OS clears the data in all partitions of the system disk, including the system partition. Back up data before changing the OS.	No impact on system disk.
Data disk	No impact on data disk.	No impact on data disk	No impact on data disk.

#### Table 19-1 Impact

ltem	OS Reinstallation	OS Change	Specifications Modification
Backup	Back up data before reinstalling the OS to prevent data loss.	Back up data before changing the OS to prevent data loss.	Create a system disk snapshot before modifying ECS specifications to prevent data loss.

## **19.6 Does OS Reinstallation Incur Fees?**

Reinstalling an OS for an ECS allows you to use the original image to reinstall the ECS and does not incur fees.

If you want to use a new OS image, change the OS.

For details, see Changing the OS.

# **19.7 Can I Select Another OS During ECS OS Reinstallation?**

No. You can only use the original image of the ECS to reinstall the OS.

If you want to use a new OS image, change the OS.

For details, see Changing the OS.

### 19.8 How Long Does It Take to Reinstall an ECS OS?

Generally, the process of reinstalling the OS of an ECS takes about 1 to 2 minutes to complete. On the ECS console, stop the ECS and choose **More** > **Manage Image** > **Reinstall OS** in the **Operation** column.

During this process, the ECS is in **Reinstalling OS** state.

#### Figure 19-2 Reinstalling an OS

Reinstall OS						×
Note the following 1. An OS reinstall you continue. 2. The ECS will be Hide	points before you reinstall the ation has no effect on data disk e automatically restarted after t	OS: ks, but all data on and the OS reinstallation, a	all snapshots creat ind custom settings	ed for the system disk will be (such as the DNS and hostna	lost. Back up the data be ame) will be reset.	efore
Current Configuration	n					
ECS Name	IP address	Specificat	tions Imag	e	Sys	te
ecs-	192.168.0.30 (Priv	ate IP) 1 vCPU   2	2 GiB   Cent	DS 7.5 64bit(64-bit)	40 0	ЭiВ
Stop the ECS (Th	e ECS must be stopped befo	ore its OS can be rein	stalled.)			
System disk	Encrypted (?)					
Login Mode	Key pair Passw	ord Set passv	vord later			
Password	Enter a password.	1				
	You can use the original pass	sword or enter a new o	ne.			
Confirm Password	Enter the password again.	2				
					Cancel	OK

# **20** ECS Security Check

# 20.1 How Does an ECS Defend Against DDoS Attacks?

#### What Is a DDoS Attack?

Denial of Service (DoS) attacks, also known as flood attacks, intend to exhaust the network or system resources on the target computer, causing service interruption or suspension. Consequently, legitimate users fail to access network services. When an attacker uses multiple compromised computers on the network as attack machines to launch DoS attacks to specific targets, the attacks are called Distributed Denial of Service (DDoS) attacks.

#### What Is Anti-DDoS?

Anti-DDoS defends ECSs against DDoS attacks and sends real time alarms when detecting attacks. In addition, Anti-DDoS improves the bandwidth utilization to further safeguard your services.

Anti-DDoS monitors the service traffic from the Internet to public IP addresses and detects attack traffic in real time. It then scrubs attack traffic based on userconfigured defense policies without interrupting service running. It also generates monitoring reports that provide visibility into the security of network traffic.

#### Anti-DDoS

Anti-DDoS defends ECSs against DDoS attacks and sends real time alarms when detecting attacks. In addition, Anti-DDoS improves the bandwidth utilization to further safeguard your services.

Anti-DDoS monitors the service traffic from the Internet to public IP addresses and detects attack traffic in real time. It then scrubs attack traffic based on user-configured defense policies without interrupting service running. It also generates monitoring reports that provide visibility into the security of network traffic.

Anti-DDoS helps you mitigate the following attacks:

• Web server attacks

Include SYN flood, HTTP flood, Challenge Collapsar (CC), and low-rate attacks

- Game attacks
   Include User Datagram Protocol (UDP) flood, SYN flood, TCP-based, and fragmentation attacks
- HTTPS server attacks

Include SSL DoS and DDoS attacks

• DNS server attacks

Include attacks exploiting DNS protocol stack vulnerabilities, DNS reflection attacks, DNS flood attacks, and DNS cache miss attacks

Anti-DDoS also provides the following functions:

- Monitors a single EIP and offers a monitoring report, covering the current protection status, protection settings, and the traffic and anomalies within the last 24 hours.
- Provides attack statistics reports on all protected EIPs, covering the traffic scrubbing frequency, scrubbed traffic amount, top 10 attacked EIPs, and number of blocked attacks.

## 20.2 Are ECSs with Simple Passwords Easily Attacked?

It is recommended that your password contain 8 to 26 characters that consists of digits, uppercase and lowercase letters, and special characters. It is a good practice to download virtualization antivirus products and host security hardening products from Huawei Cloud KooGallery and install them on your ECSs to enhance security.

If your ECS has been intruded, contact customer service for technical support.

Parameter	Requirement
Password	<ul> <li>Consists of 8 to 26 characters.</li> <li>Contains at least three of the following character types: <ul> <li>Uppercase letters</li> <li>Lowercase letters</li> </ul> </li> </ul>
	<ul> <li>Digits</li> <li>Special characters for Windows ECSs: !@\$%^=+ [{()}]:,./?~#*</li> <li>Special characters for Linux ECSs: !@\$%^=+[{}]:,./? ~#*</li> </ul>
	<ul> <li>Cannot contain the username or the username spelled backwards.</li> </ul>
	• Cannot contain more than two consecutive characters in the same sequence as they appear in the username. (This requirement applies only to Windows ECSs.)

Table 20-1 Password complexity requirements

## 20.3 How Is ECS Security Ensured?

Host Security Service (HSS) helps you identify and manage the assets on your servers, eliminate risks, and defend against intrusions and web page tampering. There are also advanced protection and security operations functions available to help you easily detect and handle threats.

After installing the HSS agent on your ECSs, you will be able to check the ECS security status and risks in a region on the HSS console.

If you use a public image to create an ECS, protection is enabled by default for your ECS. Its basic edition is free of charge. HSS automatically installs an agent on the ECS and protects the security of the ECS.

How Do I Use HSS?

## 20.4 How Can I Disable Operation Protection?

#### Symptom

When I perform critical operations on my ECS with operation protection enabled, for example, deleting my ECS or modifying ECS specifications, I have to enter the password and verification code for authentication. To disable operation protection, perform the operations described in this section.

#### Procedure

- 1. Log in to the management console.
- 2. Move the cursor to the username in the upper right corner of the page and select **Security Settings** from the drop-down list.

#### Figure 20-1 Security Settings



3. On the **Security Settings** page, choose **Critical Operations > Operation Protection > Change**. 

 Security Settings
 Image: Critical Operations
 Login Authentication Policy
 Password Policy
 ACL

 Virtual MFA Device
 Image: Critical Operations
 Login Authentication Policy
 Password Policy
 ACL

 Virtual MFA device bound to your account authenticates console logins. Download the HUAWEI CLOUD app. or an authenticator app on your mobile phone and bind it to your account.
 Image: Cloud Device Cloud Device

4. On the **Operation Protection** page, select **Disable** and click **OK**.

# **21** Resource Management and Tag

# 21.1 How Can I Create and Delete Tags and Search for ECSs by Tag?

#### Creating a Tag

- 1. Log in to the management console.
- 2. Select the region where the ECS is located.
- 3. Under Compute, click Elastic Cloud Server.
- Click the name of the target ECS.
   The page providing details about the ECS is displayed.
- 5. Click **Tags** and then **Add Tag**.
- 6. Enter the tag key and value, and click **OK**.

#### 

If your organization has created a tag policy for ECS, you need to add tags for ECS based on the tag policy. If a tag does not comply with the tag rules, the creation may fail. Contact the organization administrator to learn details about the tag policy.

Figure	21-1	Adding	tags
--------	------	--------	------

#### Add Tag

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

abc	12	123			
Tag key	Та	Tag value			
You can add 7 more tags.					
_					

X

#### Searching for ECSs by Tag

- 1. Log in to the management console.
- 2. Select the region where the ECS is located.
- 3. On the **Elastic Cloud Server** page, search for ECSs by tag.

#### Figure 21-2 Searching for ECSs by tag

Tag:	Searched by Name by default.	
C	(Select all)	
_		
		2
Г		
Г		
	OK Cancel	d

4. In the search bar, choose **Tag** and then select the tag key and value, and click **OK**.

#### **Deleting a Tag**

- 1. Log in to the management console.
- 2. Select the region where the ECS is located.
- 3. Click Elastic Cloud Server.
- 4. Click the name of the target ECS.
- 5. On the page providing details about the ECS, click **Tags**, locate the row containing the target tag, and click **Delete** in the **Operation** column.

#### Figure 21-3 Deleting a tag

Disks NICs Security Groups EIPs Monitoring	Tags	
Add Tag You can add 9 more tags for the ECS.		
Key	Value	Operation
abc	123	Edit Delete

# **22** Image Source Management

# 22.1 How Can I Use an Automated Tool to Configure a Huawei Cloud Image Source (x86\_64 and Kunpeng)?

#### Scenarios

When updating the OS or software of an ECS, you can access the Internet through the ECS and use an external image source. However, if your ECS cannot access the Internet, or the external image source cannot provide services stably, you can use the one-click script configuration function provided by Huawei Cloud to configure and update the image source.

#### Constraints

- This section applies only to the following regions: CN North-Beijing1, CN North-Beijing4, CN East-Shanghai1, CN East-Shanghai2, CN South-Guangzhou, and CN-Hong Kong.
- You have configured the intranet DNS server provided by Huawei Cloud.
  - To obtain the intranet DNS server address, see What Are Huawei Cloud Private DNS Server Addresses?

For instructions about how to configure a DNS server, see **How Do I Configure DNS for an ECS?**.

- The operations described in this section apply to both x86\_64 and Kunpeng ECSs.
- Only the following OSs are supported: EulerOS, CentOS, Debian, and Ubuntu.

#### **NOTE**

The automatic tool does not support the following operating systems:

- Debian 8.8.0 64bit
- Debian 8.2.0 64bit
- Ubuntu 22.04 server 64bit

#### Procedure

- 1. Log in to the ECS.
- Run the following command to configure the image source: wget http://mirrors.myhuaweicloud.com/repo/mirrors\_source.sh && bash mirrors\_source.sh

# 22.2 How Can I Use a Pypi Image Source (x86\_64 or Kunpeng) Provided by Huawei Cloud?

#### **Scenarios**

When updating the OS or software of an ECS, you can access the Internet through the ECS and use an external Pypi image source. However, if your ECS cannot access the Internet, or the external Pypi image source cannot provide services stably, you can use the Pypi image source provided by Huawei Cloud.

#### Constraints

- This section applies only to the following regions: CN North-Beijing1, CN North-Beijing4, CN East-Shanghai1, CN East-Shanghai2, CN South-Guangzhou, and CN-Hong Kong.
- You have configured the intranet DNS server provided by Huawei Cloud.

To obtain the intranet DNS server address, see **What Are Huawei Cloud Private DNS Server Addresses?** 

For instructions about how to configure a DNS server, see **How Do I Configure DNS for an ECS?**.

• The operations described in this section apply to both x86\_64 and Kunpeng ECSs.

#### Procedure

- 1. Log in to the ECS as user **root** or **Administrator**.
- Run the following commands to create the **pip.conf** configuration file: mkdir ~/.pip

touch ~/.pip/pip.conf

3. Modify the **pip.conf** configuration file as follows:

[global] index-url = http://mirrors.myhuaweicloud.com/pypi/web/simple format = columns [install] trusted-host=mirrors.myhuaweicloud.com

#### **NOTE**

If certain packages are unavailable, this issue may be caused by in-progress data synchronization. In such a case, try again several hours later.

## 22.3 What Can I Do If the Download Speed Is Slow After the yum makecache Command Is Executed?

#### Symptom

After the **yum makecache** command is executed to create a local cache, the download speed becomes slow.

#### Solution

Configure the EPEL source.

- Learn what is EPEL source.
- EPEL repository: https://repo.huaweicloud.com/epel/

#### Constraints

- This section applies only to the following regions: CN North-Beijing1, CN North-Beijing4, CN East-Shanghai1, CN East-Shanghai2, CN South-Guangzhou, and CN-Hong Kong.
- You have configured the intranet DNS server provided by Huawei Cloud.

To obtain the intranet DNS server address, see **What Are Huawei Cloud Private DNS Server Addresses?** 

For instructions about how to configure a DNS server, see **How Do I Configure DNS for an ECS?**.

• The operations described in this section apply to x86\_64 ECSs.

#### Procedure

1. Run the following commands to back up configuration files:

cp -a /etc/yum.repos.d/epel.repo /etc/yum.repos.d/epel.repo.backup

mv /etc/yum.repos.d/epel-testing.repo /etc/yum.repos.d/epel-testing.repo.backup

2. Modify the **epel.repo** file.

Run the following commands to uncomment the line starting with **baseurl**, comment out the lines starting with **mirrorlist**, and replace **http:// download.fedoraproject.org/pub** in the file with **https:// repo.huaweicloud.com**, respectively:

sed -i "s/#baseurl/baseurl/g" /etc/yum.repos.d/epel.repo

sed -i "s/metalink/#metalink/g" /etc/yum.repos.d/epel.repo

sed -i "s@http://download.fedoraproject.org/pub@https://
repo.huaweicloud.com@g" /etc/yum.repos.d/epel.repo

3. Run the **yum update** command to update the software list.

#### **NOTE**

- After you execute the **yum makecache** command, if the system displays the message "Another app is currently holding the yum lock", run the **rm -rf /var/run/ yum.pid** command to delete the **yum.pid** file. Then, run the **yum makecache** command again to generate the cache.
- After you execute the **yum makecache** command, if the system displays the message "Error: Cannot retrieve metalink for repository: epel. Please verify its path and try again", run the following command to update the certificate and temporarily disable the EPEL image source:

#### yum --disablerepo=epel -y update ca-certificates

• If certain packages are unavailable, this issue may be caused by in-progress data synchronization. In this case, try again after a few hours.

# **23** Internet Access Failures

# 23.1 Why Cannot My Windows ECS Access the Internet?

#### Symptom

Your attempt to access the Internet from your Windows ECS failed.

#### **Fault Locating**

The following fault causes are sequenced based on their occurrence probability.

If the fault persists after you have ruled out a cause, check other causes.

Possible Cause	Solution
The ECS is frozen or stopped, or has no EIP bound.	Check whether the ECS is in <b>Running</b> state and has an EIP bound. For details, see <b>Checking the ECS Status</b> .
The ECS is overloaded.	Check whether the bandwidth and vCPU usage of the ECS are too high. For details, see Checking Whether the ECS Is Overloaded.
The EIP bandwidth exceeds the limit.	Increase the bandwidth and try again. For details, see Checking Whether the EIP Bandwidth Exceeded the Limit.
The access is blocked by the ISP.	Check whether you can access the ECS using another hotspot or network. For details, see <b>Checking Whether the ISP Network Is Functional</b> .
The network configuration on the ECS is incorrect.	Check whether the NIC and DNS configurations are correct. For details, see Checking the NIC Configuration.

 Table 23-1
 Possible causes and solutions

Possible Cause	Solution				
Routing is incorrectly configured.	Check whether the default route of 0.0.0.0 designates to the default gateway. For details, see Checking Whether the Default Route Is Destined for the Default Gateway.				
The security group is incorrectly configured.	Check whether the security group allows the network traffic in the outbound direction. For details, see <b>Checking Whether the Security Group Is Correctly</b> <b>Configured</b> .				
A network ACL has been associated with the ECS.	Disassociate the network ACL with the ECS and try again. For details, see <b>Checking ACL Rules</b> .				
The website you want to visit is outside the Chinese	Optimize the website link configurations and try again. For details, see Checking Whether the Website to Be Visited Is Outside the Chinese Mainland.				
mainland.	(This solution is used when you intend to access the websites outside the Chinese mainland.)				
The EIP is blocked.	If the EIP is blocked, the ECS cannot access the Internet. For details, see <b>Checking Whether the EIP Is Blocked</b> .				
The access is blocked by the firewall.	Disable the firewall and try again. For details, see Checking the Firewall Configuration.				
The gateway is inaccessible.	Run the <b>ping</b> command to check whether the DNS server is running properly. For details, see <b>Checking</b> <b>Whether the Gateway Is Accessible</b> .				
The ECS performance cannot meet service requirements.	Run the <b>netstat</b> command to check the network connection status. For details, see <b>Checking the ECS</b> <b>Performance</b> .				
The access is blocked by third- party antivirus software.	Disable or uninstall the third-party antivirus software and try again. For details, see Checking Whether the Access Is Blocked by Antivirus Software.				
The ECS has been attacked by viruses or Trojan horses.	Check whether the ECS is affected by viruses or Trojan horses. For details, see <b>Checking the ECS Security Status</b> .				

#### Checking the ECS Status

- Check whether the ECS is in the **Running** state on the management console.
- Check whether an ECS has an EIP bound.
   An ECS can access the Internet only if it has an EIP bound.
   For details about how to bind an EIP to the ECS, see Assigning an EIP.

#### **Checking Whether the ECS Is Overloaded**

If the bandwidth and CPU usage of an ECS are too high, the network may be disconnected.

If you have created an alarm rule in Cloud Eye, the system automatically sends an alarm notification to you when the bandwidth or CPU usage reaches the threshold specified in the rule.

To resolve this issue, perform the operations described in **Why Is My Windows ECS Running Slowly**?

#### Checking Whether the EIP Bandwidth Exceeded the Limit

An ECS with an EIP bound accesses the Internet using the bandwidth configured for the EIP.

If Internet access fails, check whether the EIP bandwidth exceeds the limit.

Check whether the bandwidth exceeds the configured bandwidth size. For details, see **How Do I Know If My EIP Bandwidth Limit Has Been Exceeded?** 

If the bandwidth exceeds the limit, increase the bandwidth. For details, see **Changing an EIP Bandwidth**.

#### **Checking Whether the ISP Network Is Functional**

Check whether the fault occurs for a specific IP address. If so, the IP address may be blocked by the ISP.

Try another hotspot for access. If the access is successful, the fault may lie in the local carrier network. Contact the carrier to resolve this issue.

#### **Checking the NIC Configuration**

- Check whether the NIC and DNS configurations on the ECS are consistent with those displayed on the ECS management console.
  - a. On the CLI of the ECS, run the **ipconfig /all** command to check whether the NIC and DNS configurations are correct, as shown in **Figure 23-1**.

Figure	23-1	NIC	and	DNS	config	urations
iguic	23 1	I VIC	ana		connig	juiuuons

Administrator: Command Prompt
(c) 2013 Microsoft Corporation. All rights reserved. C:\Users\Administrator>inconfig /all
Windows IP Configuration
Host Name : ecs-1d6c Primary Dns Suffix : Node Type : Hybrid IP Routing Enabled : No WINS Proxy Enabled : No DNS Suffix Search List : openstacklocal
Ethernet adapter Ethernet 2:
Connection-specific DNS Suffix : openstacklocal Description Red Hat UirtIO Ethernet Adapter Physical Address
DNS Servers : 100.125.1.250 100.125.129.250 NetBIOS over Topip : Enabled

- b. Log in to the management console. On the ECS list page, click the name of the target ECS.
- c. On the page providing details about the ECS, click the VPC name.

Figure 23-2 ECS details page < ecs-edc2 Disks NICs Security Groups EIPs Monitoring Summary Tags **ECS Information** ID 456cd9a2-3b33-4fba-aa58-94562ce66ac5 ecs-edc2 🖉 Name Region AZ AZ2 Specifications General computing-plus | c6.large.2 | 2 vCPUs | 4 GB Windows Server 2012 R2 Standard 64bit Chinese Image VPC vpc-01

- d. On the VPC list page, click the number displayed in the **Subnets** column.
- e. On the subnet list page, click the name of the target subnet. The subnet details page is displayed , as shown in **Figure 23-3**.

#### Figure 23-3 Subnet details

< subnet-01			
Summary IP	Addresses Tags		
Subnet Information	n		
Name	subnet-01 🖉	Network ID	3
AZ	AZ1	IPv4 Subnet ID	σ
Status	Available	IPv6 Subnet ID	٥
VPC	vpc-01		
Available IP Addresse	es 200		
IPv4 CIDR Block	192.168.10.0/24		
IPv6 CIDR Block	2407::080:1200:172::/64 (?)		
Gateway and DNS	5 Information		
DHCP	Enabled	Gateway 192.168.10.1	
DNS Server Address	100.125.1.250, 100.125.129.250 🖉 💮	DHCP Lease Time 1day 🖉 🕥	

• Open the **cmd** window, run the **ncpa.cpl** command to start Network and Sharing Center, and check whether the NIC is functional.

	Ethernet 2 Status	
eneral		
Connection		
IPv4 Connectiv	vity: In	ternet
IPv6 Connectiv	vity: No network a	access
Media State:	E	nabled
Duration:	00	06:24
Speed:	100.0	Gbps
	1	
Activity	-	
Activity	Sent — Rea	ceived
Activity Bytes:	Sent — Rec 1,426,539   154,95	ceived
Activity Bytes:	Sent — Red 1,426,539   154,95 Diagnose	ceived

#### Figure 23-4 NIC status

#### Checking Whether the Default Route Is Destined for the Default Gateway

Run the **route print** command to obtain the routing table of the ECS and check whether the default route of 0.0.0.0 is destined for the default gateway.

Administrator: Command Prompt					
IPv4 Route Table					
Active Routes: Network Destination 0.0.0.0	Netmask 0.0.0.0	Gateway 192.168.10.1	Interface 192.168.10.210	Metric 5	
127.0.0.0 127.0.0.1 2	255.0.0.0 55.255.255.255	Un-link On-link	127.0.0.1 127.0.0.1	зюе 306	
Persistent Routes: None					

Figure 23-5 Default route settings

#### Checking Whether the Security Group Is Correctly Configured

Check whether the security group of the ECS is correctly configured. If an allowlist is configured for the outbound rules of the security group, the network traffic in the outbound direction is permitted.

As shown in **Figure 23-6**, all network traffic in the outbound direction is permitted.

For instructions about how to permit a protocol or port, see **Configuring Security Group Rules**.

Figure 23-6 Permitting all network traffic in the outbound direction

<	Sys-WebServer								
Sur	ummary Inbound Rules Associated Instances								
	Add Rule         Fast-Add Rule         Delete         Allow Common Ports         Outbound Rules: 3         Learn more about security group configuration.								
	Protocol & Port 🍞 🕐	Туре	Destination (?)		Description				
	All	IPv4	0.0.0.0/0 ⑦						

#### **Checking ACL Rules**

By default, no ACL rules are configured for a VPC. If a network ACL is associated with a VPC, check the ACL rules.

1. Check whether the subnet of the ECS has been associated with a network ACL.

If an ACL name is displayed, the network ACL has been associated with the ECS.

#### Figure 23-7 Network ACL

S	ubnets ?								
			vpc-k	945	-	Name		•	
	Name	VPC		IPv4 CIDR	IPv6 CID	St	AZ	Network ACL	Route Table
	subnet-b981	vpc-b945		192.168.0.0/24		Av	AZ1	fw-51ce	rtb-vpc-b945 Default

2. Click the ACL name to view its status.

#### Figure 23-8 Enabled network ACL

<	< fw-51ce					
	Name	fw-51ce 🖉	Status	Enabled		
	ID	02a3469d-db57-4797-8bea-e2e3e81e4e7e 🗇	Description	🖉		

3. Disassociate the network ACL from the subnet of the ECS.

On the page providing details about the network ACL, choose **Associated Subnets** > **Disassociate**.

Figure	23-9	Disassociating	а	network	ACL
--------	------	----------------	---	---------	-----

fw-Stce					
Name fw-51ce 🖉		Status Disabled			
Inbound Rules Outbound Rules Associated Subnet	ets				
Associate Disassociate Learn more about network ACL con	nfiguration.		Name	•	Q
Name IPv4	/4 CIDR Block	IPv6 CIDR Block	VPC		Operation
subnet-2		-	vpc2		Disassociate

#### D NOTE

The default network ACL rule denies all incoming and outgoing packets. If a network ACL is disabled, the default rule is still effective.

4. Try to access the Internet through the ECS again.

# Checking Whether the Website to Be Visited Is Outside the Chinese Mainland

Websites outside the Chinese mainland may not be accessible or respond slowly when you access them through an ECS. This is caused by the slow access of a DNS server outside the Chinese mainland.

#### **NOTE**

If you intend to access websites outside the Chinese mainland, select a region according to the website when purchasing an ECS.

To speed up the access to a website outside the Chinese mainland, see **Why Accessing a Website Outside the Chinese Mainland Is Slow on an ECS?** 

#### **Checking Whether the EIP Is Blocked**

IP address blocking indicates that all traffic is destined to a null route. If the EIP is blocked, the ECS cannot access the Internet.

Generally, blocked EIPs will be automatically unblocked after 24 hours if no subsequent attack occurs.

It is recommended that you use Advanced Anti-DDoS (AAD) to prevent attacks.

#### **Checking the Firewall Configuration**

Disable firewall rules for the ECS and check whether the Internet connection is restored.

If the connection is restored, check the firewall settings.

- 1. Log in to the Windows ECS.
- Click the Windows icon in the lower left corner of the desktop and choose Control Panel > System and Security > Windows Firewall.

#### Figure 23-10 Windows Firewall



 Choose Check firewall status > Turn Windows Firewall on or off. View and set the firewall status.

#### Figure 23-11 Turn off Windows Firewall



#### Checking Whether the Gateway Is Accessible

1. Run the **ping** command to check whether data can be exchanged between the ECS and the gateway.

Use an IP address in a different network segment to ping the gateway to check network connections.

2. Run the **ping** command to obtain the IP address of the DNS server.

Compare the time required for pinging the DNS server and the time for pinging a specific IP address, and determine whether the DNS server is running properly.

#### **Checking the ECS Performance**

Run the **netstat** command to check whether SYN-SENT, CLOSE\_WAIT, or FIN\_WAIT is found.

If any of them is found, port resources are used up. This issue is generally caused by a software bug. After the bug is fixed, restart the ECS.

<b>65.</b>		Administrator: Command Pro	ompt	_ <b>D</b> X
C:\Users	Administrator>net:	stat -tna		^
Active C	Connections			
Proto tate	Local Address	Foreign Address	State	Offload S
TCP	0.0.0.0:135	0.0.0.0:0	LISTENING	InHost
TCP	0.0.0.0:445	0.0.0.0:0	LISTENING	InHost
TCP	0.0.0.0:3389	0.0.0.0:0	LISTENING	InHost
TCP	0.0.0.0:5985	0.0.0.0:0	LISTENING	InHost
TCP	0.0.0.0:5986	0.0.0.0:0	LISTENING	InHost ≡
TCP	0.0.0.0:47001	0.0.0.0:0	LISTENING	InHost

Figure 23-12 Checking network connection

#### Checking Whether the Access Is Blocked by Antivirus Software

Disable or uninstall the third-party antivirus software on the ECS, and check whether the fault is rectified.

#### **Checking the ECS Security Status**

Check the ECS security status and determine whether the ECS is affected by viruses or Trojan horses.

# 23.2 Why Does My Linux ECS Fail to Access the Internet?

#### Symptom

Your attempt to access the Internet from your Linux ECS failed.

#### Fault Locating

The following fault causes are sequenced based on their occurrence probability.

If the fault persists after you have ruled out a cause, check other causes.

Table 23-2 Possible causes and solutions	Table	23-2	Possible	causes	and	solutions
--	-------	------	----------	--------	-----	-----------

Possible Cause	Solution
The ECS is frozen or stopped, or has no EIP bound.	Check whether the ECS is in <b>Running</b> state and has an EIP bound. For details, see <b>Checking the ECS Status</b> .
The ECS is overloaded.	Check whether the bandwidth and vCPU usage of the ECS are too high. For details, see <b>Checking Whether the ECS Is Overloaded</b> .
The EIP bandwidth exceeds the limit.	Increase the bandwidth and try again. For details, see Checking Whether the EIP Bandwidth Exceeded the Limit.
The DNS configuration is incorrect.	Change the DNS server to a private one. For details, see Checking the DNS Configuration.
Specified resolution has been configured in the hosts file.	Check whether the mappings in the hosts configuration file are correct. For details, see <b>Checking the hosts Configuration File</b> .
Both Network and NetworkManager are enabled.	Use either of the two tools to prevent incompatibility issues. For details, see Checking Whether Both Network and NetworkManager Have Been Enabled.
The security group is incorrectly configured.	Check whether the security group allows the network traffic in the outbound direction. For details, see <b>Checking Whether the Security Group Is Correctly Configured</b> .
A network ACL has been associated with the ECS.	Disassociate the network ACL with the ECS and try again. For details, see <b>Checking ACL Rules</b> .
The website you want to visit is outside the Chinese	Optimize the website link configurations and try again. For details, see <b>Checking Whether the Website to Be</b> <b>Visited Is Outside the Chinese Mainland</b> .
mainland.	If the fault persists, use an ECS purchased in a region outside the Chinese mainland to access the website.
The EIP is blocked.	If the EIP is blocked, the ECS cannot access the Internet. For details, see <b>Checking Whether the EIP Is Blocked</b> .
The private IP address is lost.	Check whether the <b>dhclient</b> process is running. If it is not running, the private IP address may be lost. For details, see <b>Checking Whether a Private IP Address</b> <b>Can Be Obtained</b> .

Possible Cause	Solution
NICs are incorrectly configured.	Check whether the NIC and DNS configurations are correct. For details, see <b>Checking the NIC Configuration</b> .
Firewall is enabled on the ECS.	Disable the firewall and try again. For details, see Checking the Firewall Configuration.

#### **Checking the ECS Status**

- Check whether the ECS is in the **Running** state on the management console.
- Check whether an ECS has an EIP bound.

An ECS can access the Internet only if it has an EIP bound.

For details about how to bind an EIP to the ECS, see Assigning an EIP.

#### Checking Whether the ECS Is Overloaded

If the bandwidth and CPU usage of an ECS are too high, the network may be disconnected.

If you have created an alarm rule in Cloud Eye, the system automatically sends an alarm notification to you when the bandwidth or CPU usage reaches the threshold specified in the rule.

To resolve this issue, perform the operations described in **Why Is My Linux ECS Running Slowly?** 

#### Checking Whether the EIP Bandwidth Exceeded the Limit

An ECS with an EIP bound accesses the Internet using the bandwidth configured for the EIP.

If Internet access fails, check whether the EIP bandwidth exceeds the limit.

Check whether the bandwidth exceeds the configured bandwidth size. For details, see **How Do I Know If My EIP Bandwidth Limit Has Been Exceeded?** 

If the bandwidth exceeds the limit, increase the bandwidth. For details, see **Changing an EIP Bandwidth**.

#### Checking the DNS Configuration

Private DNS servers resolve domain names for the ECSs created using a public image by default. The private DNS servers do not affect the domain name resolution for the ECSs to access the Internet. Additionally, you can use the private DNS servers to directly access the internal addresses of other cloud services, such as OBS. Compared with the access through the Internet, this access mode features high performance and low latency.

For Linux ECSs, run the following command to check the DNS configuration:

#### cat /etc/resolv.conf
If the command output shown in **Figure 23-13** is displayed, the domain name is resolved using the private DNS server.

Figure 23-13 DNS configuration

<pre>[root@ecs-bae5 ~]# cat /etc/resolv.conf</pre>
; generated by /sbin/dhclient-script
search openstacklocal
options single-request-reopen
nameserver 100.125.135.29
nameserver 100.125.17.29

If the domain name of the ECS is resolved using a non-private DNS server and you want to switch to a private DNS server, change the DNS server to a private one.

For details, see How Can I Configure the NTP and DNS Servers for an ECS?

#### Checking the hosts Configuration File

If the DNS configuration is correct but the ECS still cannot access the Internet, check whether the mapping information in the hosts configuration file is correct. In case of any incorrect mapping, comment it out.

For Linux, run the following command to view the hosts configuration:

#### vim /etc/hosts

If there is an incorrect domain name mapping, comment it out and save the hosts file.

#### Checking Whether Both Network and NetworkManager Have Been Enabled

Network and NetworkManager are two network management tools, and either one of them can be enabled each time. If both of them are enabled, they are incompatible with each other.

Take CentOS 7 as an example. NetworkManager is recommended for CentOS 7.

1. Check the Network or NetworkManager running status.

#### systemctl status network systemctl status NetworkManager

2. Run the following commands to disable Network:

systemctl stop network

systemctl disable network

 Run the following commands to enable NetworkManager: systemctl start NetworkManager systemctl enable NetworkManager

#### Checking Whether the Security Group Is Correctly Configured

Check whether the security group of the ECS is correctly configured. If an allowlist is configured for the outbound rules of the security group, the network traffic in the outbound direction is permitted.

As shown in **Figure 23-14**, all network traffic in the outbound direction is permitted.

For instructions about how to permit a protocol or port, see **Configuring Security Group Rules**.

Figure 23-14 Permitting all network traffic in the outbound direction

< Sys-WebServer			
Summary Inbound Rules Outbound Rules	Associ	ated Instances	
Add Rule Fast-Add Rule Delete	Allow Commor	n Ports Outbound Rules: 3	Learn more about security group configuration.
Protocol & Port 🍸 🕐	Туре	Destination (?)	Description
All	IPv4	0.0.0.0/0	

#### **Checking ACL Rules**

By default, no ACL rules are configured for a VPC. If a network ACL is associated with a VPC, check the ACL rules.

1. Check whether the subnet of the ECS has been associated with a network ACL.

If an ACL name is displayed, the network ACL has been associated with the ECS.

Figure 23-15 Network ACL

Su	ibnets								
			vpc-ł	0945	-	Name		•	
	Name	VPC		IPv4 CIDR	IPv6 CID	\$t	AZ	Network ACL	Route Table
	subnet-b981	vpc-b945		192.168.0.0/24		Av	AZ1	fw-51ce	rtb-vpc-b945 Default

2. Click the ACL name to view its status.

Figure 23-16 Enabled network ACL

< fw	51ce		
Name	fw-51ce 🖉	Status	Enabled
ID	02a3469d-db57-4797-8bea-e2e3e81e4e7e 🗇	Description	🖉

Disassociate the network ACL from the subnet of the ECS.
 On the page providing details about the network ACL, choose Associated Subnets > Disassociate.

Figure 23-17 Disassociating a network ACL

< fw-51ce					
Name fw-51ce 🖉		Status Disabled			
di di		Description 🖉			
Inbound Rules Outbound Rules Associated S	ubnets				
Associate Disassociate Learn more about network Ad	L configuration.		Name	•	Q
Name	IPv4 CIDR Block	IPv6 CIDR Block	VPC		Operation
subnet-2			vpc2		Disassociate

#### 

The default network ACL rule denies all incoming and outgoing packets. If a network ACL is disabled, the default rule is still effective.

4. Try to access the Internet through the ECS again.

### Checking Whether the Website to Be Visited Is Outside the Chinese Mainland

Websites outside the Chinese mainland may not be accessible or respond slowly when you access them through an ECS. This is caused by the slow access of a DNS server outside the Chinese mainland.

#### **NOTE**

If you intend to access websites outside the Chinese mainland, select a region according to the website when purchasing an ECS.

To speed up the access to a website outside the Chinese mainland, see **Why** Accessing a Website Outside the Chinese Mainland Is Slow on an ECS?

#### Checking Whether the EIP Is Blocked

IP address blocking indicates that all traffic is destined to a null route. If the EIP is blocked, the ECS cannot access the Internet.

Generally, blocked EIPs will be automatically unblocked after 24 hours if no subsequent attack occurs.

It is recommended that you use Advanced Anti-DDoS (AAD) to prevent attacks.

#### Checking Whether a Private IP Address Can Be Obtained

Private IP addresses may be lost if the dhclient process is not running or the target NIC is not managed by NetworkManager because NetworkManager automatic startup is not enabled. Perform the following operations to locate the fault:

Consider an ECS running CentOS 7 as an example.

1. Run the following command to check whether dhclient is running:

#### ps -ef |grep dhclient |grep -v grep

2. If dhclient is not detected, run the following command to check whether NetworkManager is running:

#### systemctl status NetworkManager

 If NetworkManager is in Active: inactive (dead) state, NetworkManager is not enabled. Run the following command to check whether NetworkManager is automatically started upon system startup:

#### systemctl is-enabled NetworkManager

If the command output is **disabled**, run the following command to enable NetworkManager automatic startup:

#### systemctl enable NetworkManager && systemctl start NetworkManager

 If NetworkManager is in Active: active (running) state, run the following command to check whether the target NIC is managed by NetworkManager:

#### nmcli device status

If the NIC is in **unmanaged** state, run the following command to enable it to be managed by NetworkManager:

#### nmcli device set eth0 managed yes

3. Run the following commands to restart NetworkManager:

#### systemctl restart NetworkManager

4. Run the following command to check whether the private IP address can be allocated:

ip add

#### **Checking the NIC Configuration**

1. Run the following command to open the **/etc/sysconfig/network-scripts/ ifcfg-eth0** file:

#### vi /etc/sysconfig/network-scripts/ifcfg-eth0

2. Modify the following configuration in this file.

Consider an ECS running CentOS 7 as an example.

```
DEVICE="eth0"
BOOTPROTO="dhcp"
ONBOOT="yes"
TYPE="Ethernet"
PERSISTENT_DHCLIENT="yes"
```

3. Run the following command to restart the network:

#### service network restart

#### Checking the Firewall Configuration

Consider an ECS running CentOS 7 as an example. Check whether the firewall is enabled.

For more details, see **How Do I Disable a Linux ECS Firewall and Add a Port Exception on a Linux ECS Firewall?** 

#### firewall-cmd --state

The command output is as follows:

[root@ecs-centos7 ~]# firewall-cmd --state running

Run the following command to disable the firewall:

systemctl stop firewalld.service

#### 

Enabling a firewall and configuring a security group protect your ECSs. If you disable a firewall, exercise caution when you enable ports in the security group.

# **24** Website or Application Inaccessible

### 24.1 How Do I Troubleshoot an Unresponsive Website Hosted on My ECS?

#### Symptom

Websites running on an ECS might become unreachable for multiple reasons. Check whether the configurations of network, port, firewall, or security group of the ECS are correct.

#### **Fault Locating**

If an error is displayed when you access a website, identify possible causes based on the error message.

Identify possible causes based on error code description in **Returned Values for General Requests**.

#### **NOTE**

If the error message cannot help you locate the fault, record the resource details and fault occurred time. Then, choose **Service Tickets** > **Create Service Ticket** in the upper right corner of the management console to submit a ticket.

You can also locate the fault based on the following possible causes which are listed in order of their probability.

If the fault persists after you have ruled out one cause, move on to the next one.



#### Figure 24-1 Fault locating

Table 24-1 Possible causes and solutions

Possible Causes	Solution
Port communication	Check whether the web port used by the target website is properly listened to on the ECS. For details, see <b>Checking Port Communication</b> .
Security group rules	Check whether the access to the port is allowed in the security group of the ECS. For details, see <b>Checking Security Group Rules</b> .
Firewall configuration	Disable the firewall and try again. For details, see <b>Checking the Firewall Configuration</b> .
Route configuration	Check whether the gateway configurations in the ECS route table are correct. For details, see <b>Checking the ECS Route Configuration</b> .
Local network	Check whether you can use another hotspot or network to access the website. For details, see <b>Checking the</b> <b>Local Network</b> .
CPU usage	Identify and optimize the processes leading to high vCPU usage. For details, see <b>Checking the CPU Usage</b> .

#### **Checking Port Communication**

Ensure that service processes and ports are in **LISTEN** state. **Table 24-2** lists the common TCP statuses.

• Linux

Run the **netstat** -antpu command to check whether the port used by the target website is in **LISTEN** status, for example, **netstat** -antpu |grep sshd.

#### **Figure 24-2** Checking port listening status

root@elb	)-mq02	~]# netstat -antpu	grep sshd		
ср	Θ	0 0.0.0.0:22	0.0.0:*	LISTEN	7178/sshd

• Windows

l +

Perform the following operations to check port communication:

- a. Run **cmd.exe**.
- b. Run the **netstat -ano | findstr** "*Port number*" command to obtain the port number used by the process.

For example, run netstat -ano | findstr "80".

Figure 24-3 Checking port listening status

s\Administrator>netst	at -ano  findstr "80"		
0.0.0.0:80	0.0.0.0:0	LISTENING	4
0.0.0.0:49155	0.0.0.0:0	LISTENING	880
[::]:80	[::]:0	LISTENING	4
[::]:49155	[::]:0	LISTENING	880
0.0.0.0:123	*:*		808
[::]:123	*:*		808
	<pre>\$\Administrator&gt;netsta 0.0.0.0:80 0.0.0.0:49155 [::]:80 [::]:49155 0.0.0.0:123 [::]:123</pre>	s Administrator>netstat -ano {findstr "80" 0.0.0.0:80 0.0.0:0 0.0.0.0:49155 0.0.0.0:0 [::]:80 [::]:0 [::]:49155 [::]:0 0.0.0.0:123 *:* [::]:123 *:*	s Administrator>netstat -ano  findstr "80" 0.0.0.880 0.0.0.80 LISTENING 0.0.0.8:49155 0.0.0.8:0 LISTENING [::]:80 [::]:0 LISTENING [::]:49155 [::]:0 LISTENING 0.0.0.8:123 *:* [::]:123 *:*

- If the port is in LISTENING state, go to Checking Security Group Rules.
- If the port is not in LISTENING state, check whether the web service process has been started and correctly configured.

Table 24-2 Common TCP statuses

TCP Status	Description	Application Scenario
LISTEN	Listens for network connection requests from a remote TCP port.	The TCP server is running properly.
ESTABLISHED	Indicates that a connection has been set up.	A TCP connection is properly set up.
TIME-WAIT	Waits until the remote TCP server receives the acknowledgment after sending a disconnection request.	The TCP connection is disconnected, and this state is cleared in 1 minute.

TCP Status	Description	Application Scenario
CLOSE-WAIT	Waits for a disconnection request sent by a local user.	An application program fault leads to an open socket. This state is displayed after the network is disconnected, indicating that a process is in an infinite loop or waiting for certain requirements to be met. To resolve this issue, restart the affected process.
FIN-WAIT-2	Waits for the network disconnection request from a remote TCP server.	The network has been disconnected and requires 12 minutes to automatically recover.
SYN-SENT	Waits for the matched network connection request after a network connection request is sent.	The TCP connection request failed, which is generally caused by the delayed handling of high CPU usage on the server or by a DDoS attack.
FIN-WAIT-1	Waits for the remote TCP disconnection request, or the acknowledgment for previous disconnection request.	If the network has been disconnected, this state may not automatically recover after 15 minutes. If the port has been used for a long period, restart the OS to resolve this issue.

#### **Checking Security Group Rules**

If the port used by the target website is denied in the security group, add a rule to the security group to allow the access of the port.

- 1. Log in to the management console.
- 2. Under **Compute**, choose **Elastic Cloud Server**.
- 3. In the ECS list, click the name of the target ECS.
- 4. On the **Security Groups** tab, view security group rules.
- 5. Click Modify Security Group Rule.
- Configure the rule to allow the access of the port used by the website.
   For details, see Configuring Security Group Rules.

#### Checking the Firewall Configuration

• Linux ECS

The following uses port 80 and CentOS 6.8 as an example.

- a. Run the **iptables -nvL --line-number** command to obtain firewall policies.
- b. Run the following commands to allow access to port 80: iptables -A INPUT -p tcp --dport 80 -j ACCEPT

iptables -A OUTPUT -p tcp --sport 80 -j ACCEPT

- c. Run the service iptables save command to save the added rules.
- d. Run the service iptables restart command to restart iptables.
- e. Run the **iptables -nvL --line-number** command to check whether the added rules have taken effect.
- f. Disable the firewall and try again.
- Windows ECS
  - a. Log in to the Windows ECS.
  - b. Click the Windows icon in the lower left corner of the desktop and choose **Control Panel** > **Windows Firewall**.



c. Click Turn Windows Firewall on or off.

View and set the firewall status.

) 💿 👻 🕆  💣 🕨 Control Pa	nel 🕨 All Control Panel Items 🕨 Windows Firewall	✓ C Search Control Panel
Control Panel Home	Help protect your PC with Windows Fi	irewall
Allow an app or feature through Windows Firewall	Windows Firewall can help prevent hackers or ma Internet or a network.	licious software from gaining access to your PC through the
Change notification settings	Update your Firewall settings	
Turn Windows Firewall on or off	Windows Firewall is not using the recomme settings to protect your computer.	ended 😵 Use recommended settings
Restore defaults	What are the recommended settings?	
Advanced settings		
Troubleshoot my network	😵 Private networks	Not connected 😔
	😵 Guest or public networks	Connected ⊘
	Networks in public places such as airports or cof	fee shops
	Windows Firewall state:	Off
	Incoming connections:	Block all connections to apps that are not on the list of allowed apps
	Active public networks:	T Network
	Notification state:	Do not notify me when Windows Firewall blocks a new app
See also		
Action Center		

d. Disable the firewall and try again.

#### **Checking the ECS Route Configuration**

- Linux ECS
  - a. Run the **route** command to check the routing policy. Ensure that the default route of 0.0.0.0 is destined for the gateway and that the IP address and the gateway are in the same network segment, as shown in the first and third lines in the following figure.

[root Kernel IP rou	]# route ting table						
Destination	Gateway	Genmask	Flags	Metric	Ref	llse	Iface
default	gateway	0.0.0.0	บดั	100	0	0	eth0
	gateway	255.255.255.255	HGH	100	Й	Й	ethØ
	0.0.0	255.255.255.0	U	100	0	0	eth0
	0.0.0	255.255.255.0	U	101	0	0	eth1
	0.0.0	255.255.255.0	U	102	0	0	eth2
[root							

b. Run the ifconfig or ip addr command to obtain the ECS IP address.

Figure 24-4 ifconfig command output

[root@]# ifconfig -a	
eth0: flags=4163 <up,broadcast,running,multicast> mtu 1500</up,broadcast,running,multicast>	
inet netmask 255.255.255.0 broadcast 1	
inet6 fe80::f816:3eff:fe24:1e7f prefixlen 64 scopeid 0x20 <lin< td=""><td>0</td></lin<>	0
ether fa:16:3e:24:1e:7f txqueuelen 1000 (Ethernet)	
RX packets 227250083 bytes 21176207838 (19.7 GiB)	
RX errors 0 dropped 0 overruns 0 frame 0	
TX packets 149514101 bytes 276209392634 (257.2 GiB)	
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0	
lo: flags=73 <up,loopback,running> mtu 65536</up,loopback,running>	
inet 127.0.0.1 netmask 255.0.0.0	
inet6 ::1 prefixlen 128 scopeid 0x10 <host></host>	
loop txqueuelen 1000 (Local Loopback)	
RX packets 14 bytes 1088 (1.0 KiB)	
RX errors 0 dropped 0 overruns 0 frame 0	
TX packets 14 bytes 1088 (1.0 KiB)	
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0	

Figure 24-5 ip addr command output

[root@~]# ip addr
1: lo: <loopback,up,lower_up> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000</loopback,up,lower_up>
link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
inet 127.0.0.1/8 scope host lo
valid_lft forever preferred_lft forever
inet6 ::1/128 scope host
valid lft forever preferred lft forever
2: eth0: <broadcast,multicast,up,lower_up> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000</broadcast,multicast,up,lower_up>
link/ether fa:16:3e:24:1e:7f brd ff:ff:ff:ff:ff
inet 1 5/24 brd 1 scope global noprefixroute dynamic eth0
valid lft 77109sec preferred lft 77109sec
inet6 fe80::f816:3eff:fe24:1e7f/64 scope link
valid lft forever preferred lft forever

c. Run the **route -n** command to obtain the gateway in the routing table. The following is an example just for reference.

Figure 24-6 route -n command output

[root@	~]# route -n						
Kernel IP ro	uting table						
Destination	Gateway	Genmask	Flags	Metric	Ref	Use	Iface
0.0.0.0		0.0.0.0	UG	100	Θ	Θ	eth0
1		255.255.255.255	UGH	100	Θ	Θ	eth0
1	0.0.0.0	255.255.255.0	U	100	Θ	Θ	eth0

- Windows ECS
  - a. Run **cmd.exe**.
  - b. Run the **ipconfig** command to obtain the ECS IP address.

#### Figure 24-7 ipconfig command output

🔤 Administrator: Command Prompt
Microsoft Windows [Version 10.0.14393] (c) 2016 Microsoft Corporation. All rights reserved.
C:\Users\Administrator>ipconfig
Windows IP Configuration
Ethernet adapter Ethernet 4:
Lonnection-specific UNS Suffix . : openstacklocal
IPv4 Address
Subnet Mask
Default Gateway

c. Run the **route print** command to obtain the gateway in the routing table.

#### Figure 24-8 route print command output

🔤 Select Administrator: Comman	d Prompt			
C:\Users\Administrator>r	oute print			
Interface List 10fa 16 3e 90 4b b3 1 200 00 00 00 00 00 00 900 00 00 00 00 00	Red Hat V Software 00 e0 Microsoft 00 e0 Microsoft	irtIO Ethernet A Loopback Interfa ISATAP Adapter Teredo Tunnelir	dapter ice 1 ig Adapter	
IPv4 Route Table				
Active Routes: Network Destination	Netmask	Gateway	Interface	Metric

#### Checking the Local Network

Try another hotspot or network for access.

If the access is successful, the fault may occur in the local carrier network. In such a case, rectify the local network fault and try again.

#### Checking the CPU Usage

If the bandwidth or vCPU usage of an ECS is too high, website access failures may occur. If you have created an alarm rule in Cloud Eye, the system automatically sends an alarm to you when the bandwidth or CPU usage reaches the threshold specified in the rule.

- 1. Identify the processes leading to a high bandwidth or vCPU usage.
  - Windows

Windows offers multiple tools to locate faults, including Task Manager, Performance Monitor, Resource Monitor, Process Explorer, Xperf (supported by versions later than Windows Server 2008), and full memory dump analysis.

– Linux

Run the **top** command to check the OS running status.

- 2. Check whether the processes are malicious and handle the issue accordingly.
  - If the processes are normal, optimize them or modify ECS configurations by referring to General OperationsGeneral Operations for Modifying ECS Specifications.
  - If the processes are malicious, stop these processes manually or use a third-party tool to stop them automatically.

### 24.2 Why Did I See "Invalid argument" or "neighbour table overflow" During an Access to a Linux ECS?

#### Symptom

- When a Linux ECS sends a request to a server in the same subnet, the server has received the request but does not return a response. When the server pings the client, the message "sendmsg: Invalid argument" is displayed.
   64 bytes from 192.168.0.54: icmp\_seq=120 ttl=64 time=0.064 ms
   64 bytes from 192.168.0.54: icmp\_seq=122 ttl=64 time=0.071 ms
   ping: sendmsg: Invalid argument
   ping: sendmsg: Invalid argument
   ping: sendmsg: Invalid argument
- "neighbor table overflow" is displayed in the /var/log/messages log file or the dmesg command output of a Linux ECS. [21208.317370] neighbour: ndisc\_cache: neighbor table overflow! [21208.317425] neighbour: ndisc\_cache: neighbor table overflow! [21208.317473] neighbour: ndisc\_cache: neighbor table overflow!

[21208.317473] heighbour: hdisc\_cache: heighbor table overflow! [21208.317501] neighbour: ndisc\_cache: neighbor table overflow!

#### **Possible Causes**

The Neighbour table references the ARP cache. When the Neighbour table overflows, the ARP table is full and will reject connections.

You can run the following command to check the maximum size of the ARP cache table:

#### # cat /proc/sys/net/ipv4/neigh/default/gc\_thresh3

Check the following parameters in the ARP cache table: /proc/sys/net/ipv4/neigh/default/gc\_thresh1 /proc/sys/net/ipv4/neigh/default/gc\_thresh2 /proc/sys/net/ipv4/neigh/default/gc\_thresh3

- gc\_thresh1: The minimum number of entries to keep in the ARP cache. The garbage collector will not run if there are fewer than this number of entries in the cache.
- gc\_thresh2: The soft maximum number of entries to keep in the ARP cache. The garbage collector will allow the number of entries to exceed this for 5 seconds before collection will be performed.
- gc\_thresh3: The hard maximum number of entries to keep in the ARP cache. The garbage collector will always run if there are more than this number of entries in the cache.

To verify the actual number of IPv4 ARP entries, run the following command:

# ip -4 neigh show nud all | wc -l

#### Solution

- 1. Make sure that the number of servers in a subnet is less than the **default.gc\_thresh3** value.
- Adjust parameters: change gc\_thresh3 to a value much greater than the number of servers in the same VPC network segment, and make sure that the gc\_thresh3 value is greater than the gc\_thresh2 value, and the gc\_thresh2 value is greater than the gc\_thresh1 value.

For example, if a subnet has a 20-bit mask, the network can accommodate a maximum of 4,096 servers. The **default.gc\_thresh3** value of this network segment must be a value much greater than 4,096.

Temporary effective: # sysctl -w net.ipv4.neigh.default.gc\_thresh1=2048 # sysctl -w net.ipv4.neigh.default.gc\_thresh2=4096 # sysctl -w net.ipv4.neigh.default.gc\_thresh3=8192

Always effective:

#### 

The operations involve modifying kernel parameters, which may cause kernel unstability. Evaluate risks before performing this operation.

Add the following content to the **/etc/sysctl.conf** file: net.ipv4.neigh.default.gc\_thresh1 = 2048 net.ipv4.neigh.default.gc\_thresh2 = 4096 net.ipv4.neigh.default.gc\_thresh3 = 8192 Add IPv6 configuration if required: net.ipv6.neigh.default.gc\_thresh1 = 2048

net.ipv6.neigh.default.gc\_thresh1 = 2046 net.ipv6.neigh.default.gc\_thresh2 = 4096 net.ipv6.neigh.default.gc\_thresh3 = 8192

## 25 Slow Website or Application Response

### 25.1 Why Accessing a Website Outside the Chinese Mainland Is Slow on an ECS?

#### Symptom

Websites outside the Chinese mainland, including those in Hong Kong (China), Macao (China), Taiwan (China), and other countries and regions, may be slow to access.

Generally, an international line is used for accessing websites outside the Chinese mainland. However, the international line may inevitably pass through network nodes distributed around the world, resulting in high latency.

#### Solution

• Purchase an ECS in a region (such as **CN-Hong Kong**) outside the Chinese mainland.

Considering the physical distance and network infrastructure, you can purchase an ECS in a region outside the Chinese mainland if you need to access websites outside the Chinese mainland.

For example, select the **CN-Hong Kong** region during the ECS purchase.

<b>J</b>	5 5		<b>J</b>	5		
< Elastic Cloud Serve	r					
1 Configure Basic Setting	]5	2 Configure Network —	(3) Configure Adva	nced Settings	(4) Confirm	
Billing Mode	Yearly/M	Monthly Pay-p	er-use ?			
Region	• CN-Hong	Kong 👻 🖸 R	ecommended  🛗 CN North	-Ulan (0) CN North-	Ulanqa (19) 🛛 🛗 CN Sout	hwest
AZ	Asia Paci	CN North-Beijing1 CN North-Ulanqa	CN North-Beijing4 CN Northeast-Dal	CN North-Ulanqa CN East-Shanghai1	CN North-Ulanqa CN East-Shanghai2	]
		CN South-Guangz	CN South-Guangz	CN Southwest-Gu	CN-Hong Kong	
CPU Architecture		AP-Bangkok	AP-Singapore			
Specifications						-
	Africa AF-Johannesburg					
						puting
	Latin A	LA-Mexico City1	LA-Sao Paulo1	LA-Santiago		

Figure 25-1 Buying an ECS in CN-Hong Kong

• Improve the access speed.

Alternatively, perform the following operations to speed up the access.

- Modifying the DNS Configuration
- Modifying the hosts File

After that, run the **ping -t** *Website address* command to check the packet loss. For details, see **Checking Whether the Request Is Responded**.

#### Modifying the DNS Configuration

Change the DNS server addresses to public DNS server addresses, for example, 101.226.4.6 and 1.1.1.1.

The following figure demonstrates how to modify the DNS configuration on an ECS running Windows Server 2012.



Figure 25-2 Modifying the DNS configuration

The following are detailed operations:

- 1. Log in to the Windows ECS as user **Administrator**.
- 2. Enable the local area connection.
  - a. In the lower right corner of the taskbar, right-click the network connection icon.
  - b. Click Open Network and Sharing Center.

Figure 25-3 Open Network and Sharing Center



- c. In the navigation pane on the left, click **Change adapter settings**.
- 3. Configure the DNS server for the ECS.
  - a. Double-click network connections.

b. Click **Properties** in the lower left corner.

Figure 25-4 Local	area connection
-------------------	-----------------

Q.	Ethernet 2 St	atus	x
General			
Connection			
Connection	- ib	Teheveet	
IPV4 Connecti	vicy:	Internet	
IPv6 Connecti	vity:	No network access	
Media State:		Enabled	
Duration:		04:16:31	
Speed:		100.0 Gbps	
Details			_
	Sent — 📕	Received	
Bytes:	23,377,804	281,588,848	
Propertias	😚 Disable	Diagnose	
		Close	;

c. Select Internet Protocol Version 4 (TCP/IPv4) and click Properties.

onnect using:	
Red Hat VirtIO Ethernet Adapter	o network access
	Configure
nis connection uses the following items:	
Link-Layer Topology Discovery Ma	apper I/U Driver
Link-Layer Topology Discovery Re     A Internet Protocol Version 6 (TCP/I)     A Internet Protocol Version 4 (TCP/I)     Install	esponder Pv6) Pv4) Properties
Link-Layer Topology Discovery Re     Link-Layer Discovery Re     Link-Layer Discovery Discovery Discovery Re     Link-Layer Discovery	esponder Pv6) Pv4) Properties

Figure 25-5 Selecting a protocol type

d. Select **Use the following DNS server addresses** and set the IP addresses of the DNS servers as prompted.

Int	ernet Protocol Versio	on 4 (TCP/IPv4) Properties 📘
General	Alternate Configuration	
You car this cap for the	get IP settings assigned au ability. Otherwise, you need appropriate IP settings.	tomatically if your network supports I to ask your network administrator
• ot	otain an IP address automati	cally
OUs	e the following IP address:	
IP ac	ldress:	
Subr	et mask:	
Defa	ult gateway:	· · ·
Oot	otain DNS server address aut	comatically
- O Us	e the following DNS server a	ddresses:
Prefe	erred DNS server:	
Alter	nate DNS server:	
	alidate settings upon exit	Advanced
		OK Cancel

#### Figure 25-6 Setting the DNS server addresses

#### Modifying the hosts File

Select a server that allows you to access the website at the fastest speed and add its IP address and the domain name of the website to the **hosts** file.

Use either of the following methods to obtain the IP address of the server that allows you to access the website at the fastest speed:

Ping the domain name.

For details, see Method 1: Pinging the Domain Name.

• Use a ping tool and PingInfoView.

For details, see Method 2: Using a Ping Tool and PingInfoView.

#### Method 1: Pinging the Domain Name

The following figure demonstrates how you can ping the domain name on Windows Server 2012 to obtain the IP address of the server with the fastest access speed. (www.example.com is used as the example domain name.)



Figure 25-7 Modifying the hosts file

The following are detailed operations:

1. Ping www.example.com and wait for the result.

#### Figure 25-8 Command output

```
    Administrator: Command Prompt - ping www.example.com
    Administrator: Command Prompt - ping www.example.com
    C: VUsers\Administrator>ping www.example.com
    Pinging www.example.com [93.184.216.34] with 32 bytes of data:
Reply from 93.184.216.34; bytes=32 time=210ms ITL=49
Repust timed out.
    Ping statistics for 93.184.216.34;
Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
Approximate round trip times in milli-seconds:
Minimum = 210ms, Maximum = 211ms, Average = 210ms
    C: \Users\Administrator>ping www.example.com
    Pinging www.example.com [93.184.216.34] with 32 bytes of data:
Reply from 93.184.216.34; bytes=32 time=220ms
    C: \Users\Administrator>ping www.example.com
    Pinging www.example.com [93.184.216.34] with 32 bytes of data:
Reply from 93.184.216.34; bytes=32 time=220ms
    C: \Users\Administrator>ping www.example.com
    Pinging www.example.com [93.184.216.34] with 32 bytes of data:
Reply from 93.184.216.34; bytes=32 time=221ms ITL=49
Reply from 93.184.216.34; bytes=32 time=224ms ITL=49
Reply from 93.184.216.34; bytes=32 time=224ms ITL=49
```

2. Ping the domain name repeatedly and record a stable IP address with the smallest TTL value.

During the ping operation, run the **ipconfig /flushdns** command to refresh the DNS resolution cache. Otherwise, the same IP address will be pinged continuously.

In this example, IP address 93.184.216.34 has the smallest TTL value.

3. Modify the **hosts** file.

Open the C:\Windows\System32\drivers\etc\hosts file and add the mapping between the IP address and the domain name in the end of the file.

For example, if the obtained IP address is 93.184.216.34, enter **93.184.216.34 www.example.com** in the end of the **hosts** file, save and exit the file.

#### 

• Exercise caution when you modify the **hosts** file.

You are advised to back up the **hosts** file using either of the following methods: Copy and paste the **hosts** file, or copy and paste the content of the **hosts** file.

- Only the IP address you have configured in the **hosts** file will be returned when the domain name is used to access the website.
- If access is still slow and you want to replace the IP address, delete the existing mapping from the **hosts** file and repeat the preceding operations to obtain a new IP address.
- 4. Access the website again.

Modifying the **hosts** file can only speed up the website access. If the problem persists, purchase an ECS in a region outside the Chinese Mainland, for example, **CN-Hong Kong**.

#### Method 2: Using a Ping Tool and PingInfoView

You can also try to speed up website access by modifying the **hosts** file. To do so, perform the following operations:

- 1. Log in to your ECS as user **Administrator**.
- 2. Use a browser to access the ping tool.
- 3. Enter the domain name of the website and record the IP addresses with the lowest response time. (www.example.com is used as an example.)
- 4. Download PingInfoView, decompress it, and run PingInfoView.exe.
- 5. Open **PingInfoView**, copy the IP addresses obtained in step **3** to the text box, and click **OK**.



6. Copy one IP address in the search result.

3 <sup>°</sup> .8				F	PingI	nfoView	1				Ŀ	- 5	1	x
File Edit	t View (	Optio	ns Help											
	💿 🗔 🖬	) (P	🔊 📲											
ecutive	% Failed		Last Ping Statu	IS	Last	Ping Time	,	Last Ping T	٢L	Aver	age P	ing	Des	crip
	0%		Succeeded		248			234		248				
	0%		Succeeded		226			238		226				
	0%		Succeeded		222			234		217				
<				_		III								>
Sent On	$\Delta$	Rep	ly IP Address	Ping	g Time	e Pi	ng	TTL	Ping	Statu	IS			
<b>@</b> 2019/1	1/29 17:3	g	3	216		2	34		Suco	eede	d			
0 2019/1	1/29 17:3	g	3	217		2	34		Suco	eede	d			
0 2019/1	1/29 17:3	ç	3	217		2	34		Suco	eede	d			
2019/1	1/29 17:4	ç	3	216		2	34		Suco	eede	d			
2019/1	1/29 17:4	ç	3	216		2	34		Suco	eede	d			
2019/1	1/29 17:4	ç	3	222		2	34		Suco	eede	d			
3 item(s).	1 Selected					NirSoft Fr	ee	ware. http://	www	.nirso	ft.net			

7. Open the **hosts** file in **C:\Windows\System32\drivers\etc\** and add the mapping between the IP address and the domain name in the end of the file.

#### 

• Exercise caution when you modify the **hosts** file.

You are advised to back up the **hosts** file using either of the following methods: Copy and paste the **hosts** file, or copy and paste the content of the **hosts** file.

- Only the IP address you have configured in the **hosts** file will be returned when the domain name is used to access the website.
- If access is still slow and you want to replace the IP address, delete the existing mapping from the **hosts** file and repeat the preceding operations to obtain a new IP address.

For example, if the selected IP address is 99.84.178.238, enter **99.84.178.238 www.example.com** in the end of the **hosts** file, save and exit the file.

8. Access the website again.

If the fault persists, use an ECS purchased in a region outside the Chinese Mainland to access the target website.

#### **Checking Whether the Request Is Responded**

Try to access the target website. If the website can be accessed but the loading is still slow, packet loss may occur. In such a case, run the **ping -t** *Website address* command to check the packet loss. For details, see **Troubleshooting a Ping Failure or Packet Loss Using a Link Test** 

For example, run **ping -t www.example.com**.

#### D NOTE

In Windows, you can also **download the curl client**, decompress it, open the **bin** folder, copy the path, and configure the environment variables.

If a response status code is displayed, the request has been sent and received. Slow website access may be caused by loss of packets sent to the destination server.

Contact customer service to check for packet loss.