

**Elastic IP**

# Getting Started

<b>Issue</b>	01
<b>Date</b>	2025-07-29



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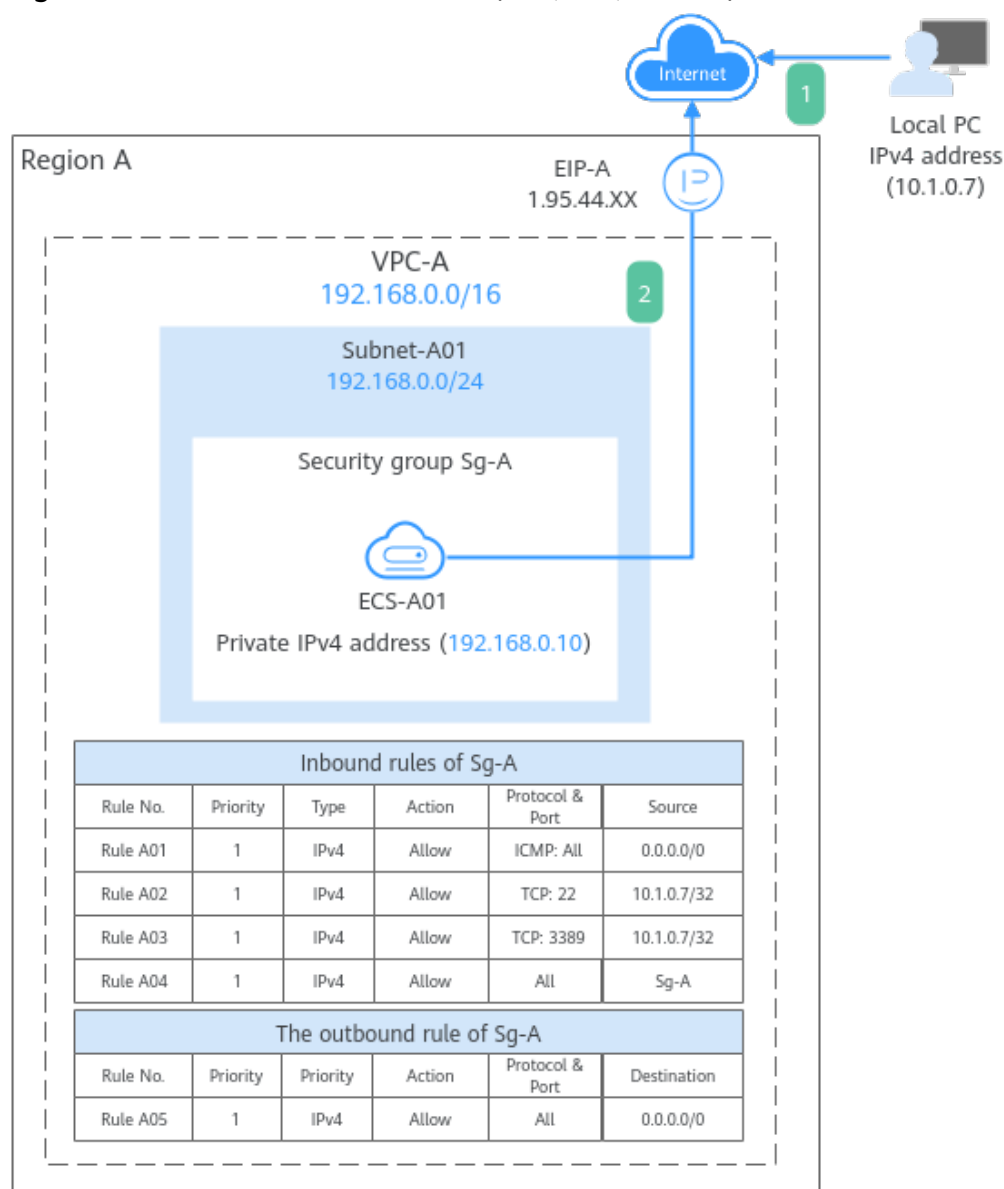
# 1

## Setting Up a Network with a VPC and Enabling Internet Access Using an EIP

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This topic describes how to use a VPC to provide an ECS with an IPv4 private network on the cloud and bind an EIP to the ECS to allow the ECS to communicate with the Internet.

**Figure 1-1** shows the architecture of an IPv4 network. In this network, security group **Sg-A** protects **ECS-A01** in it. You can configure security group rules to control access to and from **ECS-A01**.

**Figure 1-1** IPv4 network architecture (VPC, ECS, and EIP)

1. To allow users to remotely log in to **ECS-A01** from the local PC (IP address: 10.1.0.7) and perform operations on this ECS, you need to add the following inbound rules:
  - Rule A01: allows ping to test **ECS-A01** network connectivity.
  - Rule A02: allows remote logins to **ECS-A01** if the ECS runs Linux.
  - Rule A03: allows remote logins to **ECS-A01** if the ECS runs Windows.
  - Rule A04: allows ECSs in the security group to communicate with each other.
2. To allow **ECS-A01** to access the Internet, you need to add an outbound rule.

## Precautions

The network planning in this topic is only for your reference. Once a VPC and subnet are created, the CIDR blocks cannot be changed. Before creating VPCs,

determine how many VPCs and subnets, and what CIDR blocks or connectivity options you will need.

For details, see [VPC and Subnet Planning Suggestions](#).

Operation Process

Procedure	Description
<a href="#">Preparations</a>	Before using cloud services, sign up for a HUAWEI ID and enable Huawei Cloud services.
<a href="#">Step 1: Create a VPC and Subnet</a>	Create a VPC with an IPv4 CIDR block and create a subnet in the VPC. <ul style="list-style-type: none"><li>VPC IPv4 CIDR block: 192.168.0.0/16</li><li>Subnet IPv4 CIDR block: 192.168.0.0/24</li></ul>
<a href="#">Step 2: Buy an ECS</a>	Buy an ECS in the subnet you have created and configure security group rules for the ECS.
<a href="#">Step 3: Buy an EIP and Bind It to the ECS</a>	Buy an EIP and bind it to the ECS so that the ECS can access the Internet.
<a href="#">Step 4: Test Network Connectivity</a>	To test ECS connectivity, you can: <ol style="list-style-type: none"><li>Log in to the ECS from the local PC.</li><li>Access the Internet from the ECS using an EIP.</li></ol>

Preparations

Before creating resources such as VPCs and ECSs, you need to [sign up for a HUAWEI ID and enable Huawei Cloud services](#).

If you already have a HUAWEI ID, skip this part.

Step 1: Create a VPC and Subnet

- Go to the page for [creating a VPC](#).
- On the **Create VPC** page, set parameters as needed.  
In this example, you need to create a VPC and a subnet.

Figure 1-2 Creating a VPC

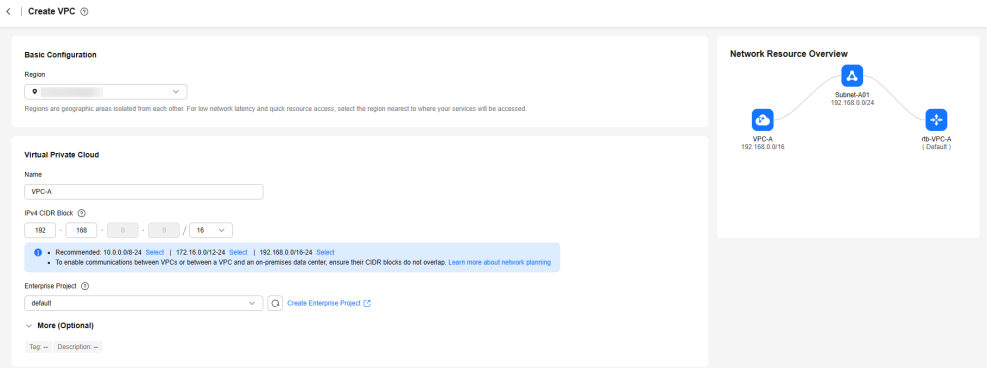


Figure 1-3 Setting a subnet

Subnet 1

Subnet Name

Subnet-A01

IPv4 CIDR Block

192

168

0

0

/

24

Available IP Addresses: 251

The CIDR block cannot be modified after the subnet is created. Before creating a subnet, plan subnet CIDR blocks as required.

☐ IPv6 CIDR Block (Optional)

Associated Route Table 

?

Default

Advanced Settings (Optional)

Gateway: 192.168.0.1 DNS Server Address: 100.125.1.250,100.125.64.250 Domain Name: -- NTP Server Address: -- IPv4 DHCP Lease Time: Limited,3650 days Tag: -- Description: --

Table 1-1 VPC parameters

Parameter	Example Value	Description
Region	CN-Hong Kong	The region where the VPC is created. Select the region nearest to you to ensure the lowest possible latency. The VPC, ECS, and EIP used in this example must be in the same region.  The region cannot be changed after the VPC is created.
Name	VPC-A	The VPC name.  This parameter can be changed after the VPC is created.
IPv4 CIDR Block	192.168.0.0/16	The IPv4 CIDR block of the VPC. You are advised to select from the following CIDR blocks: <ul style="list-style-type: none"><li>10.0.0.0/8-24: The IP address ranges from 10.0.0.0 to 10.255.255.255, and the netmask ranges from 8 to 24.</li><li>172.16.0.0/12-24: The IP address ranges from 172.16.0.0 to 172.31.255.255, and the netmask ranges from 12 to 24.</li><li>192.168.0.0/16-24: The IP address ranges from 192.168.0.0 to 192.168.255.255, and the netmask ranges from 16 to 24.</li></ul> The IPv4 CIDR block cannot be changed after the VPC is created.



Parameter	Example Value	Description
Enterprise Project	default	The enterprise project by which resources are centrally managed. Select an existing enterprise project for the VPC. The enterprise project cannot be changed after the VPC is created.
Advanced Settings (Optional) > Tag	No configuration is required.	The tag that is used to classify and identify resources. Add tags to the VPC as required. After the VPC is created, you can edit tags added to the VPC.
Advanced Settings (Optional) > Description	No configuration is required.	Supplementary information about the VPC. Enter a description as required. This parameter can be changed after the VPC is created.

**Table 1-2** Subnet parameters

Parameter	Example Value	Description
Subnet Name	Subnet-A01	The subnet name. The name can be modified after the subnet is created.
IPv4 CIDR Block	192.168.0.0/24	The IPv4 CIDR block of the subnet, which is a unique CIDR block with a range of IP addresses in the VPC. The CIDR block cannot be changed after the subnet is created.
IPv6 CIDR Block (Optional)	Disabled	Whether to automatically assign an IPv6 CIDR block to the subnet. You can enable or disable this option after the subnet is created.

Parameter	Example Value	Description
Associated Route Table	Default	<p>The default route table that the subnet is associated with. Each VPC comes with a default route table. Subnets in the VPC are then automatically associated with the default route table.</p> <p>The default route table has a preset system route that allows subnets in a VPC to communicate with each other.</p> <p>After the subnet is created, you can create a custom route table and associate the subnet with it.</p>
Advanced Settings (Optional) > Gateway	192.168.0.1	<p>The gateway address of the subnet. You are advised to retain the default address.</p> <p>The gateway address cannot be changed after the subnet is created.</p>
Advanced Settings (Optional) <ul style="list-style-type: none"><li>• DNS Server Address</li><li>• Domain Name</li><li>• NTP Server Address</li><li>• IPv4 DHCP Lease Time</li></ul>	No configuration is required.	<p>The parameters that are configured for the ECS in the VPC. In this example, retain the default values or leave them blank.</p> <p>You can change the values after the subnet is created.</p>
Advanced Settings (Optional) > Tag	No configuration is required.	<p>The tag that is used to classify and identify resources. Add tags to the subnet as required.</p> <p>After the subnet is created, you can edit the tags added to the subnet.</p>
Advanced Settings (Optional) > Description	No configuration is required.	<p>Supplementary information about the subnet. Enter a description as required.</p> <p>This parameter can be changed after the subnet is created.</p>

3. Click **Create Now**.




You will be redirected to the VPC list, where you can find the VPC you have created.



## Step 2: Buy an ECS


1. Go to the page for [buying an ECS](#).
2. On the **Buy ECS** page, configure parameters as required.  
In this example, set the ECS name to **ECS-A01** and configure other parameters as follows:
  - **Network:** Select **VPC-A** and **Subnet-A01** you have created.



Figure 1-4 Network settings

**Network**

VPC   
VPC-A(192.168.0.0/16)  [Create VPC](#) 

Primary NIC  
Subnet-A01(192.168.0.0/24)  Automatically assign IP address  Available private IP addresses: 250


 Add Extension NIC  
NICs you can still add: 1

Source/Destination Check   



- **Security Group:** Create security group **Sg-A** and add inbound and outbound rules to it. Each security group comes with system rules. You need to check and modify the rules as required to ensure that all rules in [Table 1-3](#) are added.


Figure 1-5 Inbound rules of Sg-A

Security Group

Security Group 

Sg-A(70ea3d1e-27d3-40d8-a0a4-89d75448d2ad) X

 [Create Security Group](#)

Ensure that the selected security group allows access to port 22 (SSH-based Linux login), 3389 (Windows login), and ICMP (ping operation). [Configure Security Group Rules](#) 

Security Group Rules ^

Selected security groups(1)

	Security Group Na...	Organize
1	Sg-A	Down Up

Inbound Rules

Outbound Rules











	Security Group Name	Priority	Action	Protocol & Port 	Type	Source 	Description
Sg-A		1	Allow	TCP: 22	IPv4	10.1.0.7/32	 
		1	Allow	ICMP: All	IPv4	0.0.0.0/0	 
		1	Allow	All	IPv4	Sg-A	 
		1	Allow	TCP: 3389	IPv4	10.1.0.7/32	 

Figure 1-6 The outbound rule of Sg-A

Security Group

Security Group

Sg-A(70ea3d1e-27d3-40d8-a0a4-89d75448d2ad)

Create Security Group

Ensure that the selected security group allows access to port 22 (SSH-based Linux login), 3389 (Windows login), and ICMP (ping operation).

Configure Security Group Rules

Security Group Rules

Selected security groups(1)

Inbound Rules

Outbound Rules

Security Group Name	Organize	Security Group Name	Priority	Action	Protocol & Port	Type	Destination	Description
1 Sg-A	Down Up	Sg-A	1	Allow	All	IPv4	0.0.0.0/0	

Table 1-3 Sg-A rules

Direction	Action	Type	Protocol & Port	Source/Destination	Description
Inbound	Allow	IPv4	TCP: 22	Source: 10.1.0.7/32	Allows the local PC (10.1.0.7/32) to remotely log in to the Linux ECS over SSH port 22.
Inbound	Allow	IPv4	TCP: 3389	Source: 10.1.0.7/32	Allows the local PC (10.1.0.7/32) to remotely log in to the Windows ECS over RDP port 3389.
Inbound	Allow	IPv4	ICMP: All	Source: 0.0.0.0/0	Allows ping traffic to ECSs in the VPC over all ICMP ports to test network connectivity.
Inbound	Allow	IPv4	All	Source: current security group ( <b>Sg-A</b> )	Allows the ECSs in the security group to communicate with each other.
Outbound	Allow	IPv4	All	Destination: 0.0.0.0/0	Allows the ECSs in the security group to access the external networks.

- **EIP:** Select **Not required**.

Figure 1-7 Selecting **Not required**

## Public Network Access

EIP ?

Auto assign

Use existing

**Not required**

An ECS without an EIP cannot access the Internet. However, it can still be used to deploy services or clusters in a private network.

Configure other ECS parameters as required. For details, see [Purchasing an ECS in Custom Config Mode](#).

3. Click **Submit**.

Return to the ECS list to view **ECS-A01** you have bought.

### Step 3: Buy an EIP and Bind It to the ECS

1. Go to the [Buy EIP](#) page.
2. On the **Buy EIP** page, configure the parameters as prompted.  
You can configure other EIP parameters as required. For details, see [Buying an EIP](#).
3. Click **Next**.

Return to the EIP list to view **EIP-A** you have assigned.

4. In the EIP list, locate **EIP-A** and click **Bind** in the **Operation** column.  
The **Bind EIP** dialog box is displayed.

5. In the displayed dialog box, select **ECS-A01** and click **OK**.

Return to the EIP list. You can see that **ECS-A01** is displayed in the **Associated Instance** column.

## Step 4: Test Network Connectivity

1. Use the local PC to remotely log in to **ECS-A01**.

Multiple methods are available for logging in to an ECS. For details, see [Logging In to an ECS](#).

2. Test the network connectivity between **ECS-A01** and Internet:

**ping** <IPv4-EIP or Domain-name>

Example command:

**ping support.huaweicloud.com**

If information similar to the following is displayed, **ECS-A01** can communicate with the Internet.

```
[root@ecs-a01 ~]# ping support.huaweicloud.com
PING hcdnw.cbg-notzj.c.cdnhwc2.com (203.193.226.103) 56(84) bytes of data.
64 bytes from 203.193.226.103 (203.193.226.103): icmp_seq=1 ttl=51 time=2.17 ms
64 bytes from 203.193.226.103 (203.193.226.103): icmp_seq=2 ttl=51 time=2.13 ms
64 bytes from 203.193.226.103 (203.193.226.103): icmp_seq=3 ttl=51 time=2.10 ms
64 bytes from 203.193.226.103 (203.193.226.103): icmp_seq=4 ttl=51 time=2.09 ms
...
--- hcdnw.cbg-notzj.c.cdnhwc2.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3004ms
rtt min/avg/max/mdev = 2.092/2.119/2.165/0.063 ms
```

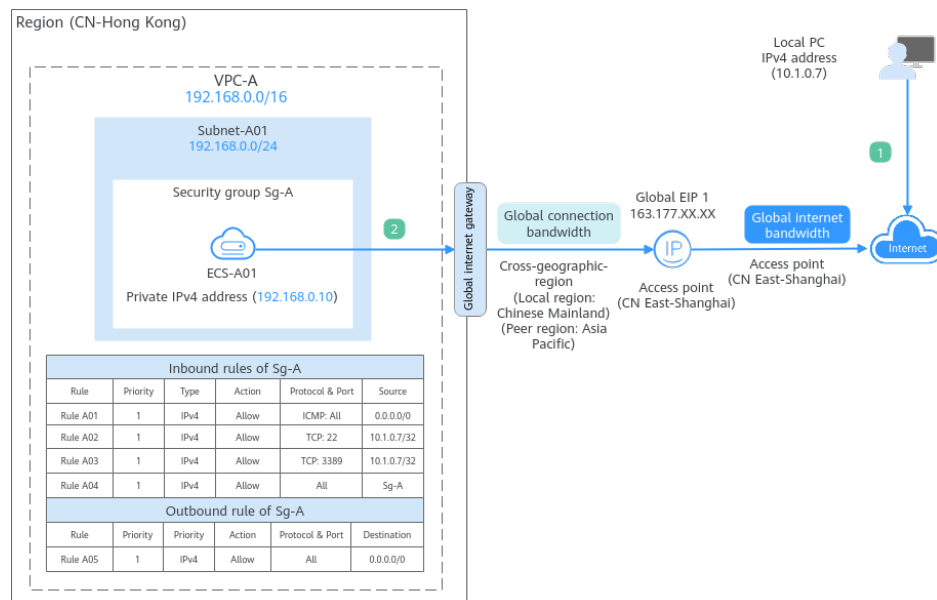
# 2 Using a Global EIP to Enable Cross-Region Communications on an IPv4 Network

You can use a global EIP and an ECS to enable Internet access and cloud communications on an IPv4 network across regions.

A global EIP requires a **global connection bandwidth** for private network communications and a **global internet bandwidth** for Internet access. To enable an ECS to communicate with the Internet through a global EIP, you also need to bind a **global internet gateway** to the global EIP.

**Figure 2-1** shows the IPv4 network architecture in this example. The network communication requirements are as follows:

**Figure 2-1** IPv4 network architecture (VPC, ECS, and global EIP)



1. The local PC (IP address: 10.1.0.7) can remotely log in to ECS-A01 across regions.
2. ECS-A01 can access the Internet across regions.

## Operation Process

Step	Description
<b>Preparations</b>	Before using cloud services, sign up for a HUAWEI ID and enable Huawei Cloud services.
<b>Step 1: Create a VPC and an ECS</b>	Create a VPC and an ECS. 1. Create a VPC with an IPv4 CIDR block and a subnet. <ul style="list-style-type: none"><li>• VPC IPv4 CIDR block: 192.168.0.0/16</li><li>• Subnet IPv4 CIDR block: 192.168.0.0/24</li></ul> 2. Buy an ECS in the subnet and VPC in <b>1</b> and configure security group rules for the ECS.
<b>Step 2: Create a Global Internet Gateway</b>	Create a global internet gateway with <b>Default Route</b> set to <b>Enable</b> in the VPC of the ECS. The default route with the destination 0.0.0.0/0 will be automatically added to the route table of the selected VPC to direct traffic to the global internet gateway.
<b>Step 3: Buy a Global EIP</b>	Assign a global EIP (G-EIP1) with a global internet bandwidth. You can add the global EIP to an existing global internet bandwidth or purchase one.
<b>Step 4: Bind the Global EIP to an ECS and a Global Internet Gateway</b>	Bind the global EIP to the ECS and then to a global connection bandwidth. You can add the global EIP to an existing global connection bandwidth or purchase one.
<b>Step 5: Test Network Connectivity</b>	Test ECS connectivity: 1. Log in to the ECS from the local PC. 2. Access the Internet from the ECS.

## Preparations

Before creating resources, such as global EIPs and global internet gateways, you need to [sign up for a HUAWEI ID and enable Huawei Cloud services](#).

If you already have a HUAWEI ID, skip this part.

## Step 1: Create a VPC and an ECS

1. **Create a VPC with a subnet.**
  - a. Go to the page for [creating a VPC](#).
  - b. On the **Create VPC** page, set parameters as needed.  
In this example, you need to create a VPC and a subnet.

Figure 2-2 Creating a VPC

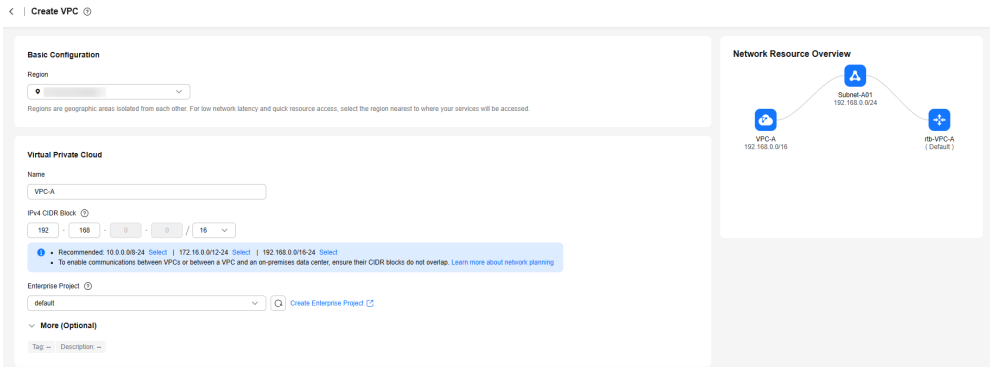


Figure 2-3 Setting a subnet



Table 2-1 VPC parameters

Parameter	Example Value	Description
Region	CN-Hong Kong	The region where the VPC is created. Select the region nearest to you to ensure the lowest possible latency. The VPC, ECS, and EIP used in this example must be in the same region. The region cannot be changed after the VPC is created.
Name	VPC-A	The VPC name. This parameter can be changed after the VPC is created.



Parameter	Example Value	Description
IPv4 CIDR Block	192.168.0.0/16	<p>The IPv4 CIDR block of the VPC. You are advised to select from the following CIDR blocks:</p> <ul style="list-style-type: none"><li>• 10.0.0.0/8–24: The IP address ranges from 10.0.0.0 to 10.255.255.255, and the netmask ranges from 8 to 24.</li><li>• 172.16.0.0/12–24: The IP address ranges from 172.16.0.0 to 172.31.255.255, and the netmask ranges from 12 to 24.</li><li>• 192.168.0.0/16–24: The IP address ranges from 192.168.0.0 to 192.168.255.255, and the netmask ranges from 16 to 24.</li></ul> <p>The IPv4 CIDR block cannot be changed after the VPC is created.</p>
Enterprise Project	default	<p>The enterprise project by which resources are centrally managed. Select an existing enterprise project for the VPC.</p> <p>The enterprise project cannot be changed after the VPC is created.</p>
Advanced Settings (Optional) > Tag	No configuration is required.	<p>The tag that is used to classify and identify resources. Add tags to the VPC as required.</p> <p>After the VPC is created, you can edit tags added to the VPC.</p>
Advanced Settings (Optional) > Description	No configuration is required.	<p>Supplementary information about the VPC. Enter a description as required.</p> <p>This parameter can be changed after the VPC is created.</p>

**Table 2-2** Subnet parameters

Parameter	Example Value	Description
Subnet Name	Subnet-A01	<p>The subnet name.</p> <p>The name can be modified after the subnet is created.</p>

Parameter	Example Value	Description
IPv4 CIDR Block	192.168.0.0/24	The IPv4 CIDR block of the subnet, which is a unique CIDR block with a range of IP addresses in the VPC. The CIDR block cannot be changed after the subnet is created.
IPv6 CIDR Block (Optional)	Disabled	Whether to automatically assign an IPv6 CIDR block to the subnet. You can enable or disable this option after the subnet is created.
Associated Route Table	Default	The default route table that the subnet is associated with. Each VPC comes with a default route table. Subnets in the VPC are then automatically associated with the default route table. The default route table has a preset system route that allows subnets in a VPC to communicate with each other. After the subnet is created, you can create a custom route table and associate the subnet with it.
Advanced Settings (Optional) > Gateway	192.168.0.1	The gateway address of the subnet. You are advised to retain the default address. The gateway address cannot be changed after the subnet is created.
Advanced Settings (Optional) <ul style="list-style-type: none"><li>DNS Server Address</li><li>Domain Name</li><li>NTP Server Address</li><li>IPv4 DHCP Lease Time</li></ul>	No configuration is required.	The parameters that are configured for the ECS in the VPC. In this example, retain the default values or leave them blank. You can change the values after the subnet is created.
Advanced Settings (Optional) > Tag	No configuration is required.	The tag that is used to classify and identify resources. Add tags to the subnet as required. After the subnet is created, you can edit the tags added to the subnet.

Parameter	Example Value	Description
Advanced Settings (Optional) > Description	No configuration is required.	Supplementary information about the subnet. Enter a description as required.  This parameter can be changed after the subnet is created.

c. Click **Create Now**.

You will be redirected to the VPC list, where you can find the VPC you have created.

2. **Buy an ECS.**a. Go to the page for [buying an ECS](#).b. On the **Buy ECS** page, configure parameters as required.

In this example, set the ECS name to **ECS-A01** and configure other parameters as follows:

- **Network:** Select **VPC-A** and **Subnet-A01** you have created.

Figure 2-4 Network settings

**Network**

VPC ⓘ  
VPC-A(192.168.0.0/16) Create VPC ⓘ

Primary NIC  
Subnet-A01(192.168.0.0/24) Automatically assign IP address ⓘ Available private IP addresses: 250

+ Add Extension NIC  
NICs you can still add: 1

Source/Destination Check ⓘ  
☒

- **Security Group:** Create security group **Sg-A** and add inbound and outbound rules to it. Each security group comes with system rules. You need to check and modify the rules as required to ensure that all rules in [Table 2-3](#) are added.

Figure 2-5 Inbound rules of Sg-A

**Security Group**

Security Group ⓘ  
Sg-A(70ee3d1e-2763-40b8-a0a4-b875448d2ed) ⓘ Create Security Group

Ensure that the selected security group allows access to port 22 (SSH-based Linux login), 3389 (Windows login), and ICMP (ping operation). [Configure Security Group Rules](#) ⓘ

Security Group Rules ⓘ

Selected security groups(1)

Security Group Name	Priority	Action	Protocol & Port ⓘ	Type	Source ⓘ	Description
Sg-A	1	Allow	TCP: 22	IPv4	10.1.0.0/16	...
Sg-A	1	Allow	ICMP: All	IPv4	0.0.0.0/0	...
Sg-A	1	Allow	All	IPv4	Sg-A	...
Sg-A	1	Allow	TCP: 3389	IPv4	10.1.0.0/16	...

Figure 2-6 The outbound rule of Sg-A

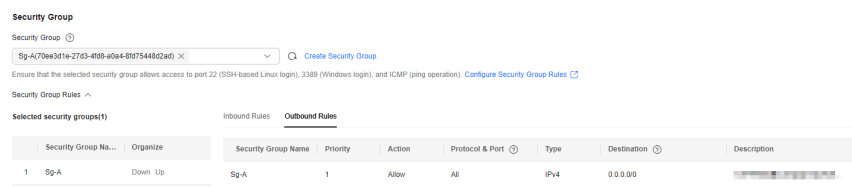
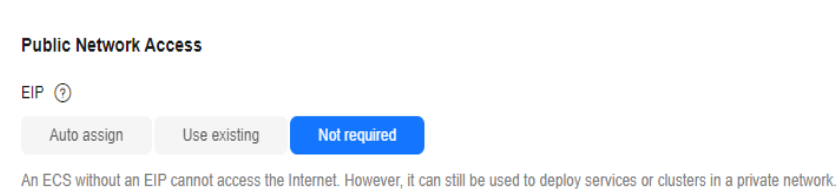


Table 2-3 Sg-A rules

Dir ecti on	Act ion	Typ e	Protoc ol & Port	Source/ Destination	Description
Inb oun d	All ow	IPv 4	TCP: 22	Source: 10.1.0.7/32	Allows the local PC (10.1.0.7/32) to remotely log in to the Linux ECS over SSH port 22.
Inb oun d	All ow	IPv 4	TCP: 3389	Source: 10.1.0.7/32	Allows the local PC (10.1.0.7/32) to remotely log in to the Windows ECS over RDP port 3389.
Inb oun d	All ow	IPv 4	ICMP: All	Source: 0.0.0.0/0	Allows ping traffic to ECSs in the VPC over all ICMP ports to test network connectivity.
Inb oun d	All ow	IPv 4	All	Source: current security group (Sg- A)	Allows the ECSs in the security group to communicate with each other.
Out bou nd	All ow	IPv 4	All	Destination: 0.0.0.0/0	Allows the ECSs in the security group to access the external networks.

- **EIP:** Select **Not required**.

Figure 2-7 Selecting Not required



Configure other ECS parameters s as required. For details, see [Purchasing an ECS in Custom Config Mode](#).

- c. Click **Submit**.

Return to the ECS list to view **ECS-A01** you have bought.

## Step 2: Create a Global Internet Gateway

1. Go to the [Global Internet Gateways](#) page.
2. In the upper right corner of the page, click **Create Global Internet Gateway**.  
The **Create Global Internet Gateway** dialog box is displayed.
3. Configure the parameters based on [Table 2-4](#).

**Table 2-4** Parameter descriptions

Parameter	Example Value	Description
Name	IGW-A	Enter the name of the global internet gateway as required. The name: <ul style="list-style-type: none"><li>• Can contain 1 to 64 characters.</li><li>• Can contain letters, digits, underscores (_), hyphens (-), and periods (.).</li></ul> This parameter can be modified after a global internet gateway is created.
Version	Retain the default value.	The default protocol version of a global internet gateway is IPv4. This parameter cannot be modified after a global internet gateway is created.
VPC	VPC-A	Select the VPC of the ECS. Ensure that the VPC is in the same region as the ECS. This parameter cannot be modified after a global internet gateway is created.
Subnet	Subnet-A01	Select a subnet in the VPC where you want to bind the global internet gateway. This parameter cannot be modified after a global internet gateway is created.
Default Route	Enable	Select this option, so the default route with the destination 0.0.0.0/0 will be automatically added to the default route table of the selected VPC to direct traffic to the global internet gateway. This parameter cannot be modified after a global internet gateway is created.

4. Click **OK**.

## Step 3: Buy a Global EIP

1. Go to the [Assign Global EIP](#) page.

2. Configure the parameters based on [Table 2-5](#).

**Table 2-5** Parameter descriptions

Parameter	Example Value	Description
Region	CN-East	Select a region that is close to your services for lower latency. This parameter cannot be modified after the global EIP is assigned.
City	Shanghai	Select a city that is close to your services for lower latency. This parameter cannot be modified after the global EIP is assigned.
Type	Global EIP	Select <b>Global EIP</b> or <b>Global EIP range</b> . This parameter cannot be modified after the global EIP is assigned.
Version	IPv4	Select <b>IPv4</b> or <b>IPv6</b> . This parameter cannot be modified after the global EIP is assigned.
Global EIP Type	Dynamic BGP	Select the global EIP type. After you select a global EIP pool, the system will allocate a global EIP to you from the pool. Select a resource pool close to your services for lower latency. This parameter cannot be modified after the global EIP is assigned.
Global Internet Bandwidth	Assign now	Select <b>Assign now</b> to purchase a new global internet bandwidth.
Billing Mode	Pay-per-use	Select the billing mode for the global internet bandwidth as required. This parameter cannot be modified after the global EIP is assigned.
Bandwidth Type	Standard	Select the type of the global internet bandwidth as required. This parameter cannot be modified after the global EIP is assigned.

Parameter	Example Value	Description
Billed By	95th percentile bandwidth (standard)	Select the billing option for the global internet bandwidth as required. This parameter can be modified after the global internet bandwidth is created.
Guaranteed Bandwidth	No configuration is required.	The value is automatically configured based on the selected billing option.
Bandwidth (Mbit/s)	300	Select the size of the global internet bandwidth as required. This parameter can be modified after the global internet bandwidth is created.
Global EIP Name	G-EIP1	Enter the name of the global EIP as required. The name: <ul style="list-style-type: none"><li>• Can contain 0 to 64 characters.</li><li>• Can contain letters, digits, underscores (_), hyphens (-), and periods (.).</li></ul> This parameter can be modified after the global EIP is assigned.
Enterprise Project	default	The enterprise project by which resources are centrally managed. Select an existing enterprise project for the global EIP. This parameter cannot be modified after the global EIP is assigned.
Advanced Settings	Retain the default settings.	Click the drop-down arrow and configure advanced parameters for the global EIP.
Bandwidth Name	IBW-A	Enter the name of the global internet bandwidth as required. The name: <ul style="list-style-type: none"><li>• Can contain 0 to 64 characters.</li><li>• Can contain letters, digits, underscores (_), hyphens (-), and periods (.).</li></ul> This parameter can be modified after the global internet bandwidth is created.
Tag	No configuration is required.	Add tags to classify and identify the global EIP as required. This parameter can be modified after the global EIP is assigned.

Parameter	Example Value	Description
Monitoring	No configuration is required.	By default, the following information is monitored for free: <ul style="list-style-type: none"><li>• Network traffic at one-minute intervals</li><li>• Bandwidth fluctuations and inbound and outbound bandwidth rates</li></ul>
Quantity	1	Set it to <b>1</b> .

3. Click **Next**.
4. Confirm the configuration and click **Submit**.  
The global EIP list is displayed.
5. In the global EIP list, view the global EIP status.  
If the status of the global EIP is **Unbound**, the EIP is assigned successfully.

#### Step 4: Bind the Global EIP to an ECS and a Global Internet Gateway

1. Go to the [global EIP list page](#).
2. In the global EIP list, search for G-EIP1 to locate it.
3. Locate the row that contains G-EIP1 and click **Bind Instance** in the **Progress** column.  
The page for binding an instance is displayed.
4. On the **Bind Instance** page, configure the parameters.
  - **Instance Region**: Select the region CN-Hong Kong where ECS-A01 is located.
  - **Instance Type**: Select **ECS (IPv4)** and select **ECS-A01**.
  - **Global Internet Gateway**: Select IGW-A created in [Step 2: Create a Global Internet Gateway](#).
5. Click **Next**.
6. On the **Bind Global Connection Bandwidth** page, create a global connection bandwidth to be bound to the global EIP.

**Table 2-6** Parameter descriptions

Parameter	Example Value	Description
EIP Region	No configuration is required.	The region is determined by that of G-EIP1 and does not need to be configured.



Parameter	Example Value	Description
Instance Region	No configuration is required.	The region is determined by that of ECS-A01 and does not need to be configured.
Bandwidth Type	No configuration is required.	The value is determined by the access point of the global EIP and the region where the instance is located. You do not need to set it.
Global Connection Bandwidth	Assign now	Select <b>Assign now</b> to create a global connection bandwidth.
Bandwidth Name	Bandwidth-A	Enter the name of the global connection bandwidth as required. The name: <ul style="list-style-type: none"><li>• Can contain 0 to 64 characters.</li><li>• Can contain letters, digits, underscores (_), hyphens (-), and periods (.).</li></ul> This parameter can be modified after the global connection bandwidth is created.
Bandwidth (Mbit/s)	300	Select the size of the global connection bandwidth as required. This parameter can be modified after the global connection bandwidth is created.

7. Click **Finish**.

In the global EIP list, you can see that the global EIP has an instance bound.

## Step 5: Test Network Connectivity

1. Use the local PC to remotely log in to ECS-A01.  
Multiple methods are available for logging in to an ECS. For details, see [Logging In to an ECS](#).

2. Test the network connectivity between ECS-A01 and the Internet:

**ping** <IPv4-public-address-or-domain-name>

Example command:

**ping support.huaweicloud.com**

If information similar to the following is displayed, **ECS-A01** can communicate with the Internet.

```
[root@ecs-a01 ~]# ping support.huaweicloud.com
PING hcdnw.cbg-notzj.c.cdnhwc2.com (203.193.226.103) 56(84) bytes of data.
64 bytes from 203.193.226.103 (203.193.226.103): icmp_seq=1 ttl=51 time=2.17 ms
64 bytes from 203.193.226.103 (203.193.226.103): icmp_seq=2 ttl=51 time=2.13 ms
64 bytes from 203.193.226.103 (203.193.226.103): icmp_seq=3 ttl=51 time=2.10 ms
```

```
64 bytes from 203.193.226.103 (203.193.226.103): icmp_seq=4 ttl=51 time=2.09 ms
...
--- hcdnw.cbg-notzj.c.cdnhwc2.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3004ms
rtt min/avg/max/mdev = 2.092/2.119/2.165/0.063 ms
```

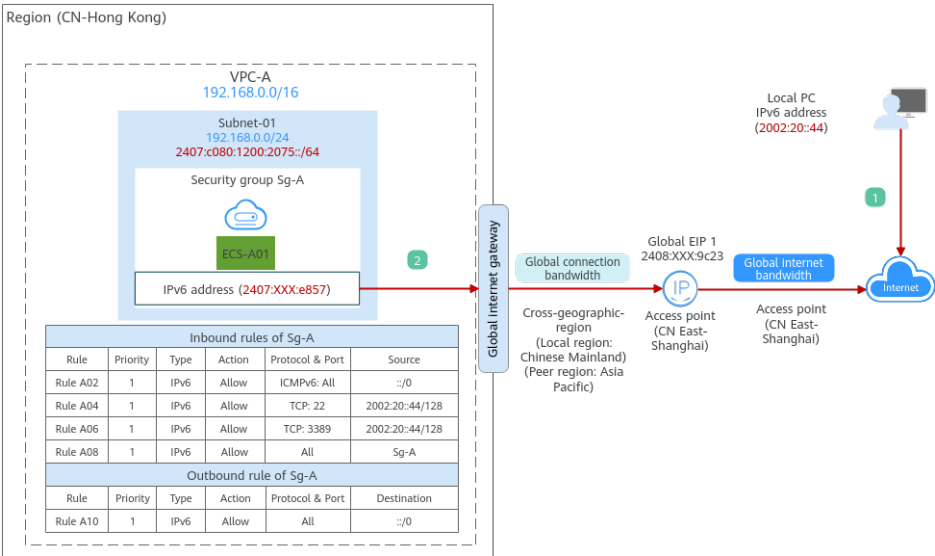
# 3 Using a Global EIP to Enable Cross-Region Communications on an IPv6 Network

You can use a global EIP and an ECS to enable Internet access and cloud communications on an IPv6 network across regions.

A global EIP requires a **global connection bandwidth** for private network communications and a **global internet bandwidth** for Internet access. To enable an ECS to communicate with the Internet through a global EIP, you also need to bind a **global internet gateway** to the global EIP.

**Figure 3-1** shows the IPv6 network architecture in this example. The network communication requirements are as follows:

Figure 3-1 IPv6 network architecture (VPC and EIP)



1. The local PC (IPv6 address: 2002:20::44) can remotely log in to ECS-A01 across regions.
2. ECS-A01 can access the Internet across regions.

## Operation Process

Step	Description
<b>Preparations</b>	Before using cloud services, sign up for a HUAWEI ID and enable Huawei Cloud services.
<b>Step 1: Create a VPC and an ECS</b>	Create a VPC and an ECS. 1. Create a VPC with an IPv4 CIDR block and a subnet. <ul style="list-style-type: none"><li>• VPC IPv4 CIDR block: 192.168.0.0/16</li><li>• Subnet IPv4 CIDR block: 192.168.0.0/24</li><li>• Subnet IPv6 CIDR block: automatically assigned, which is 2407:c080:1200:2075::/64 in this example.</li></ul> 2. Buy an ECS in the subnet and VPC in <b>1</b> and configure security group rules for the ECS.
<b>Step 2: Create a Global Internet Gateway and Add an IPv6 Route</b>	Create a global internet gateway in the VPC of the ECS and add a route with the destination 0::0/0 to the route table of the selected VPC to direct traffic to the global internet gateway.
<b>Step 3: Buy a Global EIP</b>	Assign a global EIP (G-EIP1) with a global internet bandwidth. You can add the global EIP to an existing global internet bandwidth or purchase one.
<b>Step 4: Bind the Global EIP to an ECS and a Global Internet Gateway</b>	Bind the global EIP to the ECS and then to a global connection bandwidth. You can add the global EIP to an existing global connection bandwidth or purchase one.
<b>Step 5: Test Network Connectivity</b>	Test ECS connectivity using an IPv6 address: 1. Log in to ECS-A01 from the local PC through the IPv6 address. 2. Check whether ECS-A01 can communicate with the Internet through the IPv6 address.

## Preparations

Before creating resources, such as global EIPs and global internet gateways, you need to [sign up for a HUAWEI ID and enable Huawei Cloud services](#).

If you already have a HUAWEI ID, skip this part.

## Step 1: Create a VPC and an ECS

1. **Create a VPC with a subnet.**
  - a. Go to the page for [creating a VPC](#).

- b. On the **Create VPC** page, set parameters as needed.
- In this example, you need to create a VPC and subnet, and enable IPv6 for this subnet.

Figure 3-2 Creating a VPC

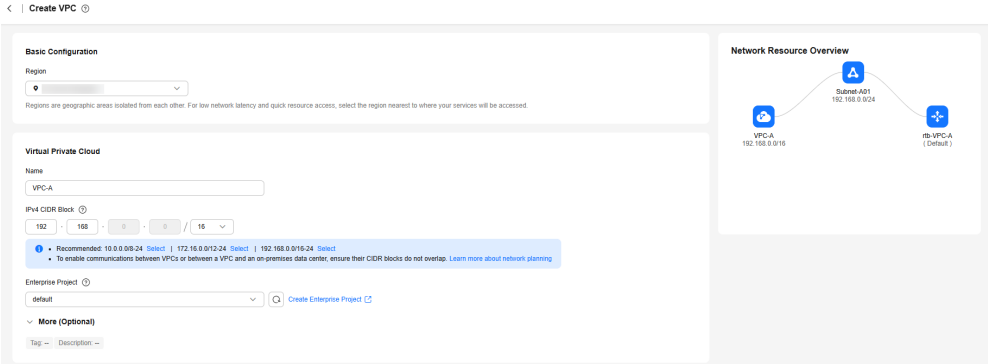


Figure 3-3 Setting a subnet



Table 3-1 VPC parameters

Parameter	Example Value	Description
Region	CN-Hong Kong	The region where the VPC is created. Select the region nearest to you to ensure the lowest possible latency. The VPC, ECS, and EIP used in this example must be in the same region. The region cannot be changed after the VPC is created.
Name	VPC-A	The VPC name. The name can be modified after the VPC is created.

Parameter	Example Value	Description
IPv4 CIDR Block	192.168.0.0/16	<p>The IPv4 CIDR block of the VPC. You are advised to select from the following CIDR blocks:</p> <ul style="list-style-type: none"><li>• 10.0.0.0/8–24: The IP address ranges from 10.0.0.0 to 10.255.255.255, and the netmask ranges from 8 to 24.</li><li>• 172.16.0.0/12–24: The IP address ranges from 172.16.0.0 to 172.31.255.255, and the netmask ranges from 12 to 24.</li><li>• 192.168.0.0/16–24: The IP address ranges from 192.168.0.0 to 192.168.255.255, and the netmask ranges from 16 to 24.</li></ul> <p>The CIDR block cannot be changed after the VPC is created.</p>
Enterprise Project	default	<p>The enterprise project by which resources are centrally managed. Select an existing enterprise project for the VPC.</p> <p>The enterprise project cannot be changed after the VPC is created.</p>
Advanced Settings (Optional) > Tag	No configuration is required.	<p>The tag that is used to classify and identify resources. Add tags to the VPC as required.</p> <p>After the VPC is created, you can edit tags added to the VPC.</p>
Advanced Settings (Optional) > Description	No configuration is required.	<p>Supplementary information about the VPC. Enter a description as required.</p> <p>This parameter can be changed after the VPC is created.</p>

Table 3-2 Subnet parameters

Parameter	Example Value	Description
Subnet Name	Subnet-A01	<p>The subnet name.</p> <p>The name can be modified after the subnet is created.</p>

Parameter	Example Value	Description
IPv4 CIDR Block	192.168.0.0/24	The IPv4 CIDR block of the subnet, which is a unique CIDR block with a range of IP addresses in the VPC. The CIDR block cannot be changed after the subnet is created.
IPv6 CIDR Block (Optional)	Enabled	Whether to automatically assign an IPv6 CIDR block to the subnet. You can enable or disable this option after the subnet is created.
Associated Route Table	Default	The default route table that the subnet is associated with. Each VPC comes with a default route table. Subnets in the VPC are then automatically associated with the default route table. The default route table has a preset system route that allows subnets in a VPC to communicate with each other. After the subnet is created, you can create a custom route table and associate the subnet with it.
Advanced Settings (Optional) > Gateway	192.168.0.1	The gateway address of the subnet. You are advised to retain the default address. The gateway address cannot be changed after the subnet is created.
Advanced Settings (Optional) <ul style="list-style-type: none"><li>DNS Server Address</li><li>Domain Name</li><li>NTP Server Address</li><li>IPv4 DHCP Lease Time</li></ul>	No configuration is required.	The parameters that are configured for the ECS in the VPC. In this example, retain the default values or leave them blank. You can change the values after the subnet is created.
Advanced Settings (Optional) > Tag	No configuration is required.	The tag that is used to classify and identify resources. Add tags to the subnet as required. After the subnet is created, you can edit tags added to the subnet.

Parameter	Example Value	Description
Advanced Settings (Optional) > Description	No configuration is required.	Supplementary information about the subnet. Enter a description as required. The description can be modified after the subnet is created.

- c. Click **Create Now**.

You will be redirected to the VPC list, where you can find **VPC-A** you have created.

2. **Buy an ECS.**

- a. Go to the page for [buying an ECS](#).  
b. On the **Buy ECS** page, configure parameters as required.

In this example, configure the ECS network as follows:

- **Network:** Select **VPC-A** and **Subnet-A01** you have created. Select **Automatically assign IP address** and **Automatically-assigned IPv6 address**. An IPv4 address and an IPv6 address will be assigned to **ECS-A01**.

**Figure 3-4** Network settings

**Network**

VPC ⓘ

VPC-A(192.168.0.0/16) ⓘ Create VPC ⓘ

Primary NIC

Subnet-A01(192.168.0.0/24 | IPv6 supp...) ⓘ Automatically assign IP address ⓘ Available private IP addresses: 250

Automatically-assigned IPv6 address ⓘ No shared bandwidth ⓘ Allocate Shared Bandwidth ⓘ

⊕ Add Extension NIC

NICs you can still add: 1

Source/Destination Check ⓘ

☒

- **Security Group:** Create security group **Sg-A** and add inbound and outbound rules to it. Each security group comes with system rules. You need to check and modify the rules as required to ensure that all rules in [Table 3-3](#) are added.

**Figure 3-5** Inbound rules

**Security Group**

Security Group ⓘ

Sg-A(70ee3d1e-27d3-4f08-e0a4-8f075448c2e0) ⓘ Create Security Group ⓘ

Ensure that the selected security group allows access to port 22 (SSH-based Linux login), 3389 (Windows login), and ICMP (ping operations). [Configure Security Group Rules](#) ⓘ

Security Group Rules ^

Selected security group(s)

Security Group No...	Organize
1 Sg-A	Down Up

Security Group No...	Priority	Action	Protocol & Port ⓘ	Type	Source ⓘ	Description
Sg-A	1	Allow	TCP: 22	IPv6	2002:20::44:128	Allow SSH access from 2002:20::44:128
Sg-A	1	Allow	TCP: 3389	IPv6	2002:20::44:128	Allow RDP access from 2002:20::44:128
Sg-A	1	Allow	ICMPv6: All	IPv6	::0	Allow ICMPv6 echo (ping) requests from ::0



Figure 3-6 Outbound rules

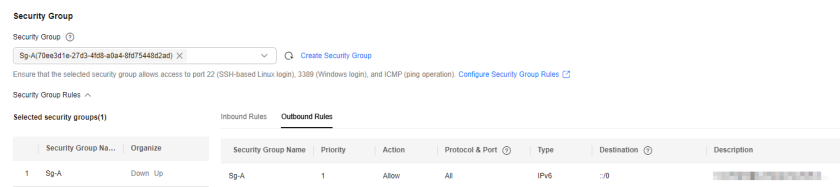
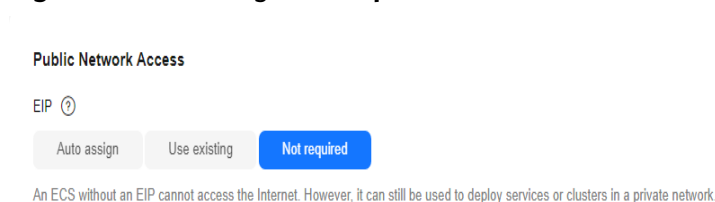


Table 3-3 Security group Sg-A rules

Direction	Action	Type	Protocol & Port	Source/Destination	Description
Inbound	Allow	IPv6	TCP: 22	Source: 2002:20::44/128	Allows the local PC (2002:20::44/128) to remotely log in to the Linux ECS over SSH port 22 using an IPv6 address.
Inbound	Allow	IPv6	TCP: 3389	Source: 2002:20::44/128	Allows the local PC (2002:20::44/128) to remotely log in to the Windows ECS over RDP port 3389 using an IPv6 address.
Inbound	Allow	IPv6	ICMPv6: All	Source: ::/0	Allows IPv6 ping traffic to the ECS in the security group over all ICMP ports to test the ECS network connectivity.
Inbound	Allow	IPv6	All	Source: current security group (Sg-A)	Allows the ECSs in the security group to communicate with each other using IPv6 addresses.
Outbound	Allow	IPv6	All	Destination: ::/0	Allows the ECS in the security group to access the external networks using an IPv6 address.

- **EIP:** Select **Not required**.

**Figure 3-7** Selecting **Not required**

Configure other ECS parameters as required. For details, see [Purchasing an ECS in Custom Config Mode](#).

- c. Click **Submit**.

Return to the ECS list to view **ECS-A01** you have bought.

- d. Log in to **ECS-A01** and check whether the ECS has obtained an IPv6 address.

- By default, dynamic IPv6 address assignment is enabled for Windows public images.
- Before enabling dynamic IPv6 address assignment for a Linux public image, check whether IPv6 protocol stack is supported first. All Linux public images support the IPv6 protocol stack. You also need to configure the ECS as instructed in [Dynamically Assigning IPv6 Addresses](#). Otherwise, the ECS cannot communicate with others using IPv6 addresses.

## Step 2: Create a Global Internet Gateway and Add an IPv6 Route

1. Create a global internet gateway.

- a. Go to the [Global Internet Gateways](#) page.
- b. In the upper right corner of the page, click **Create Global Internet Gateway**.

The **Create Global Internet Gateway** dialog box is displayed.

- c. Configure the parameters based on [Table 3-4](#).

**Table 3-4** Parameter descriptions

Parameter	Example Value	Description
Name	IGW-A	Enter the name of the global internet gateway as required. The name: <ul style="list-style-type: none"><li>• Can contain 1 to 64 characters.</li><li>• Can contain letters, digits, underscores (_), hyphens (-), and periods (.).</li></ul> This parameter can be modified after a global internet gateway is created.
Version	IPv6	Select <b>IPv6</b> for the global internet gateway. This parameter cannot be modified after a global internet gateway is created.

Parameter	Example Value	Description
VPC	VPC-A	Select the VPC of the ECS. Ensure that the VPC is in the same region as the ECS. This parameter cannot be modified after a global internet gateway is created.
Subnet	Subnet-A01	Select a subnet in the VPC where you want to bind the global internet gateway. This parameter cannot be modified after a global internet gateway is created.
Default Route	Enable	Select this option, so the default route with the destination 0.0.0.0/0 will be automatically added to the default route table of the selected VPC to direct traffic to the global internet gateway. This parameter cannot be modified after a global internet gateway is created.

- d. Click **OK**.
2. **Add an IPv6 route pointing to the global internet gateway.**
  - a. Go to the [VPC list](#) page.
  - b. In the VPC list, locate VPC-A and click the number in the **Route Tables** column. The route table list page is displayed.
  - c. Click the name of the target route table.  
The route table details page is displayed.
  - d. Click **Add Route** and configure required parameters.

**Table 3-5** Parameter descriptions

Parameter	Example Value	Description
Destination Type	IP address	Select the route destination type. This parameter can be modified after the route is created.
Destination	0::0/0	Set <b>Destination</b> to <b>0::0/0</b> , indicating that any IPv6 traffic is matched.
Next Hop Type	Global internet gateway	Select the next hop resource type of the route. This parameter can be modified after the route is created.
Next Hop	IGW-A	Select the next hop resource of the route. This parameter can be modified after the route is created.

Parameter	Example Value	Description
Description	No configuration is required.	Enter the route description as required. This parameter can be modified after the route is created.

- e. Click **OK**.
- You can view the new route in the route list.

Step 3: Buy a Global EIP

1. Go to the [Assign Global EIP](#) page.
2. Configure the parameters based on [Table 3-6](#).

Table 3-6 Parameter descriptions

Parameter	Example Value	Description
Region	CN-East	Select a region that is close to your services for lower latency. This parameter cannot be modified after the global EIP is assigned.
City	Shanghai	Select a city that is close to your services for lower latency. This parameter cannot be modified after the global EIP is assigned.
Type	Global EIP	Select <b>Global EIP</b> or <b>Global EIP range</b> . This parameter cannot be modified after the global EIP is assigned.
Version	IPv6	Select <b>IPv4</b> or <b>IPv6</b> . This parameter cannot be modified after the global EIP is assigned.
Global EIP Type	CU	Select the global EIP type. After you select a global EIP pool, the system will allocate a global EIP to you from the pool. Select a resource pool close to your services for lower latency. This parameter cannot be modified after the global EIP is assigned.
Global Internet Bandwidth	Assign now	Select <b>Assign now</b> to purchase a new global internet bandwidth.

Parameter	Example Value	Description
Billing Mode	Pay-per-use	Select the billing mode for the global internet bandwidth as required. This parameter cannot be modified after the global EIP is assigned.
Bandwidth Type	Standard	Select the type of the global internet bandwidth as required. This parameter cannot be modified after the global EIP is assigned.
Billed By	95th percentile bandwidth (standard)	Select the billing option for the global internet bandwidth as required. This parameter can be modified after the global internet bandwidth is created.
Guaranteed Bandwidth	No configuration is required.	The value is automatically configured based on the selected billing option.
Bandwidth (Mbit/s)	300	Select the size of the global internet bandwidth as required. This parameter can be modified after the global internet bandwidth is created.
Global EIP Name	G-EIP1	Enter the name of the global EIP as required. The name: <ul style="list-style-type: none"><li>• Can contain 0 to 64 characters.</li><li>• Can contain letters, digits, underscores (_), hyphens (-), and periods (.).</li></ul> This parameter can be modified after the global EIP is assigned.
Enterprise Project	default	The enterprise project by which resources are centrally managed. Select an existing enterprise project for the global EIP. This parameter cannot be modified after the global EIP is assigned.
Advanced Settings	Retain the default settings.	Click the drop-down arrow and configure advanced parameters for the global EIP.

Parameter	Example Value	Description
Bandwidth Name	IBW-A	Enter the name of the global internet bandwidth as required. The name: <ul style="list-style-type: none"><li>• Can contain 0 to 64 characters.</li><li>• Can contain letters, digits, underscores (_), hyphens (-), and periods (.).</li></ul> This parameter can be modified after the global internet bandwidth is created.
Tag	No configuration is required.	Add tags to classify and identify the global EIP as required. This parameter can be modified after the global EIP is assigned.
Monitoring	No configuration is required.	By default, the following information is monitored for free: <ul style="list-style-type: none"><li>• Network traffic at one-minute intervals</li><li>• Bandwidth fluctuations and inbound and outbound bandwidth rates</li></ul>
Quantity	1	Set it to <b>1</b> .

3. Click **Next**.
4. Confirm the configuration and click **Submit**.  
The global EIP list is displayed.
5. In the global EIP list, view the global EIP status.  
If the status of the global EIP is **Unbound**, the EIP is assigned successfully.

## Step 4: Bind the Global EIP to an ECS and a Global Internet Gateway

1. Go to the [global EIP list page](#).
2. In the global EIP list, search for G-EIP1 to locate it.
3. Locate the row that contains G-EIP1 and click **Bind Instance** in the **Progress** column.  
The page for binding an instance is displayed.
4. Configure the parameters as follows:
  - **Instance Region**: Select the region where ECS-A01 is located.
  - **Instance Type**: Select **ECS (IPv6)** and select **ECS-A01**.
  - **Global Internet Gateway**: Select IGW-A created in [Step 2: Create a Global Internet Gateway and Add an IPv6 Route](#).
5. Click **Next**.
6. On the **Bind Global Connection Bandwidth** page, create a global connection bandwidth to be bound to the global EIP.

**Table 3-7** Parameter descriptions

Parameter	Example Value	Description
EIP Region	No configuration is required.	The region is determined by that of G-EIP1 and does not need to be configured.
Instance Region	No configuration is required.	The region is determined by that of ECS-A01 and does not need to be configured.
Bandwidth Type	No configuration is required.	The value is determined by the access point of the global EIP and the region where the instance is located. You do not need to set it.
Global Connection Bandwidth	Assign now	Select <b>Assign now</b> to create a global connection bandwidth.
Bandwidth Name	Bandwidth-A	Enter the name of the global connection bandwidth as required. The name: <ul style="list-style-type: none"><li>• Can contain 0 to 64 characters.</li><li>• Can contain letters, digits, underscores (_), hyphens (-), and periods (.).</li></ul> This parameter can be modified after the global connection bandwidth is created.
Bandwidth (Mbit/s)	300	Select the size of the global connection bandwidth as required. This parameter can be modified after the global connection bandwidth is created.

7. Click **Finish**.

In the global EIP list, you can see that the global EIP has an instance bound.

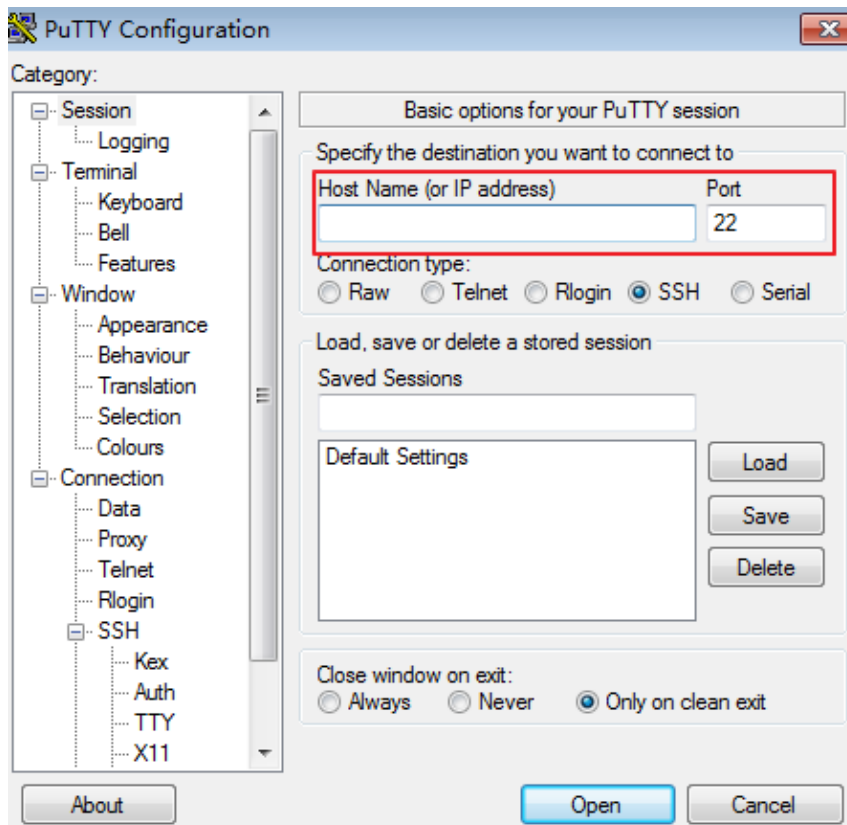
## Step 5: Test Network Connectivity

## 1. Check whether you can log in to ECS-A01 using its IPv6 address.

Multiple methods are available for logging in to an ECS. For details, see [Logging In to an ECS](#).

Use PuTTY to remotely log in to ECS-A01 using the IPv6 address.

Enter the IPv6 address of ECS-A01 under **Host Name (or IP address)**, for example, **2407:XXX:e857**.

**Figure 3-8** PuTTY Configuration

2. Test the network connectivity between ECS-A01 and the Internet using an IPv6 address:

**ping6** <IPv6-address>

In this example, **2002:20::45** is used as a public IP address. An example command is as follows:

**ping6 2002:20::45**

If information similar to the following is displayed, ECS-A01 can communicate with the Internet using the IPv6 address.

```
[root@ecs-a01 ~]# ping6 2002:20::45
PING 2002:20::45(2002:20::45) from 2002:20::45 : 56 data bytes
64 bytes from 2002:20::45: icmp_seq=1 ttl=64 time=0.770 ms
64 bytes from 2002:20::45: icmp_seq=2 ttl=64 time=0.295 ms
64 bytes from 2002:20::45: icmp_seq=3 ttl=64 time=0.245 ms
^C
--- 2002:20::45 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2080ms
rtt min/avg/max/mdev = 0.245/0.436/0.770/0.237 ms
```

#### NOTE

If your access using an IPv6 address is abnormal, refer to [Why Can't I Access Websites Using IPv6 Addresses After IPv4/IPv6 Dual Stack Is Configured?](#)