Elastic IP

User Guide

Issue	01
Date	2024-04-28

HUAWEI TECHNOLOGIES CO., LTD.

Copyright © Huawei Technologies Co., Ltd. 2024. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Technologies Co., Ltd.

Trademarks and Permissions


and other Huawei trademarks are trademarks of Huawei Technologies Co., Ltd.
All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Security Declaration

Vulnerability

Huawei's regulations on product vulnerability management are subject to the *Vul. Response Process.* For details about this process, visit the following web page:
https://www.huawei.com/en/psirt/vul-response-process
For vulnerability information, enterprise customers can visit the following web page:
https://securitybulletin.huawei.com/enterprise/en/security-advisory

Contents

 Copyright © Huawei Technologies Co., Ltd.

 Copyright © Huawei Technologies Co., Ltd.

1 Elastic IP

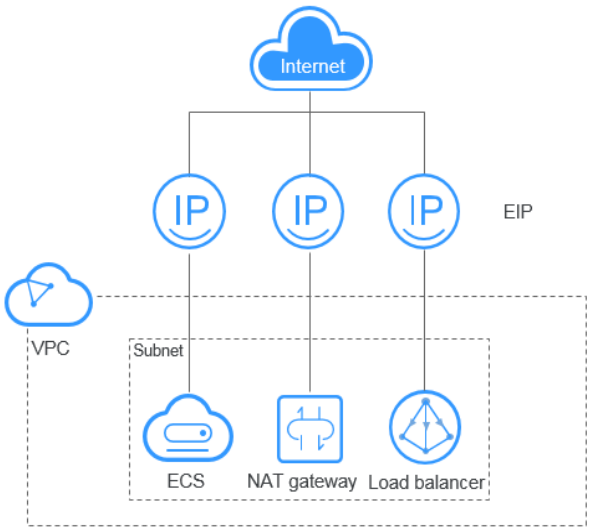
1.1 EIP Overview

EIP

The Elastic IP (EIP) service enables your cloud resources to communicate with the Internet using static public IP addresses and scalable bandwidths. If a resource has an EIP bound, it can directly access the Internet. If a resource only has a private IP address, it cannot directly access the Internet. EIPs can be bound to or unbound from ECSs, BMSs, virtual IP addresses, NAT gateways, or load balancers.

Each EIP can be bound to only one cloud resource and they must be in the same region.

Figure 1-1 Connecting to the Internet using an EIP



 Copyright © Huawei Technologies Co., Ltd.

1.2 Assigning an EIP

Scenarios

You can assign an EIP and bind it to cloud resources to allow them to access the Internet.

NOTE

If you want to assign a pay-per-use EIP that you have released or assign a specific EIP, you can use APIs. When assigning an EIP, set the value of **ip_address** to the IP address that you want to assign. For details, see **Elastic IP API Reference**.

- If the EIP has been assigned to another user, you will fail to assign your required EIP.
- You cannot use APIs to assign a yearly/monthly EIP that you have released or assign a specific yearly/monthly EIP.
- The management console does not support assigning a specific EIP.

Procedure

1. Log in to the management console.
2. Click in the upper left corner and select the desired region and project.
3. Click in the upper left corner and choose **Networking** > **Elastic IP**.
4. On the displayed page, click **Buy EIP**.
5. Set the parameters as prompted.

Table 1-1 Parameter descriptions

Parameter	Description	Example Value
Billing Mode	The following billing modes are available: • Yearly/Monthly • Pay-per-use	Pay-per-use

Copyright © Huawei Technologies Co., Ltd.

Parameter	Description	Example Value
Region	Regions are geographic areas that are physically isolated from each other. The networks inside different regions are not connected to each other, so resources cannot be shared across different regions. For lower network latency and faster access to your resources, select the region nearest you. The region selected for the EIP is its geographical location. **NOTE** The geographical location of an EIP purchased in CN North-Ulanqab1 is Beijing.	CN-Hong Kong
EIP Type	• **Dynamic BGP**: Dynamic BGP provides automatic failover and chooses the optimal path when a network connection fails. • **Static BGP**: Static BGP offers more routing control and protects against route flapping, but an optimal path cannot be selected in real time when a network connection fails. • **Premium BGP**: Premium BGP chooses the optimal path and ensures low-latency and high-quality networks. BGP is used to interconnect with lines of multiple mainstream carriers. Public network connections that feature low latency and high quality are directly established between Chinese mainland and Hong Kong (China). (This parameter is available only in **CN-Hong Kong**.) For details, see **What Are the Differences Between Static BGP and Dynamic BGP?**	Dynamic BGP

Copyright © Huawei Technologies Co., Ltd.

Parameter	Description	Example Value
Billed By	This parameter is available only when you set **Billing Mode** to **Pay-per-use**. • **Bandwidth**: You specify a maximum bandwidth and pay for the amount of time you use the bandwidth. This is suitable for scenarios with heavy or stable traffic. • **Traffic**: You specify a maximum bandwidth and pay for the total traffic you use. This is suitable for scenarios with light or sharply fluctuating traffic. • **Shared Bandwidth**: The bandwidth can be shared by multiple EIPs. This is suitable for scenarios with staggered traffic.	Bandwidth
Bandwidth	The bandwidth size in Mbit/s.	100
DDoS Protection	Cloud Native Anti-DDoS Basic Cloud Native Anti-DDoS Basic provides up to 5 Gbit/s of DDoS mitigation capacity. If the attack to an EIP exceeds 5 Gbit/s, the EIP will be blocked.	-
EIP Name	The EIP name.	eip-test
Enterprise Project	The enterprise project that the EIP belongs to. An enterprise project facilitates project-level management and grouping of cloud resources and users. The name of the default project is **default**. For details about creating and managing enterprise projects, see the **Enterprise Management User Guide**.	default
Advanced Settings	Click the drop-down arrow to configure parameters, including the bandwidth name and tag.	-
Bandwidth Name	The name of the bandwidth.	bandwidth

Copyright © Huawei Technologies Co., Ltd.

Parameter	Description	Example Value
Tag	The EIP tags. Each tag contains a key and value pair. The tag key and value must meet the requirements listed in Table 1-2. **NOTE** If your organization has created a tag policy for EIP, you need to add tags for EIP based on the tag policy. If a tag does not comply with the tagging rules, the creation may fail. Contact the organization administrator to learn details about the tag policy.	• Key: Ipv4_key1 • Value: 3005eip
Monitoring	Used to monitor the EIP and enabled by default. You can use the management console or APIs provided by Cloud Eye to query the metrics and alarms generated for the EIP and bandwidth.	-
Required Duration	The duration for which the purchased EIP will use. The duration must be specified if the **Billing Mode** is set to **Yearly/Monthly**.	1 month
Auto-renew	Whether to select **Auto-renew**. You can select it if the **Billing Mode** is set to **Yearly/Monthly**. The auto-renewal period is determined by the required duration. • Monthly subscription: The subscription is renewed every month. • Yearly subscription: The subscription is renewed each year.	-
Quantity	The number of EIPs you want to purchase. The quantity must be specified if the **Billing Mode** is set to **Pay-per-use**.	1

Copyright © Huawei Technologies Co., Ltd.

Table 1-2 EIP tag requirements

Parameter	Requirement	Example Value
Key	• Cannot be left blank. • Must be unique for each EIP. • Can contain a maximum of 36 characters. • Can contain letters, digits, underscores (_), and hyphens (-).	Ipv4_key1
Value	• Can contain a maximum of 43 characters. • Can contain letters, digits, underscores (_), periods (.), and hyphens (-).	3005eip

NOTE

- If you are buying an EIP billed on a pay-per-use basis and you want to use a shared bandwidth, you can only select an existing shared bandwidth from the **Bandwidth Name** drop-down list. If there are no shared bandwidths to select, purchase a shared bandwidth first.
- A dedicated bandwidth cannot be changed to a shared bandwidth and vice versa. However, you can purchase a shared bandwidth for pay-per-use EIPs.
  - After an EIP is added to a shared bandwidth, the EIP will use the shared bandwidth.
  - After an EIP is removed from the shared bandwidth, the EIP will use the dedicated bandwidth.

6. Click **Next**.
7. Click **Submit**.

If you click **Buy Shared Bandwidth** when you buy an EIP, you also need to purchase the bandwidth.

1.3 Binding an EIP to an Instance

Scenarios

After EIPs are assigned, you can bind them to resources such as ECSs, BMSs, virtual IP addresses, NAT gateways, and load balancers to allow them to access the Internet.

NOTE

An EIP and its bound cloud resource can use different billing modes.

Notes and Constraints

- An EIP can only be bound to an instance from its same region.

 Copyright © Huawei Technologies Co., Ltd.

- An EIP can only be bound to an instance from its same account.
- An EIP cannot be bound to a frozen instance.

Procedure

Binding an EIP to an instance, such as an ECS, a BMS, or a virtual IP address

1. In the EIP list, locate the row that contains the EIP, and click **Bind**.
2. Select the instance.
3. Click **OK**.

NOTE

To bind an instance to an EIP:

- If the instance is an ECS:
  - The ECS must be in the running or stopped status.
  - The ECS must be in the same region as that of the EIP.
  - The ECS has no EIP bound to it.
- If the instance is a virtual IP address:
  - The virtual IP address must be in the same region as that of the EIP.
  - The virtual IP address must be in the available or assigned status.
- If the instance is a BMS:

  The BMS must be in the same region as that of the EIP.

Binding an EIP to a NAT gateway

If you want to bind a NAT gateway to an EIP, the NAT gateway must be in the same region as that of the EIP. After an EIP is bound to a NAT gateway, ECSs associated with this gateway can share the EIP to access the Internet or provide services accessible from the Internet.

You can bind an EIP to a NAT gateway by configuring SNAT and DNAT rules for the gateway. For details, see **Configuring SNAT Rules to Enable Servers to Access the Internet** and **Configure DNAT Rules to Enable Servers to Provide Services Accessible from the Internet**..

Binding an EIP to a load balancer

If you want to bind a load balancer to an EIP, the load balancer must be in the same region as that of the EIP. Then, the load balancer can receive requests over the Internet. For details, see **Binding or Unbinding an EIP**.

No Instance Available for EIP Binding

- There are no instances available when you want to bind an instance to an EIP.

  You have instances, but an EIP cannot be bound to any of them.

  - An EIP cannot be bound to an instance from a different region.
  - An EIP cannot be bound to an instance from a different account.
  - The instance is frozen and cannot have an EIP bound.

  There are no instances.

  Buy an ECS, **create a BMS**, or **assign a virtual IP address**.

 Copyright © Huawei Technologies Co., Ltd.

1.4 Unbinding an EIP from an Instance

Scenarios

Unbind an EIP from an instance, if:

- Your instance does not need to use an EIP.

  If you do not release the EIP after unbinding it, the EIP will be billed. For details, see **Releasing an EIP**.
- You want to bind the EIP to another instance.

Notes and Constraints

- An EIP cannot be unbound if its server is suspected of violations and the EIP is frozen by the national supervision department.

Unbinding a Single EIP

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. On the displayed page, locate the row that contains the target EIP, and click **Unbind** in the **Operation** column.

   A confirmation dialog box is displayed.
5. Click **Yes** in the displayed dialog box.

   In the EIP list, the target EIP has no associated instance.

Unbinding Multiple EIPs at Once

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. On the displayed page, select the EIPs to be unbound.
5. In the upper left corner of the EIP list, click **Unbind**.

   A confirmation dialog box is displayed.
6. Click **Yes** in the displayed dialog box.

   In the EIP list, the target EIPs have no associated instances.

NOTE

If a pay-per-use EIP is unbound from an instance, the EIP will be billed to keep it allocated to your account unless it is released.

If an EIP billed by bandwidth is unbound from an instance, the bandwidth will continue to be billed.

If you have any questions about the billing, see **Why Am I Still Being Billed After My EIP Has Been Unbound or Released?**

 Copyright © Huawei Technologies Co., Ltd.

1.5 Releasing an EIP

Scenarios

If an EIP is no longer required, you can unbind it from your instance and then release it. If you do not release the EIP in a timely manner after unbinding it, the EIP will be billed to keep it allocated to your account unless it is released.

Notes and Constraints

- Only EIPs that have no instances bound can be released. To release an EIP that has been bound to an instance, unbind it first. For details, see **Unbinding an EIP from an Instance**.
- The system preferentially assigns EIPs to you from the ones you released, if any. However, if any of these EIPs is already assigned to another user, it cannot be re-assigned to you.

  For details, see **How Do I Assign or Retrieve a Specific EIP?**
- EIPs billed on a yearly/monthly basis can only be unsubscribed.
- An EIP cannot be released if its server is suspected of violations and the EIP is frozen by the national supervision department.

Releasing a Single EIP

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the EIP list, locate the row that contains the EIP and choose **More** > **Release** in the **Operation** column.

   A confirmation dialog box is displayed.
5. Click **Yes** in the displayed dialog box.

   You can find that the EIP is not in the EIP list.

Releasing Multiple EIPs at Once

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the EIP list, select the EIPs to be released.
5. In the upper left corner of the list, choose **More** > **Release**.

   A confirmation dialog box is displayed.
6. Click **Yes** in the displayed dialog box.

   You can find that the EIPs are not in the EIP list.

Copyright © Huawei Technologies Co., Ltd.

1.6 Changing Dedicated Bandwidth Size of an EIP

Scenarios

No matter which billing mode is used, if your EIP is not added to a shared bandwidth, it uses a dedicated bandwidth. A dedicated bandwidth can control how much data can be transferred using a single EIP.

This section describes how to increase or decrease the bandwidth size. Changing bandwidth size does not change the EIPs.

When you change the bandwidth size, the bandwidth price and effective time depend on the billing mode, which applies to both dedicated and shared bandwidths. For details, see **Table 1-3**.

NOTE

Decreasing bandwidths may cause packet loss.

Table 1-3 Impact on billing after bandwidth size change

Billing Mode	Billed By	Change	Impact
Yearly/ Monthly	Bandwidth	Increase bandwidth	The change will take effect immediately. The increased bandwidth will be billed accordingly.
	Bandwidth	Decrease bandwidth upon renewal	The change will not take effect immediately. You need to select a new bandwidth size and a renewal duration. The change will take effect in the first billing cycle after a successful renewal. • The order can be unsubscribed before the bandwidth takes effect. • The bandwidth cannot be modified in the first billing cycle.
Pay-per-use	Bandwidth	Increase or decrease the bandwidth	The change will take effect immediately.
	Traffic	Increase or decrease the bandwidth	The change will take effect immediately. The bandwidth size you set is only used to limit the maximum data transfer rate.

Notes and Constraints

- If you renew a yearly/monthly EIP in its current validity period, its bandwidth cannot be modified in this period.

Copyright © Huawei Technologies Co., Ltd.

- If an EIP is frozen due to account arrears or for security reasons, its dedicated bandwidth cannot be modified.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. Locate the row that contains the target EIP in the EIP list, and click **More** > **Modify Bandwidth** in the **Operation** column.
   - If it is a pay-per-use EIP, the **Modify Bandwidth** page is displayed.
   - If it is a yearly/monthly EIP, select either of the following method to increase or decrease the bandwidth and click **Continue**.
     - Increase bandwidth
     - Decrease bandwidth
5. Change the bandwidth size as prompted.

Figure 1-2 Modifying the bandwidth of a pay-per-use EIP

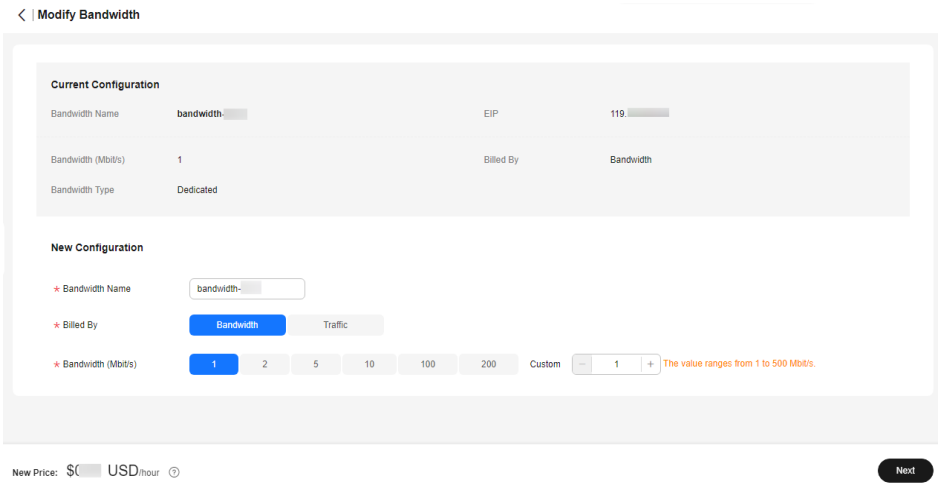
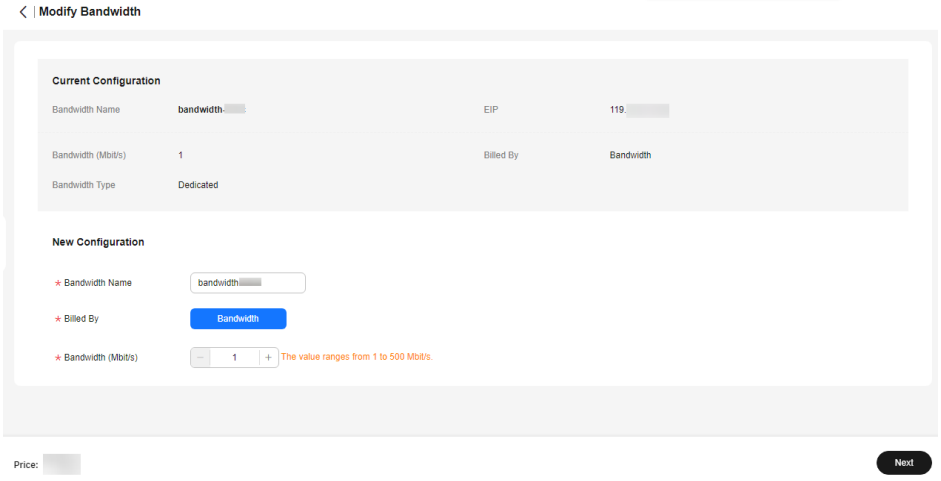


Figure 1-3 Modifying the bandwidth of a yearly/monthly EIP



 Copyright © Huawei Technologies Co., Ltd.

NOTE

You can also change the bandwidth name. If an EIP is billed on a pay-per-use basis, you can change its bandwidth billing option.

6. Click **Next**.
7. Click **Submit**.

You can also select multiple EIPs and click **Modify Bandwidth** above the EIP list to modify bandwidths in batches. Only multiple dedicated bandwidths of pay-per-use EIPs can be modified at a time.

1.7 Unbinding an EIP from an ECS and Releasing the EIP

Scenarios

If you no longer need an EIP, unbind it from the ECS and release the EIP to avoid wasting network resources.

The price of a pay-per-use EIP includes **EIP reservation price** and **bandwidth price**.

- If a pay-per-use EIP is unbound from an instance and is not released, you need to pay for the **EIP reservation price** and **bandwidth price**.
- If a pay-per-use EIP is bound to an instance, you only need to pay for the **bandwidth price**.

Notes and Constraints

- Only EIPs with no instance bound can be released. If you want to release an EIP with an instance bound, you need to unbind EIP from the instance first.
- You cannot buy an EIP that has been released if it is currently in use by another user.
- If an EIP is frozen due to account arrears or security reasons, it cannot be bound or unbound.

Procedure

Unbinding a single EIP

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. On the displayed page, locate the row that contains the EIP, and click **Unbind**.
5. Click **Yes** in the displayed dialog box.

Releasing a single EIP

1. Log in to the management console.

 Copyright © Huawei Technologies Co., Ltd.

2. Click in the upper left corner and select the desired region and project.
3. Click in the upper left corner and choose **Networking** > **Elastic IP**.
4. On the displayed page, locate the row that contains the target EIP, click **More** and then **Release** in the **Operation** column.
5. Click **Yes** in the displayed dialog box.

Unbinding multiple EIPs at once

1. Log in to the management console.
2. Click in the upper left corner and select the desired region and project.
3. Click in the upper left corner and choose **Networking** > **Elastic IP**.
4. On the displayed page, select the EIPs to be unbound.
5. Click the **Unbind** button located above the EIP list.
6. Click **Yes** in the displayed dialog box.

Releasing multiple EIPs at once

1. Log in to the management console.
2. Click in the upper left corner and select the desired region and project.
3. Click in the upper left corner and choose **Networking** > **Elastic IP**.
4. On the displayed page, select the EIPs to be released.
5. Click the **Release** button located above the EIP list.
6. Click **Yes** in the displayed dialog box.

1.8 Modifying an EIP Bandwidth

Scenarios

No matter which billing mode is used, if your EIP is not added to a shared bandwidth, it uses a dedicated bandwidth. A dedicated bandwidth can control how much data can be transferred using a single EIP.

This section describes how to increase or decrease the bandwidth size. Changing bandwidth size does not change the EIPs.

When you change the bandwidth size, the bandwidth price and effective time depend on the billing mode, which applies to both dedicated and shared bandwidths. For details, see **Table 1-4**.

NOTE

Decreasing bandwidths may cause packet loss.

 Copyright © Huawei Technologies Co., Ltd.

Table 1-4 Impact on billing after bandwidth size change

Billing Mode	Billed By	Change	Impact
Yearly/ Monthly	Bandwidth	Increase bandwidth	The change will take effect immediately. The increased bandwidth will be billed accordingly.
	Bandwidth	Decrease bandwidth upon renewal	The change will not take effect immediately. You need to select a new bandwidth size and a renewal duration. The change will take effect in the first billing cycle after a successful renewal. • The order can be unsubscribed before the bandwidth takes effect. • The bandwidth cannot be modified in the first billing cycle.
Pay-per-use	Bandwidth	Increase or decrease the bandwidth	The change will take effect immediately.
	Traffic	Increase or decrease the bandwidth	The change will take effect immediately. The bandwidth size you set is only used to limit the maximum data transfer rate.

Procedure

1. Log in to the management console.
2. Click in the upper left corner and select the desired region and project.
3. Click in the upper left corner and choose **Networking** > **Elastic IP**.
4. Locate the target EIP, click **More** in the **Operation** column, and select **Modify Bandwidth**.
   - If it is a pay-per-use EIP, the **Modify Bandwidth** page is displayed.
   - If it is a yearly/monthly EIP, select either of the following method to increase or decrease the bandwidth and click **Continue**.
     - Increase bandwidth
     - Decrease bandwidth
5. Modify the bandwidth parameters as prompted.

 Copyright © Huawei Technologies Co., Ltd.

Figure 1-4 Modifying the bandwidth of a pay-per-use EIP

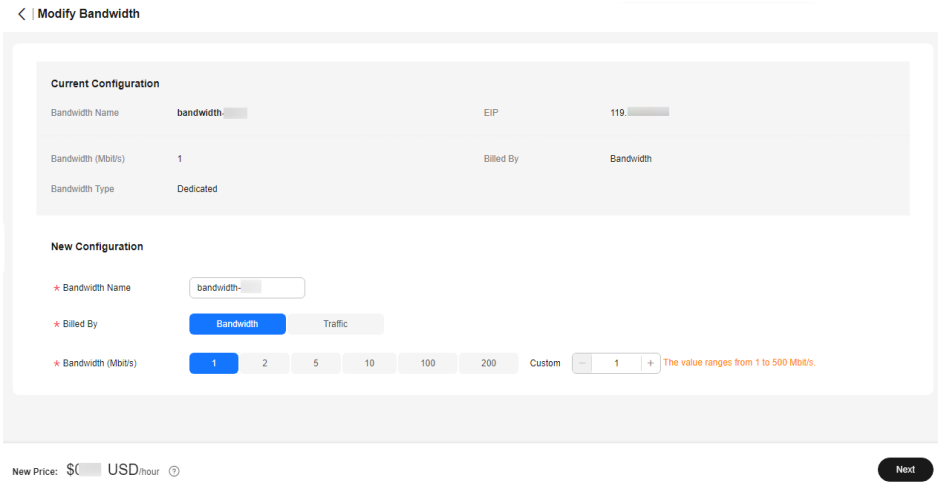
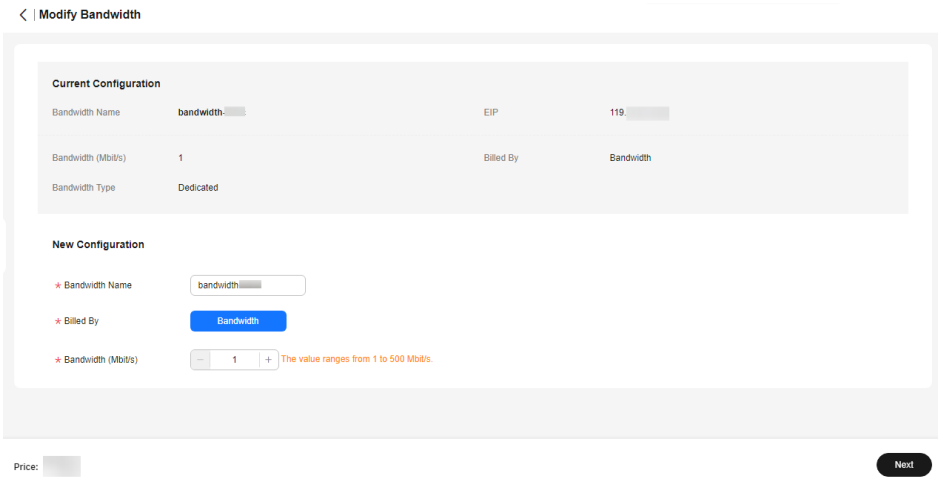


Figure 1-5 Modifying the bandwidth of a yearly/monthly EIP



6. Click **Next**.
7. Click **Submit**.

You can also select multiple EIPs and click **Modify Bandwidth** above the list to modify their bandwidths in batches. Only dedicated bandwidths billed on a pay-per-use basis can be modified in batches.

Helpful Links

- **How Do I Change the EIP Billing Option from Bandwidth to Traffic or from Traffic to Bandwidth?**
- **Can I Increase My Bandwidth Billed on Yearly/Monthly Basis and Then Decrease It?**

 Copyright © Huawei Technologies Co., Ltd.

1.9 Exporting EIP Information

Scenarios

The information of all EIPs under your account can be exported in an Excel file to a local directory. The file records the ID, status, type, bandwidth name, and bandwidth size of EIPs.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. On the EIP list page, select one or more EIPs and click **Export** in the upper left corner.

   The system will automatically export all EIPs to an Excel file and download the file to a local directory.

1.10 Managing EIP Tags

Scenarios

Tags can be added to EIPs to facilitate EIP identification and administration. You can add a tag to an EIP when assigning the EIP. Alternatively, you can add a tag to an assigned EIP on the EIP details page. A maximum of 20 tags can be added to each EIP.

If your organization has created a tag policy for EIP, you need to add tags for EIP based on the tag policy. If a tag does not comply with the tagging rules, the EIP may fail to be created or the tag may fail to be added. Contact the organization administrator to learn more about the tag policy.

NOTE

The Organizations service is in open beta test (OBT). To use organization rules, apply for OBT.

A tag consists of a key and value pair. **Table 1-5** lists the tag key and value requirements.

 Copyright © Huawei Technologies Co., Ltd.

Table 1-5 EIP tag requirements

Parameter	Requirement	Example Value
Key	• Cannot be left blank. • Must be unique for each EIP. • Can contain a maximum of 36 characters. • Can contain letters, digits, underscores (_), and hyphens (-).	Ipv4_key1
Value	• Can contain a maximum of 43 characters. • Can contain letters, digits, underscores (_), periods (.), and hyphens (-).	3005eip

Procedure

Searching for EIPs by tag key and value on the page showing the EIP list

1. Log in to the management console.
2. Click in the upper left corner and select the desired region and project.
3. Click in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the search box above the EIP list, click anywhere in the box to set filters.

   Select the tag key and then the value as required. The system filters resources based on the tag you select.

Adding, deleting, editing, and viewing tags on the Tags tab of an EIP

1. Log in to the management console.
2. Click in the upper left corner and select the desired region and project.
3. Click in the upper left corner and choose **Networking** > **Elastic IP**.
4. On the displayed page, locate the EIP whose tags you want to manage and click the EIP name.
5. On the page showing EIP details, click the **Tags** tab and perform desired operations on tags.
   - View tags.

     On the **Tags** tab, you can view details about tags added to the current EIP, including the number of tags and the key and value of each tag.
   - Add a tag.

     Click **Add Tag** in the upper left corner. In the displayed **Add Tag** dialog box, enter the tag key and value, and click **OK**.
   - Edit a tag.

     Locate the row that contains the tag you want to edit, and click **Edit** in the **Operation** column. Enter the new tag value, and click **OK**.

     The tag key cannot be modified.

 Copyright © Huawei Technologies Co., Ltd.

- Delete a tag.

  Locate the row that contains the tag you want to delete, and click **Delete** in the **Operation** column. In the displayed dialog box, click **Yes**.

1.11 IPv6 EIP

1.11.1 IPv6 EIP Overview

Overview

Both IPv4 and IPv6 EIPs are available. You can assign an IPv6 EIP or map an existing IPv4 EIP to an IPv6 EIP.

After the IPv6 EIP function is enabled, you will obtain both an IPv4 EIP and its corresponding IPv6 EIP. External IPv6 addresses can access cloud resources through this IPv6 EIP.

IPv4 EIPs are billed. IPv6 EIPs are currently free, but will be billed at a later date (price yet to be determined).

Application Scenarios of IPv4/IPv6 Dual Stack

If your ECS supports IPv6, you can use the IPv4/IPv6 dual stack. **Table 1-6** shows the example application scenarios.

Table 1-6 Application scenarios of IPv4/IPv6 dual stack

Application Scenario	Description	Requirement	IPv4 or IPv6 Subnet	ECS
Private IPv4 communication	Your applications on ECSs need to communicate with other systems (such as databases) through private networks using IPv4 addresses.	• No EIPs have been bound to the ECSs.	IPv4 CIDR Block	**Private IPv4 address**: used for private IPv4 communication.

 Copyright © Huawei Technologies Co., Ltd.

Application Scenario	Description	Requirement	IPv4 or IPv6 Subnet	ECS
Public IPv4 communication	Your applications on ECSs need to communicate with other systems (such as databases) through public IPv4 addresses.	• EIPs have been bound to the ECSs.	IPv4 CIDR Block	• **Private IPv4 address**: used for private IPv4 communication. • **Public IPv4 address**: used for public IPv4 communication.

 Copyright © Huawei Technologies Co., Ltd.

Application Scenario	Description	Requirement	IPv4 or IPv6 Subnet	ECS
Private IPv6 communication	Your applications on ECSs need to communicate with other systems (such as databases) through private IPv6 addresses.	• IPv6 has been enabled for the VPC subnet. • The network has been configured for the ECSs as follows: – **Flavor**: Any ECS flavor that supports the IPv6 network. For details, see section "x86 ECS Specifications and Types" in the **Elastic Cloud Server User Guide**. – **VPC and Subnet**: IPv6-enabled subnet and VPC. – **Self-assigned IPv6 address**: Selected. – **Shared Bandwidth**: Selected **Do not configure**.	• IPv4 CIDR Block • IPv6 CIDR block	• **Private IPv4 address + IPv4 EIP**: Bind an IPv4 EIP to the instance to allow public IPv4 communication. • **Private IPv4 address**: Do not bind any IPv4 EIP to the instance and use only the private IPv4 address to allow private IPv4 communication. • **IPv6 address**: Do not configure shared bandwidth for the IPv6 address to allow private IPv6 communication.

 Copyright © Huawei Technologies Co., Ltd.

Application Scenario	Description	Requirement	IPv4 or IPv6 Subnet	ECS
Public IPv6 communication	An IPv6 network is required for the ECS to access the IPv6 service on the Internet.	• IPv6 has been enabled for the VPC subnet. • The network has been configured for the ECSs as follows: – **Flavor**: Any ECS flavor that supports the IPv6 network. For details about the ECS flavor that support the IPv6 network, see section "x86 ECS Specifications and Types" in the **Elastic Cloud Server User Guide**. – **VPC and Subnet**: IPv6-enabled subnet and VPC. – **Self-assigned IPv6 address**: Selected. – **Shared Bandwidth**: Selected a shared bandwidth. **NOTE** For details, see **Setting Up an IPv6 Network**.	• IPv4 CIDR Block • IPv6 CIDR block	• **Private IPv4 address + IPv4 EIP**: Bind an IPv4 EIP to the instance to allow public IPv4 communication. • **Private IPv4 address**: Do not bind any IPv4 EIP to the instance and use only the private IPv4 address to allow private IPv4 communication. • **IPv6 address + shared bandwidth**: Allow both private IPv6 communication and public IPv6 communication.

For details, see **IPv4 and IPv6 Dual-Stack Network**.

Application Scenarios of IPv6 EIP

If you want an ECS to provide IPv6 services but the ECS does not support IPv6 networks or you do not want to build an IPv6 network, you can use IPv6 EIP to

 Copyright © Huawei Technologies Co., Ltd.

quickly address your requirements. For details about application scenarios and resource planning, see **Table 1-7**.

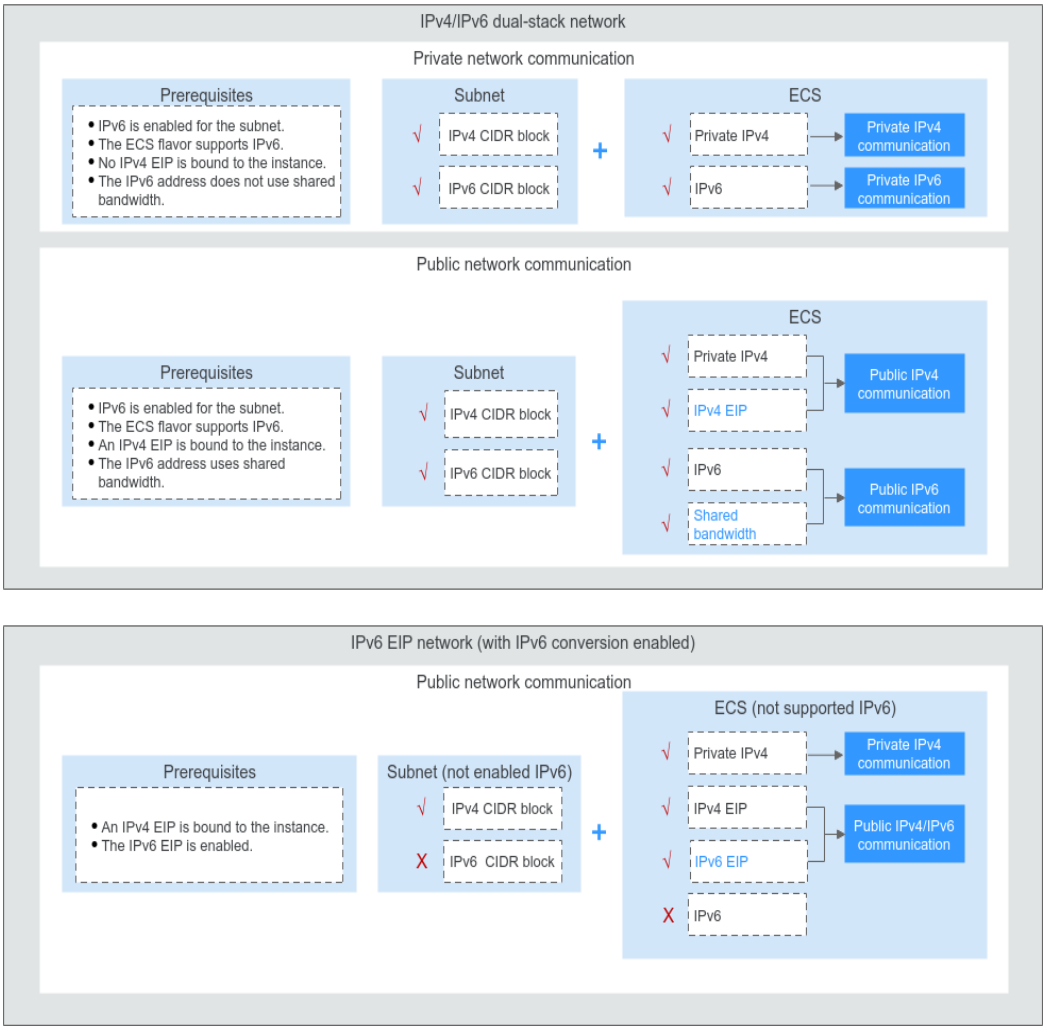
Table 1-7 Application scenarios and resource planning of an IPv6 EIP network (with IPv6 EIP enabled)

Application Scenario	Description	Requirement	IPv4 or IPv6 Subnet	ECS
Public IPv6 communication	You want to allow an ECS to provide IPv6 services for clients on the Internet without setting up an IPv6 network.	• An EIP has been bound to the ECS. • IPv6 EIP has been enabled.	IPv4 CIDR Block	• **Private IPv4 address**: used for private IPv4 communication. • **IPv4 EIP (with IPv6 EIP enabled)**: used for public network communication through IPv4 and IPv6 addresses.

Copyright © Huawei Technologies Co., Ltd.

Application Scenarios and Resource Planning of IPv6 Networks

Figure 1-6 Application scenarios and resource planning of IPv6 networks



1.11.2 Assigning or Releasing an IPv6 EIP

Scenarios

If you want an ECS to provide IPv6 services but the ECS does not support IPv6 networks or you do not want to build an IPv6 network, you can use an IPv6 EIP to quickly address your requirements.

Enabling IPv6 EIP

- Method 1:

  Apply for an EIP with **IPv6 EIP** enabled by referring to section **Assigning an EIP**.

  After the IPv6 EIP is enabled, you will obtain both an IPv4 EIP and an IPv6 EIP. External IPv6 addresses can access cloud resources through this IPv6 EIP.

- Method 2:

 Copyright © Huawei Technologies Co., Ltd.

If you want an IPv6 EIP in addition to an existing IPv4 EIP, locate the row that contains the target IPv4 EIP, click **More** in the **Operation** column, and select **Enable IPv6 EIP**. Then, a corresponding IPv6 EIP will be assigned.

After the IPv6 EIP is enabled, you will obtain both an IPv4 EIP and an IPv6 EIP. External IPv6 addresses can access cloud resources through this IPv6 EIP.

NOTE

There is no adverse impact on the cloud resources bound with existing IPv4 EIPs.

Configuring Security Groups

After IPv6 EIP is enabled, add inbound and outbound security group rules to allow packets to and from the IP address range **198.19.0.0/16**. **Table 1-8** shows the security group rules. IPv6 EIP uses NAT64 to convert the source IP address in the inbound direction to an IPv4 address in the IP address range 198.19.0.0/16. The source port can be a random one, the destination IP address is the private IPv4 address of your local server, and the destination port remains unchanged.

For details, see **Virtual Private Cloud User Guide**.

Table 1-8 Security group rules

Direction	Protocol	Source or Destination
Inbound	All	Source: 198.19.0.0/16
Outbound	All	Destination: 198.19.0.0/16

Disabling IPv6 EIP

If you do not need the IPv6 EIP, locate the row that contains its corresponding IPv4 EIP, click **More** in the **Operation** column, and select **Disable IPv6 EIP**. Then, the IPv6 EIP will be released. You will only have the IPv4 EIP.

Copyright © Huawei Technologies Co., Ltd.

2 EIP Billing

2.1 Changing EIP Billing Mode

Scenarios

The EIP service provides multiple billing modes for you to select. You can change your EIP billing mode during the EIP usage period if necessary.

NOTE

Changing the billing mode does not change EIPs or interrupt their use.

Table 2-1 describes the details of changing EIP billing modes.

 Copyright © Huawei Technologies Co., Ltd.

Table 2-1 EIP billing mode change description

Change	Description
From yearly/monthly to pay-per-use	• An EIP billed on a yearly/monthly basis can be directly changed to be billed by bandwidth on a pay-per-use basis immediately or upon expiration. • An EIP billed on a yearly/monthly basis cannot be directly changed to be billed by traffic on a pay-per-use basis. To change this: 1. Change the EIP to be billed by bandwidth on a pay-per-use basis. 2. Change the EIP to be billed by traffic on a pay-per-use basis. The new billing mode takes effect only after the yearly/monthly subscription expires, if you want to change the EIP to be billed by bandwidth on a pay-per-use basis upon expiration. The new billing mode takes effect immediately, if you want to change the EIP to be billed by bandwidth on a pay-per-use basis immediately.
From pay-per-use to yearly/monthly	• An EIP that is billed by bandwidth on a pay-per-use basis can be directly changed to be billed on a yearly/monthly basis. • An EIP that is billed by traffic on a pay-per-use basis cannot be directly changed to be billed on a yearly/monthly basis. To change this: 1. Change the EIP to be billed by bandwidth on a pay-per-use basis. 2. Change the EIP to be billed on a yearly/monthly basis. The new billing mode takes effect immediately.
• From billing by traffic (pay-per-use) to billing by bandwidth (pay-per-use) • From billing by bandwidth (pay-per-use) to billing by traffic (pay-per-use)	• An EIP billed by traffic on a pay-per-use basis can be directly changed to be billed by bandwidth on a pay-per-use basis. • An EIP billed by bandwidth on a pay-per-use basis can be directly changed to be billed by traffic on a pay-per-use basis. The new billing mode takes effect immediately.

The operation guides are as follows:

- **From Yearly/Monthly to Pay-Per-Use upon Expiration (Billed by Bandwidth)**

 Copyright © Huawei Technologies Co., Ltd.

- From Yearly/Monthly to Pay-Per-Use Immediately (Billed by Bandwidth)
- From Pay-per-Use (Billed by Bandwidth) to Yearly/Monthly
- Pay-per-Use EIPs: From Billing By Traffic to By Bandwidth

From Yearly/Monthly to Pay-Per-Use upon Expiration (Billed by Bandwidth)

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the displayed dialog box, confirm the information and click **Yes**.

   You are switched to a page of the Billing Center.
5. Confirm the information and click **Change to Pay-per-Use**.

From Yearly/Monthly to Pay-Per-Use Immediately (Billed by Bandwidth)

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the EIP list, change billing mode of a single EIP or multiple EIPs from yearly/monthly to pay-per-use (billed by bandwidth):
   - Single EIP:

     Locate the row that contains the EIP and choose **More** > **Change to Pay-per-Use Immediately** in the **Operation** column.
   - Multiple EIPs:

     Select the EIPs in the EIP list and choose **More** > **Change to Pay-per-Use Immediately** in the upper left corner of the list.
5. In the displayed dialog box, confirm the information and click **Yes**.

   You are switched to a page of the Billing Center.
6. Confirm the information and click **Change to Pay-per-Use**.

From Pay-per-Use (Billed by Bandwidth) to Yearly/Monthly

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the EIP list, change the billing mode of a single EIP or multiple EIPs from pay-per-use (billed by bandwidth) to yearly/monthly.
   - Single EIP:

     Locate the row that contains the EIP and choose **More** > **Change Billing Mode** in the **Operation** column.
   - Multiple EIPs:

     Select EIPs and choose **More** > **Change Billing Mode** in the upper left corner of the EIP list.

Copyright © Huawei Technologies Co., Ltd.

5. In the displayed dialog box, confirm the information and click **Yes**.
6. On the **Change Subscriptions** page, set parameters such as **Renewal Duration**.
7. Click **Pay**.

Pay-per-Use EIPs: From Billing By Traffic to By Bandwidth

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the EIP list, locate the row that contains the EIP, click **More** in the **Operation** column, and click **Modify Bandwidth**.
5. On the **Modify Bandwidth** page, change the billing option as prompted.

   You can also change the bandwidth name and size.
6. Click **Next**.
7. On the displayed page, confirm the configurations and click **Submit**.

2.2 Renewing a Yearly/Monthly EIP

Scenarios

You can renew a yearly/monthly EIP to extend its expiration date.

If your yearly/monthly resource is expired and is not renewed, the resource enters the grace period. If you do not renew the monthly/yearly resource within the grace period, the resource enters a retention period after the grace period has expired. You cannot perform any operations on yearly/monthly resources that are in the grace or retention period. For example, you cannot change your bandwidth if it is in the grace period or retention period.

This section describes how to renew an EIP. Renewing EIPs does not change EIPs.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the EIP list, renew a single EIP or multiple EIPs.
   - Renewing a single EIP:

     Locate the row that contains the EIP, and choose **More** > **Renew** in the **Operation** column.
   - Renewing multiple EIPs at once:
     i. Select the EIPs in the EIP list and click **Renew** in the upper left corner of the list.
     ii. In the displayed dialog box, confirm the information and click **Yes**.

 Copyright © Huawei Technologies Co., Ltd.

5. On the **Renew** page, set the following parameters:
   - **Renewal Duration**: Select a renewal period as required.
   - **Renewal Date**: The new renewal date may result in slightly different subscription lengths for different resources.
6. Click **Pay**.

2.3 Viewing the EIP Billing Information

Scenarios

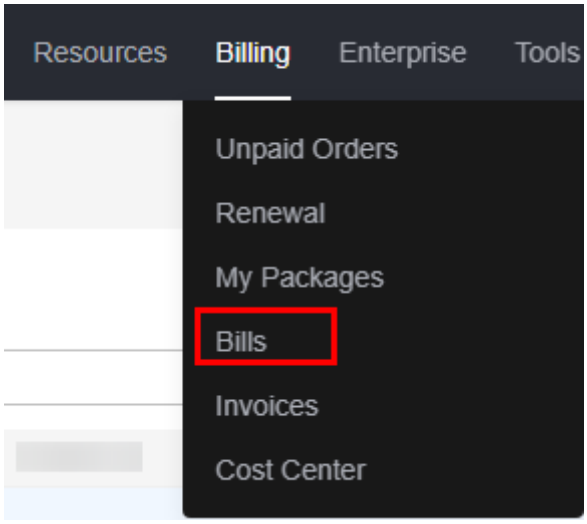
This section describes how to view the billing details of EIPs and their bandwidths.

To view the bandwidth usage, see **Viewing Metrics**.

Procedure

1. Log in to the management console.
2. In the upper right corner of the page, choose **Billing** > **Bills**.

Figure 2-1 Bills



3. In the navigation pane on the left, choose **Billing** > **Transactions and Detailed Bills**.
4. Click **Transaction Bills** and select the billing cycle to be viewed.
5. In the transaction bill list, locate the row that contains the target transaction bill and click **Details** in the **Operation** column.
6. View details of the transaction bill.

 Copyright © Huawei Technologies Co., Ltd.

3 Shared Bandwidth

3.1 Shared Bandwidth Overview

A shared bandwidth can be shared by multiple EIPs and controls the data transfer rate on these EIPs in a centralized manner. All ECSs and load balancers that have EIPs bound in the same region can share a bandwidth.

NOTE

- A shared bandwidth cannot control how much data can be transferred using a single EIP. Data transfer rate on EIPs cannot be customized.

When you host a large number of applications on the cloud, if each EIP uses a bandwidth, a lot of bandwidths are required, which significantly increases bandwidth costs. If all EIPs share the same bandwidth, you can lower bandwidth costs and easily perform system O&M.

- Lowered Bandwidth Costs

  Region-level bandwidth sharing and multiplexing reduce bandwidth usage and O&M costs.
- Flexible Operations

  You can add pay-per-use EIPs (except for **5_gray** EIPs of dedicated load balancers) to or remove them from a shared bandwidth regardless of the type of instances that they are bound to.
- Flexible Billing Modes

  The yearly/monthly and pay-per-use billing modes are provided.

You can use a shared bandwidth in either of the following ways:

- Assign a shared bandwidth and add your pay-per-use EIPs to the bandwidth.
  - **Assigning a Shared Bandwidth**
  - **Adding EIPs to a Shared Bandwidth**
- Assign a shared bandwidth, set **Billed By** to **Shared Bandwidth** and select the shared bandwidth when you assign EIPs.
  - **Assigning a Shared Bandwidth**

 Copyright © Huawei Technologies Co., Ltd.

- **Assigning an EIP**

Shared Bandwidth Quotas

- Each account can have a maximum of 5 shared bandwidths. If you need more shared bandwidths, submit a service ticket to request a quota increase.
- If you want to increase a pay-per-use shared bandwidth that is greater than 1 Gbit/s, the minimum increase is 500 Mbit/s.

Notes and Constraints

- The minimum size of a shared bandwidth that can be purchased is 5 Mbit/s. You can only add pay-per-use EIPs to a shared bandwidth.
- If a yearly/monthly shared bandwidth is deleted upon expiration, EIPs sharing the bandwidth will be removed from the bandwidth and be billed based on the mode before they are added to the shared bandwidth.
- A shared bandwidth can only be used by resources from its same account.

NOTE

- A dedicated bandwidth cannot be changed to a shared bandwidth and vice versa. However, you can purchase a shared bandwidth for pay-per-use EIPs.
  - Add an EIP to a shared bandwidth and then the EIP will use the shared bandwidth.
  - Remove the EIP from the shared bandwidth and then the EIP will use the dedicated bandwidth.
- If you want to submit a service ticket, refer to **Submitting a Service Ticket**.

3.2 Assigning a Shared Bandwidth

Scenarios

When you host a large number of applications on the cloud, if each EIP uses dedicated bandwidth, a lot of bandwidths are required, which incurs high costs. If all EIPs share the same bandwidth, your network operation costs will be lowered and your system O&M as well as resource statistics will be simplified.

Assign a shared bandwidth for use with EIPs.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the navigation pane on the left, choose **Elastic IP and Bandwidth** > **Shared Bandwidths**.
5. In the upper right corner, click **Buy Shared Bandwidth**. On the displayed page, configure parameters as prompted.

 Copyright © Huawei Technologies Co., Ltd.

Table 3-1 Parameter descriptions

Parameter	Description	Example Value
Billing Mode	A shared bandwidth can be billed on a yearly/monthly or pay-per-use basis. • **Yearly/Monthly**: You pay for the bandwidth by year or month before using it. No other charges apply during the validity period of the bandwidth. • **Pay-per-use**: You pay for the bandwidth based on the amount of time you use the bandwidth.	Yearly/Monthly
Region	Regions are geographic areas that are physically isolated from each other. The networks inside different regions are not connected to each other, so resources cannot be shared across different regions. For lower network latency and faster access to your resources, select the region nearest you.	CN-Hong Kong
Bandwidth Type	Select a type of the shared bandwidth based on your EIP type. • **Standard**: Dynamic BGP and premium BGP EIPs can be added to a shared bandwidth of this type. • **Premium BGP**: Premium BGP EIPs can be added to a shared bandwidth of this type. **NOTE** In the CN-Hong Kong region, only dynamic BGP EIPs can be added to standard shared bandwidths.	Standard
Billed By	The billing method for the shared bandwidth. You can specify a shared bandwidth to be billed by bandwidth.	Bandwidth
Bandwidth	The bandwidth size in Mbit/s. The minimum value is 5 Mbit/s.	10
Enterprise Project	The enterprise project that the EIP belongs to. An enterprise project facilitates project-level management and grouping of cloud resources and users. The name of the default project is **default**.	default
Name	The name of the shared bandwidth.	Bandwidth-001

 Copyright © Huawei Technologies Co., Ltd.

Parameter	Description	Example Value
Required Duration	The duration for which the purchased EIP will use. The duration must be specified if the **Billing Mode** is set to **Yearly/ Monthly**.	2 months
Auto-renew	Whether to select **Auto-renew**. You can select it if the **Billing Mode** is set to **Yearly/Monthly**. The auto-renewal period is determined by the required duration. • Monthly subscription: The subscription is renewed every month. • Yearly subscription: The subscription is renewed each year.	-

6. Click **Next**.

3.3 Adding EIPs to a Shared Bandwidth

Scenarios

You can add multiple EIPs to a shared bandwidth at the same time.

Notes and Constraints

- To add a yearly/monthly EIP to a shared bandwidth, you need to first change its billing mode to pay-per-use.
- If it is a premium shared bandwidth, you can add premium BGP EIPs and IPv6 NICs to it.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the navigation pane on the left, choose **Elastic IP and Bandwidth** > **Shared Bandwidths**.
5. In the shared bandwidth list, locate the target shared bandwidth that you want to add EIPs to. In the **Operation** column, choose **Add Public IP Address**, and select the EIPs to be added.

 Copyright © Huawei Technologies Co., Ltd.

NOTE

- After an EIP is added to a shared bandwidth, the dedicated bandwidth used by the EIP will become invalid and the EIP will start to use the shared bandwidth. The EIP's dedicated bandwidth will be deleted and will no longer be billed.
- An EIP cannot be configured for two shared bandwidths at the same time, so if you attempt to add an EIP to a second shared bandwidth, it will be automatically removed from the original shared bandwidth.

6. Click **OK**.

Helpful Links

What Are the Differences Between a Dedicated Bandwidth and a Shared Bandwidth? Can a Dedicated Bandwidth Be Changed to a Shared Bandwidth or the Other Way Around?

3.4 Removing EIPs from a Shared Bandwidth

Scenarios

Remove EIPs that are no longer required from a shared bandwidth if needed.

Notes and Constraints

A yearly/monthly EIP cannot be removed from a shared bandwidth purchased during OBT.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the navigation pane on the left, choose **Elastic IP and Bandwidth** > **Shared Bandwidths**.
5. In the shared bandwidth list, locate the target shared bandwidth from which EIPs are to be removed, choose **More** > **Remove Public IP Address** in the **Operation** column, and select the EIPs to be removed in the displayed dialog box.
6. Set the EIP bandwidth after the EIP is removed. You can configure the EIP billing mode and bandwidth size.
7. Click **OK**.

3.5 Modifying a Shared Bandwidth

Scenarios

You can modify the name and size of a shared bandwidth as required.

 Copyright © Huawei Technologies Co., Ltd.

- If a shared bandwidth is billed on a pay-per-use basis, the modification will take effect immediately. For details, see **Modifying a Shared Bandwidth (Pay-per-Use)**.
- If a shared bandwidth is billed on a yearly/monthly basis:
  - **You can increase the bandwidth.** The increased bandwidth size will take effect immediately and the price difference will be billed accordingly.
  - **You can decrease the bandwidth.** The decreased bandwidth size will take effect in the first billing cycle after a successful renewal.

If you want to change the billing mode of a shared bandwidth, see **How Do I Change My EIP Billing Mode from Pay-per-Use to Yearly/Monthly?**

Modifying a Shared Bandwidth (Pay-per-Use)

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the navigation pane on the left, choose **Elastic IP and Bandwidth** > **Shared Bandwidths**.
5. In the shared bandwidth list, locate the row that contains the shared bandwidth you want to modify, click **Modify Bandwidth** in the **Operation** column, and modify the bandwidth settings.
6. Click **Next**.
7. Click **Submit**.

   The modification takes effect immediately.

Increasing a Shared Bandwidth (Yearly/Monthly)

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the navigation pane on the left, choose **Elastic IP and Bandwidth** > **Shared Bandwidths**.
5. In the shared bandwidth list, locate the row that contains the target shared bandwidth, and click **Modify Bandwidth** in the **Operation** column.
6. Select **Increase bandwidth** and click **Continue**.
7. In the **New Configuration** area on the **Modify Bandwidth** page, change the bandwidth name and size.
8. Click **Next**.
9. Confirm the information and click **Pay Now**.

   After you complete the payment, the increased bandwidth will take effect immediately.

 Copyright © Huawei Technologies Co., Ltd.

Decreasing a Shared Bandwidth (Yearly/Monthly)

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the navigation pane on the left, choose **Elastic IP and Bandwidth** > **Shared Bandwidths**.
5. In the shared bandwidth list, locate the row that contains the target shared bandwidth, and click **Modify Bandwidth** in the **Operation** column.
6. Select **Decrease bandwidth** and click **Continue**.
7. In the **New Configuration** area on the **Modify Bandwidth** page, change the bandwidth name and size.
8. Click **Next**.
9. Confirm the information and click **Pay Now**.

   After you complete the payment, the decreased bandwidth will take effect in the first billing cycle after the current subscription ends.

3.6 Deleting a Shared Bandwidth

Scenarios

Delete a shared bandwidth billed on a pay-per-use basis if it is no longer required.

Notes and Constraints

- A yearly/monthly shared bandwidth cannot be directly deleted. It can only be unsubscribed.
- If you want to delete a shared bandwidth with EIPs added, you have to remove the EIPs from the shared bandwidth first.

Prerequisites

Before deleting a shared bandwidth, remove all the EIPs associated with it. For details, see **Removing EIPs from a Shared Bandwidth**.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the navigation pane on the left, choose **Elastic IP and Bandwidth** > **Shared Bandwidths**.
5. In the shared bandwidth list, locate the row that contains the pay-per-use shared bandwidth you want to delete, click **More** in the **Operation** column, and then click **Delete**.

 Copyright © Huawei Technologies Co., Ltd.

6. In the displayed dialog box, click **OK**.

3.7 Exporting Shared Bandwidths

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the navigation pane on the left, choose **Elastic IP and Bandwidth** > **Shared Bandwidths**.
5. On the shared bandwidth list page, select one or more shared bandwidths and click **Export** in the upper left corner.

   The system will automatically export information about all of your shared bandwidths as an Excel file to a local directory.

 Copyright © Huawei Technologies Co., Ltd.

4 Shared Data Package

4.1 Shared Data Package Overview

Shared data package provides a quota for data usage. Such packages are cost-effective and easy to use. Shared data packages take effect immediately after your purchase. If you have subscribed to pay-per-use EIPs billed by traffic in a region and buy a shared data package in the same region, the EIPs will use the shared data package. After the package quota is used up or the package expires, the EIPs will continue to be billed on a pay-per-use basis. For billing details, see **Product Pricing Details**.

- Two types of packages are available: dynamic BGP and static BGP. Dynamic BGP data packages will be used by pay-per-use EIPs (billed by traffic) of the dynamic BGP type, and static BGP data packages will be used by pay-per-use EIPs (billed by traffic) of the static BGP type.
- Shared data packages can be purchased yearly or monthly. Packages purchased for a year are more cost effective. If you have multiple shared data packages, the data package with the shortest validity period will be used first.
- If your usage exceeds your shared data package quota within its validity, you will be billed on a pay-per-use basis for the additional traffic usage.
- If a shared data package expires, make sure your account balance is sufficient and your EIP will be billed on a pay-per-use basis.

Notes and Constraints

- Shared data packages require a one-off payment and take effect immediately after purchase. You cannot specify the effective date.
- Shared data packages cannot be unsubscribed from nor be modified once purchased and cannot be renewed upon expiration.
- Shared data packages are billed by month or year. Once expired, remaining package quota cannot be used any more.
- Shared data packages can only be used by pay-per-use dedicated bandwidth billed by traffic. Two types of shared data packages are available: static BGP (for static BGP bandwidth) and dynamic BGP (for dynamic BGP bandwidth).
- A shared data package cannot be used for bandwidth of a specific EIP.

 Copyright © Huawei Technologies Co., Ltd.

- A shared data package cannot be used for a shared bandwidth.
- A shared data package cannot be used by EIPs of the premium BGP type.

4.2 Buying a Shared Data Package

Scenarios

This section describes how to buy a shared data package. Shared data packages take effect immediately after your purchase. If you have subscribed to pay-per-use EIPs billed by traffic in a region and buy a shared data package in the same region, the EIPs will use the shared data package. After the package quota is used up or the package expires, the EIPs will continue to be billed on a pay-per-use basis.

Notes and Constraints

- Shared data packages require a one-off payment and take effect immediately after purchase. You cannot specify the effective date.
- Shared data packages cannot be unsubscribed from nor be modified once purchased and cannot be renewed upon expiration.
- Shared data packages are billed by month or year. Once expired, remaining package quota cannot be used any more.
- Shared data packages can only be used by pay-per-use dedicated bandwidth billed by traffic. Two types of shared data packages are available: static BGP (for static BGP bandwidth) and dynamic BGP (for dynamic BGP bandwidth).
- A shared data package cannot be used for bandwidth of a specific EIP.
- A shared data package cannot be used for a shared bandwidth.
- A shared data package cannot be used by EIPs of the premium BGP type.
- If you have an order that has not been paid within the payment period, you need to cancel or pay for the order first. Then, you can purchase a shared data package.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the navigation pane on the left, choose **Elastic IP and Bandwidth** > **Shared Data Packages**.
5. In the upper right corner, click **Buy Shared Data Package**. On the displayed page, configure parameters as prompted.

 Copyright © Huawei Technologies Co., Ltd.

Table 4-1 Parameter descriptions

Parameter	Description	Example Value
Region	A shared data package can only be used by resources in its same region. Select the region based on your requirements.	CN-Hong Kong
Type	The shared data package type. Set this parameter based on the bandwidth type of the EIP. The following two types of packages are available: • Dynamic BGP: A dynamic BGP data package can only be used by dynamic BGP EIPs billed by traffic on a pay-per-use basis. • Static BGP: A static BGP data package can only be used by static BGP EIPs billed by traffic on a pay-per-use basis.	Static BGP
Package Validity	The validity period of the shared data package. Select a validity period based on service requirements. A shared data package cannot be unsubscribed and takes effect immediately after you purchase it. Expired shared data packages will longer be available for use.	1 month
Specification	The size of the shared data package in GB.	10 GB
Usage Duration	The validity period of the shared data package.	Default

6. Click **Next**.

4.3 Configuring Remaining Usage Alerts

Scenarios

You can have notifications sent to you through messages and emails once the remaining quota of a shared data package drops to a certain threshold in percentage.

This can remind you to purchase a new shared data package before the package you are currently using is used up, prevent high traffic fees from being generated. For example, if the size of your shared data package is 10 GB and the remaining usage threshold is 10%, notifications will be sent to you when the remaining quota in your shared data package is 1 GB.

Copyright © Huawei Technologies Co., Ltd.

Procedure

1. Log in to the management console.
2. Choose **Billing** > **My Packages**.
3. Click **Usage Alert** in the upper right corner to enable and configure the usage alert function for the corresponding package.
4. Click **OK**.

 Copyright © Huawei Technologies Co., Ltd.

5 Internet Gateways

5.1 Internet Gateway Overview

After a global EIP is bound to an ECS, an internet gateway is required to connect the VPC of the ECS to the global EIP so that the ECS can access the Internet through the global EIP. Before binding an ECS, you need to create an internet gateway. Internet gateways are free of charge.

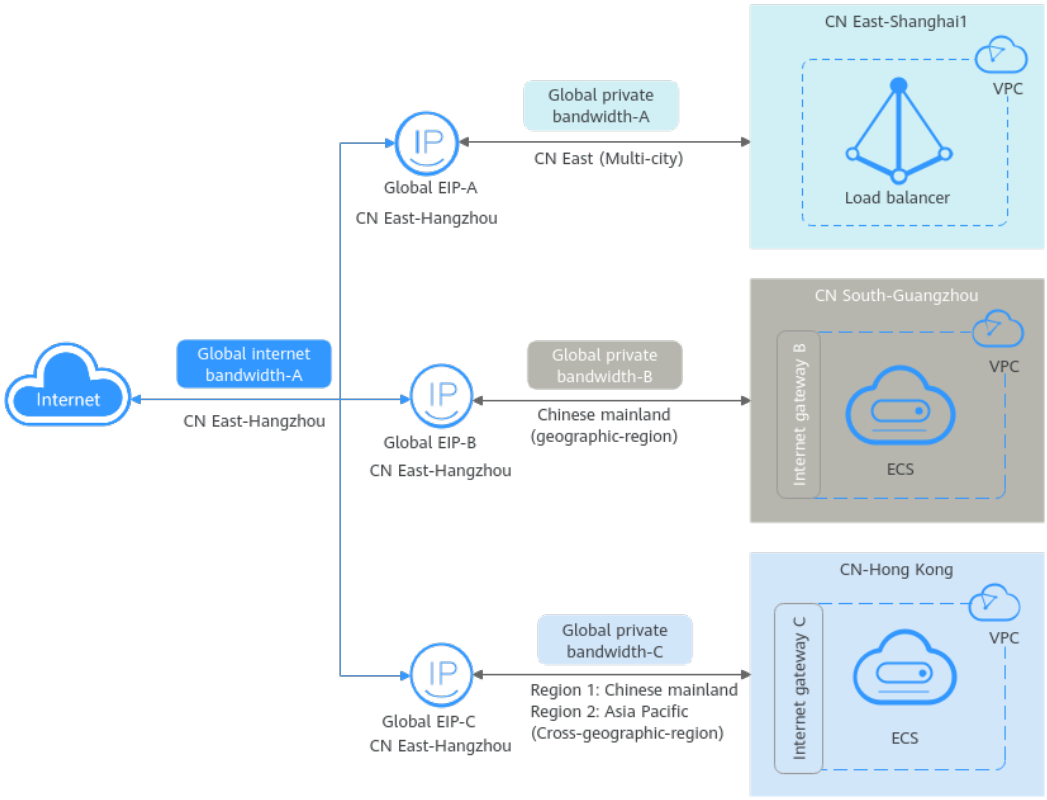
When you bind an internet gateway to a global EIP of an ECS, the system automatically lists the internet gateway of the VPC that the ECS belongs to, if there is one.

NOTE

- If a global EIP is bound to a load balancer, you do not need to create an internet gateway for the VPC that the load balancer belongs to.
- Internet gateway is supported in CN South-Guangzhou.

 Copyright © Huawei Technologies Co., Ltd.

Figure 5-1 Global EIP architecture



5.2 Creating an Internet Gateway

Scenarios

This section describes how to create an internet gateway. An internet gateway is used to connect the VPC where an ECS resides to the global EIP of the ECS . Internet gateways are free of charge.

Notes and Constraints

Each VPC can only have one internet gateway attached.

Procedure

1. Log in to the management console.
2. Click in the upper left corner and select the desired region and project.
3. Click in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the navigation pane on the left, click **Internet Gateways**.
   The internet gateway home page is displayed.
5. In the upper right corner of the page, click **Create Internet Gateway**.
   The **Create Internet Gateway** is displayed.
6. Configure the parameters based on **Table 5-1**.

 Copyright © Huawei Technologies Co., Ltd.

Table 5-1 Parameter descriptions

Parameter	Description	Example Value
Name	Mandatory Enter the name of the internet gateway. The name: • Must contain 0 to 64 characters. • Can contain letters, digits, underscores (_), hyphens (-), and periods (.).	igw-89ad
Version	• **IPv4**: Mandatory • **IPv6**: Optional	IPv4
VPC	Mandatory Select the VPC of your instance (such as ECS) that needs to communicate with the Internet to attach the internet gateway. An internet gateway is used work together with the global EIP of your instance for Internet access.	-
Subnet	Mandatory Select the subnet where you want to bound the internet gateway.	-
Default Route	Optional • If you select this option, 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 internet gateway. • If you do not select this option, you need to manually add a route to the route table (default or custom) associated with the VPC subnet of your ECS to direct traffic to the internet gateway. **NOTICE** If an error is reported when you select this option, this indicates that the default route with the destination 0.0.0.0/0 already exists in the default route table of the VPC. You can manually add a route to the route table (default or custom) associated with the VPC subnet of your ECS to direct traffic to the internet gateway.	-

7. Click **OK**.

 Copyright © Huawei Technologies Co., Ltd.

5.3 Deleting an Internet Gateway

Scenarios

This section describes how to delete an internet gateway.

Notes and Constraints

An internet gateway cannot be deleted if its attached VPC has instances (such as ECSs) with global EIPs bound. To delete such an internet gateway, unbind the global EIPs from the instances first by referring to **Unbinding a Global EIP from an Instance**.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the navigation pane on the left, click **Internet Gateways**.

   The internet gateway home page is displayed.
5. In the internet gateway list, search for the target internet gateway.
6. Locate the row that contains the target internet gateway and click **Delete** in the **Operation** column.

   A confirmation dialog box is displayed.
7. Click **OK**.

5.4 Modifying an Internet Gateway

Scenarios

This section describes how you can change the name of an internet gateway and enable IPv6.

Notes and Constraints

You cannot modify parameters such as subnet and more. If you want your internet gateway to work in another subnet, delete it and create another internet gateway.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Elastic IP**.
4. In the navigation pane on the left, click **Internet Gateways**.

Copyright © Huawei Technologies Co., Ltd.

The internet gateway home page is displayed.

5. In the internet gateway list, search for or locate the target internet gateway.
6. Change the name of the internet gateway and select **IPv6** for **Version**.
   - **Change the name of the internet gateway.**
     i. Click the edit icon on the right of the target internet gateway name. The **Edit Internet Gateway Name** dialog box displays.
     ii. Enter a new name for the internet gateway and click **OK**.
   - **Enable IPv6.**
     i. Locate the target internet gateway and click **Enable IPv6** in the **Operation** column.
     ii. In the **Enable IPv6** dialog box, select **IPv6** and click **OK**.

     NOTE

     Once enabled, IPv6 cannot be disabled for the internet gateway later.

5.5 Binding an Internet Gateway to a Global EIP

Scenarios

This section describes how to bind an internet gateway to a global EIP. When you bind an internet gateway to a global EIP of an ECS, the system automatically lists the internet gateway of the VPC that the ECS belongs to, if there is one.

Prerequisites

An internet gateway has been created for the VPC of the ECS. If there is no internet gateway, create one by referring to **Creating an Internet Gateway**.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. On the console homepage, choose **Networking** > **Cloud Connect**.
   The network console is displayed.
4. In the navigation pane on the left, choose **Internet** > **Global Elastic IPs**.
   The global EIP console is displayed.
5. In the global EIP list, search for or locate the target global EIP.
6. Locate the target global EIP, and click **Bind Instance** in the **Progress** column.
   The page for binding an instance is displayed.
7. Select the region that the instance to be bound is located.
   A global EIP can be bound to an instance in any region.
8. Select the type of the instance to be bound and then select the instance.
9. Select the internet gateway to be bound.
10. Click **OK**.

 Copyright © Huawei Technologies Co., Ltd.

5.6 Unbinding an Internet Gateway from a Global EIP

Scenarios

This section describes how to unbind an internet gateway from a global EIP. When you unbind a global EIP from an ECS, the system automatically unbinds the internet gateway of the VPC that ECS belongs to from the global EIP.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. On the console homepage, choose **Networking** > **Cloud Connect**.
   The network console is displayed.
4. In the navigation pane on the left, choose **Internet** > **Global Elastic IPs**.
   The global EIP console is displayed.
5. In the global EIP list, search for or locate the target global EIP.
6. Locate the row that contains the target global EIP, and click **Unbind** in the **Operation** column.
   A confirmation dialog box is displayed.
7. Click **OK**.
   In the global EIP list, you can see that the global EIP has no instance bound.

 Copyright © Huawei Technologies Co., Ltd.

6 Global Internet Bandwidths

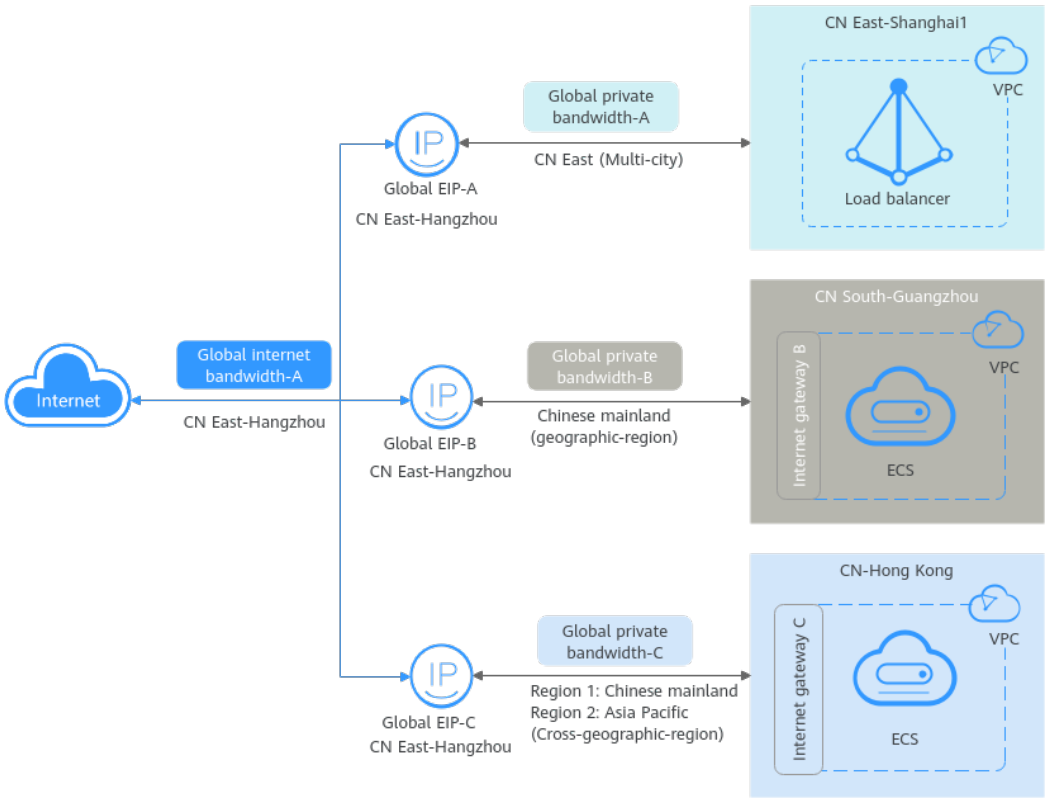
6.1 Overview

A global internet bandwidth can be shared by one or more global EIPs at the same time, improving bandwidth utilization.

Global internet bandwidths have to work together with global EIPs for Internet access. You can add one or more global EIPs to the same global internet bandwidth. A global EIP and its global internet bandwidth must use the same access point. **Figure 6-1** shows the architecture. Global EIP-A, global EIP-B, and global EIP-C are added to global internet bandwidth-A. The global EIPs and the global internet bandwidth use the same access point, that is, CN East-Hangzhou.

 Copyright © Huawei Technologies Co., Ltd.

Figure 6-1 Global EIP architecture



6.2 Buying a Global Internet Bandwidth

Scenarios

This section describes how to buy a global internet bandwidth.

Procedure

1. Log in to the management console.
2. Click in the upper left corner and select the desired region and project.
3. Click in the upper left corner and choose **Networking** > **Cloud Connect**.
4. In the navigation tree on the left, choose **Internet** > **Global Internet Bandwidths**.

   The global internet bandwidth page is displayed.
5. In the upper right corner of the page, click **Buy Global Internet Bandwidth**.

   The **Buy Global Internet Bandwidth** page is displayed.
6. Configure the parameters based on **Table 6-1**.

 Copyright © Huawei Technologies Co., Ltd.

Table 6-1 Parameter descriptions

Parameter	Description	Example Value
Billing Mode	The billing mode of the global internet bandwidth. You can select **Pay-per-use**.	Pay-per-use
Region	Mandatory A global internet bandwidth can only be shared by global EIPs from its same region. For details about regions, see **Selecting a Region**.	CN East-Shanghai1
City	Mandatory A global internet bandwidth can only be shared by global EIPs from its same city.	Shanghai
Type	Mandatory Dynamic BGP is supported by default.	-
Bandwidth Type	The bandwidth type can be **Standard**.	Standard
Billed By	You can select: 95th percentile bandwidth (standard)	95th percentile bandwidth (standard)
Guaranteed Bandwidth	The system automatically generates the guaranteed bandwidth percentage based on what you select for **Billed By**.	20%
Bandwidth (Mbit/s)	Mandatory Select the size of the bandwidth. The unit is Mbit/s.	100
Global Internet Bandwidth Name	Optional Enter the name of the bandwidth. The name: • Must contain 0 to 64 characters. • Can contain letters, digits, underscores (_), hyphens (-), and periods (.).	ibw-test
Enterprise Project	The enterprise project that the global internet bandwidth belongs to. An enterprise project facilitates project-level management and grouping of cloud resources and users. The default project is **default**. For details about creating and managing enterprise projects, see the **Enterprise Management User Guide**.	default

Copyright © Huawei Technologies Co., Ltd.

Parameter	Description	Example Value
Tag	Global internet bandwidth tag, which consists of a key and value pair. The tag key and value must meet the requirements listed in **Table 6-2**.	• Key: geip_1.1 • Value: 10
Description	Supplementary information about the global internet bandwidth. This parameter is optional.	-

Table 6-2 Tag naming rules

Parameter	Requirement	Example Value
Key	• Cannot be left blank. • Must be unique for a global internet bandwidth. • Can contain a maximum of 36 characters. • Can contain letters, digits, underscores (_), and hyphens (-).	geip_1.1
Value	• Can contain a maximum of 43 characters. • Can contain letters, digits, underscores (_), periods (.), and hyphens (-).	10

7. Click **Next**.
8. Confirm the configurations and click **Submit**.
   The global internet bandwidth list page is displayed.
9. In the global internet bandwidth list, view the status of the bandwidth.
   If the status of the bandwidth is **Normal**, the purchase is successful.

Follow-Up Procedure

If your instance with a global EIP bound needs to access the Internet, you also need to add the global EIP to a global internet bandwidth. For details, see **Adding Global EIPs to a Global Internet Bandwidth**.

 Copyright © Huawei Technologies Co., Ltd.

6.3 Adding Global EIPs to a Global Internet Bandwidth

Scenarios

This section describes how to add global EIPs to a global internet bandwidth. Only after this, the instances with the global EIPs bound can access the Internet.

Notes and Constraints

- You can add multiple global EIPs to a global internet bandwidth.
- The global EIPs must have the same access information, including geographic region, geographic area, access point, and type, as their global internet bandwidth.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Cloud Connect**.
4. In the navigation tree on the left, choose **Internet** > **Global Internet Bandwidths**.

   The global internet bandwidth page is displayed.
5. In the global internet bandwidth list, search for or locate the target bandwidth.
6. You can use either of the following methods to add a global EIP to a global internet bandwidth:
   - Method 1:
     i. In the global internet bandwidth list, locate the row that contains the target global internet bandwidth, and click **Add Global EIP** in the **Operation** column.

        The **Add Global EIP** page is displayed.

     ii. Select one or more global EIPs and click **OK**.

        In the global internet bandwidth list, the number of global EIPs of the bandwidth increased.
   - Method 2:
     i. In the global internet bandwidth list, click the name of the target global internet bandwidth.

        The **Basic Information** tab page is displayed.

     ii. Click the **Global EIPs** tab and then click **Add**.

        The **Add Global EIP** page is displayed.

     iii. Select one or more global EIPs and click **OK**.

        The selected global EIPs are displayed on the global EIP list.

 Copyright © Huawei Technologies Co., Ltd.

6.4 Modifying a Global Internet Bandwidth

Scenarios

This section describes how to modify the name, billing option, or size of a global internet bandwidth.

Your increased or decreased global internet bandwidth takes effect immediately.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Cloud Connect**.
4. In the navigation tree on the left, choose **Internet** > **Global Internet Bandwidths**.

   The global internet bandwidth page is displayed.
5. In the global internet bandwidth list, search for or locate the target bandwidth.
6. Locate the row that contains the target bandwidth, and click **Modify Bandwidth** in the **Operation** column.

   The **Modify Global Internet Bandwidth** page is displayed.
7. Modify the bandwidth parameters as required.
8. Click **Next**.
9. Confirm the configurations and click **Submit**.

   The modified bandwidth is displayed in the global internet bandwidth list.

6.5 Viewing a Global Internet Bandwidth

Scenarios

This section describes how to view the details about a global internet bandwidth, including the bandwidth name, size, and creation time.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Cloud Connect**.
4. In the navigation tree on the left, choose **Internet** > **Global Internet Bandwidths**.

   The global internet bandwidth page is displayed.
5. In the global internet bandwidth list, search for or locate the target bandwidth.

 Copyright © Huawei Technologies Co., Ltd.

6. Click the name of the target global internet bandwidth.
   Go to the **Basic Information** tab page to view more information.

6.6 Deleting a Global Internet Bandwidth

Scenarios

This section describes how to delete a global internet bandwidth.

Notes and Constraints

A global internet bandwidth to be deleted cannot have any global EIP associated.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. Click  in the upper left corner and choose **Networking** > **Cloud Connect**.
4. In the navigation tree on the left, choose **Internet** > **Global Internet Bandwidths**.
   The global internet bandwidth page is displayed.
5. In the global internet bandwidth list, search for or locate the target bandwidth.
6. Locate the row that contains the target bandwidth, and click **Delete** in the **Operation** column.
   A confirmation dialog box is displayed.
7. Click **OK**.
   The deleted bandwidth is not displayed in the global internet bandwidth list.

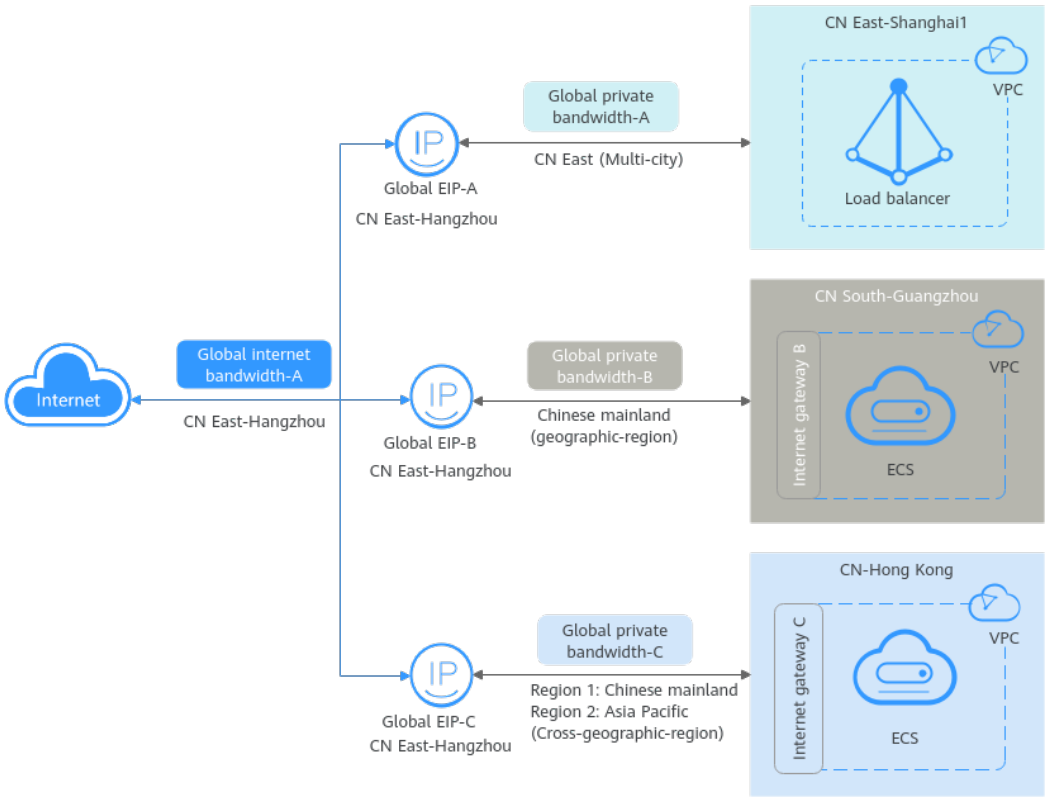
 Copyright © Huawei Technologies Co., Ltd.

7 Global EIPs

7.1 Global EIP Overview

A global Elastic IP (global EIP) can be bound to a global connection bandwidth for private communication and to a global internet bandwidth for Internet access. You can specify a global region and a global EIP pool to assign a global EIP, and bind a global EIP to a cloud instance (such as ECS and load balancer) from any region. To enable an ECS to communicate with the Internet through a global EIP, you also need to bind an internet gateway to the global EIP.

Figure 7-1 Global EIP architecture



 Copyright © Huawei Technologies Co., Ltd.

Table 7-1 Global EIP communication scenarios

Communication Scenario	Required Resource	Description	Example	Operation Instruction
Intra-cloud communication	• Global EIPs • Global connection bandwidths • Instances bound to global EIPs, such as ECSs and load balancers	To enable an instance to communicate on the cloud, the global EIP of the instance should have a global connection bandwidth bound. Select a global connection bandwidth type based on the global EIP access point and the region where the instance is located. Each global connection bandwidth can only be bound to one global EIP at a time. For details, see **Overview**.	• The access point of global EIP-A is CN East-Hangzhou. The load balancer with global EIP-A bound is located in CN East-Shanghai1. CN East-Hangzhou and CN East-Shanghai1 are close to each other and belong to CN East. The type of the global connection bandwidth-A should be multi-city. • The access point of global EIP-B is CN East-Hangzhou. The ECS-B with global EIP-B bound is located in CN South-Guangzhou. CN East-Hangzhou and CN South-Guangzhou are not close to each other but belong to the same geographic region. The type of the global connection bandwidth-B should be geographic-region.	1. **Assigning a Global EIP** 2. **Binding a Global EIP to an Instance**: Each global EIP can only be bound to one instance at a time. 3. **Adding Instances to a Global Connection Bandwidth**: Each global connection bandwidth can only be used by one global EIP at a time.

 Copyright © Huawei Technologies Co., Ltd.

Communication Scenario	Required Resource	Description	Example	Operation Instruction
			• The access point of global EIP-C is CN East-Hangzhou. The ECS-C with global EIP-C bound is located in CN-Hong Kong. CN East-Hangzhou and CN-Hong Kong belong to different geographic regions. The type of the global connection bandwidth-C should be cross-geographic-region.	
Internet communication	• Global EIPs • Global internet bandwidth • Instances bound to global EIPs, such as ECSs and load balancers	To enable an instance to communicate with the Internet, the global EIP of the instance should have a global internet bandwidth bound. The global EIP and the global internet bandwidth must have the same access point. Multiple global EIPs can be added to the same global internet bandwidth. For details, see **Overview**.	Global EIP-A, global EIP-B, and global EIP-C are added to global internet bandwidth-A. The global EIPs and the global internet bandwidth use the same access point, that is, CN East-Hangzhou.	1. **Buying a Global Internet Bandwidth** 2. **Adding Global EIPs to a Global Internet Bandwidth**

 Copyright © Huawei Technologies Co., Ltd.

7.2 Assigning a Global EIP

Scenarios

This section describes how to assign a global EIP. You can specify the access point, type, and global EIP pool based on your service requirements. Global EIPs can be bound to cloud instances (such as ECSs or load balancers) from any region.

If you want to assign a global EIP, **submit a service ticket**.

Procedure

1. Log in to the management console.
2. Click in the upper left corner and select the desired region and project.
3. On the console homepage, choose **Networking** > **Cloud Connect**.
   The network console is displayed.
4. In the navigation pane on the left, choose **Internet** > **Global Elastic IPs**.
   The global EIP console is displayed.
5. In the upper right corner of the page, click **Assign Global EIP**.
   The **Assign Global EIP** page is displayed.
6. Configure the parameters based on **Table 7-2**.

Table 7-2 Parameter descriptions

Parameter	Description	Example Value
Region	Mandatory A global EIP can only be added to a global internet bandwidth from its same region. For details about regions, see **Selecting a Region**.	CN East-Shanghai1
City	Mandatory A global internet bandwidth can only be shared by global EIPs from its same city.	Shanghai
Type	Select **Global EIP** or **Global EIP range**.	Global EIP
Version	Select **IPv4** or **IPv6**.	IPv4

Copyright © Huawei Technologies Co., Ltd.

Parameter	Description	Example Value
Global EIP Type	Mandatory • Dynamic BGP is supported by default. • 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 business to minimize the latency.	-
Global Internet Bandwidth	Mandatory • **Assign now**: Select this option if you want to purchase a new global internet bandwidth. • **Use existing**: Select this option if you want to add the global EIP to an existing global internet bandwidth for internet access.	-
Billing Mode	**Pay-per-use** is selected by default.	Pay-per-use
Bandwidth Type	The bandwidth type. **Standard** is selected by default.	Standard
Billed By	You can select: • 95th percentile bandwidth (standard)	95th percentile bandwidth (standard)
Guaranteed Bandwidth	The system automatically generates the guaranteed bandwidth percentage based on what you select for **Billed By**.	0%
Bandwidth (Mbit/s)	The bandwidth size in Mbit/s.	300
Global EIP Name	Optional Enter the name of the global EIP. The name: • Must contain 0 to 64 characters. • Can contain letters, digits, underscores (_), hyphens (-), and periods (.).	geip-test
Enterprise Project	The enterprise project that the global EIP belongs to. An enterprise project facilitates project-level management and grouping of cloud resources and users. The default project is **default**. For details about creating and managing enterprise projects, see the **Enterprise Management User Guide**.	default

Copyright © Huawei Technologies Co., Ltd.

Parameter	Description	Example Value
Advanced Settings	Click the drop-down arrow to configure parameters, including the bandwidth name and tag.	Retain the default settings.
Bandwidth Name	Optional Enter the name of the bandwidth. The name: • Must contain 0 to 64 characters. • Can contain letters, digits, underscores (_), hyphens (-), and periods (.).	ibw-test
Tag	Global EIP tag, which consists of a key and value pair. The tag key and value must meet the requirements listed in **Table 7-3**.	• Key: geip_1 • Value: 184.100.101.102
Monitoring	This function is free. With Cloud Eye, you can monitor: • Network traffic at one-minute intervals. • Bandwidth fluctuations and inbound and outbound bandwidth rates.	-
Quantity	Number of global EIPs to be assigned.	3

Table 7-3 Naming rules for global EIP tags

Parameter	Requirement	Example Value
Key	• Cannot be left blank. • Must be unique for a global EIP. • Can contain a maximum of 36 characters. • Can contain letters, digits, underscores (_), and hyphens (-).	geip_1
Value	• Can contain a maximum of 43 characters. • Can contain letters, digits, underscores (_), periods (.), and hyphens (-).	184.100.101.102

 Copyright © Huawei Technologies Co., Ltd.

7. Click **Next**.
8. Confirm the configurations and click **Submit**.
   The global EIP list is displayed.
9. In the global EIP list, view the global EIP status.
   If the status of the global EIP is **Unbound**, the EIP is assigned successfully.

Follow-Up Procedure

- (Mandatory) Global EIPs cannot be used independently. You need to bind them to cloud instances, such as ECSs and load balancers. For details, see **Binding a Global EIP to an Instance**.

7.3 Binding a Global EIP to an Instance

Scenarios

Bind a global EIP to an instance, such as an ECS or a load balancer, to enable the instance to communicate with the Internet through the global EIP.

Notes and Constraints

- A global EIP can be bound to only one instance at a time.
- After a global EIP is bound to an ECS, the VPC of the ECS cannot be changed, and no more EIP can be bound to the ECS.

Prerequisites

- The required instance (such as ECS or ELB) has been created.
- For an ECS, you also need to create an internet gateway for the VPC that the ECS belongs to.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. On the console homepage, choose **Networking** > **Cloud Connect**.
   The network console is displayed.
4. In the navigation pane on the left, choose **Internet** > **Global Elastic IPs**.
   The global EIP console is displayed.
5. In the global EIP list, search for or locate the target global EIP.
6. Locate the target global EIP, and click **Bind Instance** in the **Progress** column.
   The page for binding an instance is displayed.
7. Select the region that the instance to be bound is located.
   A global EIP can be bound to an instance in any region.
8. Select the type of the instance to be bound and then select the instance.
9. Select the internet gateway to be bound.

 Copyright © Huawei Technologies Co., Ltd.

The system automatically lists the internet gateway of the VPC that the instance belongs to, if there is one.

10. Click **Next**.
11. Configure **Global Connection Bandwidth**, **Bandwidth Name**, and **Bandwidth** as prompted.
12. Click **OK**.

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

7.4 Unbinding a Global EIP from an Instance

Scenarios

Unbind a global EIP from an instance, for example, from ECS or load balancer.

Notes

- When you unbind a global EIP from an instance, the system automatically unbinds the global connection bandwidth from the global EIP. Ensure that no service is running on the instance. Otherwise, services will be interrupted.
- A global EIP can be bound to only one instance at a time. If you need to bind the global EIP to another instance, unbind it from the current instance first and then bind it to another one. For details, see **Binding a Global EIP to an Instance**.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. On the console homepage, choose **Networking** > **Cloud Connect**.

   The network console is displayed.
4. In the navigation pane on the left, choose **Internet** > **Global Elastic IPs**.

   The global EIP console is displayed.
5. In the global EIP list, search for or locate the target global EIP.
6. Locate the row that contains the target global EIP, and click **Unbind** in the **Operation** column.

   A confirmation dialog box is displayed.
7. Click **OK**.

   In the global EIP list, you can see that the global EIP has no instance bound.

7.5 Viewing Details About a Global EIP

Scenarios

This section describes how to view details about a global EIP, including its status, global internet bandwidth, and global connection bandwidth.

 Copyright © Huawei Technologies Co., Ltd.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. On the console homepage, choose **Networking** > **Cloud Connect**.
   The network console is displayed.
4. In the navigation pane on the left, choose **Internet** > **Global Elastic IPs**.
   The global EIP console is displayed.
5. In the list, search for or locate the global EIP.

7.6 Releasing a Global EIP

Scenarios

This section describes how to release a global EIP.

If your global EIPs are no longer required, release them by following the instructions provided in this section.

Notes and Constraints

If you want to release a global EIP with an instance bound, you need to unbind it from its instance first by referring to **Unbinding a Global EIP from an Instance**.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. On the console homepage, choose **Networking** > **Cloud Connect**.
   The network console is displayed.
4. In the navigation pane on the left, choose **Internet** > **Global Elastic IPs**.
   The global EIP console is displayed.
5. In the list, search for or locate the global EIP.
6. Locate the row that contains the target global EIP, and click **Release** in the **Operation** column.
   A confirmation dialog box is displayed.
7. Confirm the information and click **OK**.
   The released global EIP is not displayed in the global EIP list.

 Copyright © Huawei Technologies Co., Ltd.

7.7 Modifying the Global Connection Bandwidth of a Global EIP

Scenarios

This section describes how to modify the name or change the size of a global connection bandwidth.

Your increased or decreased global connection bandwidth takes effect immediately.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. On the console homepage, choose **Networking** > **Cloud Connect**.
   The network console is displayed.
4. In the navigation pane on the left, choose **Internet** > **Global Elastic IPs**.
   The global EIP console is displayed.
5. In the global EIP list, search for or locate the target global EIP.
6. Locate the row that contains the target global EIP, and choose **More** > **Modify Global Connection Bandwidth** in the **Operation** column.
   The **Modify Global Connection Bandwidth** page is displayed.
7. Locate the target bandwidth and choose **More** > **Modify Bandwidth** in the **Operation** column.
8. Modify the bandwidth name and size as prompted, and click **Next**.
9. Confirm the modified information and click **Submit**.

7.8 Modifying the Global Internet Bandwidth of a Global EIP

Scenarios

This section describes how to modify the name, billing option, or size of a global internet bandwidth.

Your increased or decreased global internet bandwidth takes effect immediately.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. On the console homepage, choose **Networking** > **Cloud Connect**.
   The network console is displayed.

 Copyright © Huawei Technologies Co., Ltd.

4. In the navigation pane on the left, choose **Internet** > **Global Elastic IPs**.
   The global EIP console is displayed.
5. In the global EIP list, search for or locate the target global EIP.
6. Locate the row that contains the target global EIP, and choose **More** > **Modify Global Internet Bandwidth** in the **Operation** column.
   The **Modify Global Internet Bandwidth** page is displayed.
7. Modify the bandwidth parameters as required.
8. Click **Next**.
9. Confirm the configurations and click **Submit**.
   The modified bandwidth is displayed in the global internet bandwidth list.

 Copyright © Huawei Technologies Co., Ltd.

8 Global Connection Bandwidths

8.1 Overview

A global connection bandwidth is used by instances to allow communications over the cloud backbone network.

NOTE

- In Cloud Connect, global connection bandwidths are mainly used by central networks.
- By default, global connection bandwidths cannot be used by cloud connections. Only some existing users can bind global connection bandwidths to cloud connections.

There are different types of global connection bandwidths that are designed for different application scenarios, including multi-city, geographic-region, and cross-geographic-region bandwidths. Geographic-region and cross-geographic-region bandwidths are often bound to cloud connections for communications on the cloud.

Table 8-1 Global connection bandwidth types

Bandwidth Type	Instance Type	Description	Scenario
Multi-city	Global EIPs	Select this type of bandwidth if you need communications between cloud regions in the same region, for example, CN East-Shanghai1 and CN East-Shanghai2 in East China.	A global EIP and its associated resource, such as an ECS or load balancer, have to be in the same region. **Multi-city Bandwidth Application Scenario (Global EIP)**

 Copyright © Huawei Technologies Co., Ltd.

Bandwidth Type	Instance Type	Description	Scenario
Geographic-region	Global EIPs Cloud connections	Select this type of bandwidth if you need communications within a geographic region. Geographic regions include the Chinese mainland, Asia Pacific, and Southern Africa. For example, CN East-Shanghai1 and CN South-Guangzhou are regions in the Chinese mainland. For details about the relationship between geographic regions and Huawei Cloud regions, see **Geographic Regions and Huawei Cloud Regions**.	• A global EIP and its associated resource, such as an ECS or load balancer, have to be in the same geographic region. **Geographic-region Bandwidth Application Scenario (Global EIP)** • Enterprise routers on a central network are from the same geographic region. **Geographic-region/Cross-geographic-region Bandwidth Application Scenario (Central Network)**
Cross-geographic-region	Global EIPs Cloud connections	Select this type of bandwidth if you need communications across geographic regions. Geographic regions include the Chinese mainland, Asia Pacific, and Southern Africa. For example, CN East-Shanghai1 and CN-Hong Kong are from different geographic regions. For details about the relationship between geographic regions and cloud regions, see **Geographic Regions and Huawei Cloud Regions**.	• A global EIP and its associated resource, such as an ECS or load balancer, are from different geographic regions. **Cross-geographic-region Bandwidth Application Scenario (Global EIP)** • Enterprise routers on a central network are from different geographic regions. **Geographic-region/Cross-geographic-region Bandwidth Application Scenario (Central Network)**

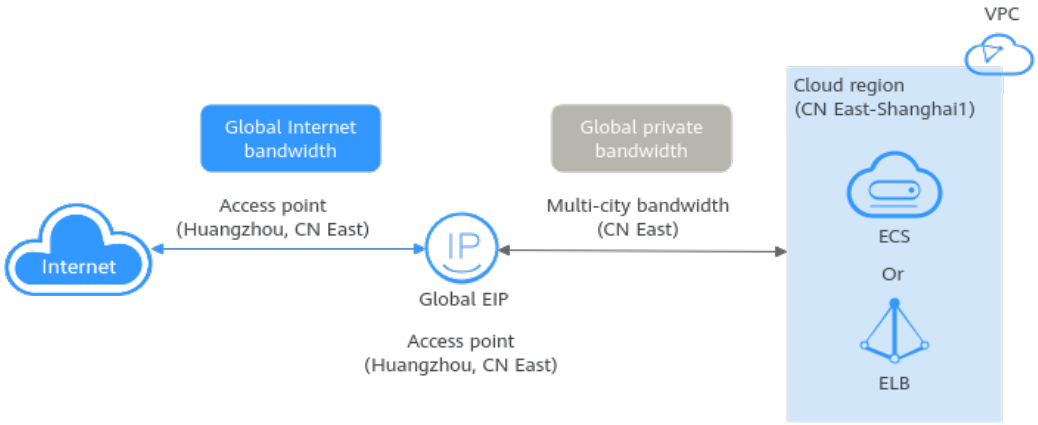
Multi-city Bandwidth Application Scenario (Global EIP)

In this example, a global EIP is bound to an ECS.

The ECS is in the CN East-Shanghai1 region, and the access point of the global EIP is in Hangzhou, a city in East China.

 Copyright © Huawei Technologies Co., Ltd.

Figure 8-1 Multi-city bandwidth application scenario (global EIP)

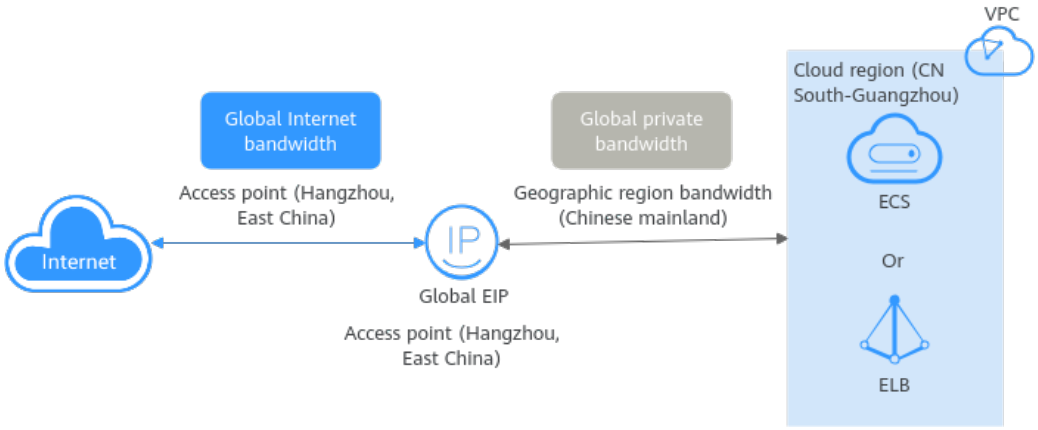


Geographic-region Bandwidth Application Scenario (Global EIP)

In this example, a global EIP is bound to an ECS.

The ECS is in the CN South-Guangzhou region, and the access point of the global EIP is in Hangzhou. Both Guangzhou and Hangzhou are cities on the Chinese mainland.

Figure 8-2 Geographic-region bandwidth application scenario (global EIP)



Cross-geographic-region Bandwidth Application Scenario (Global EIP)

In this example, a global EIP is bound to an ECS.

The ECS is in the CN-Hong Kong region, and the access point of the global EIP is in Hangzhou. CN-Hong Kong is a cloud region in Asia Pacific, but Hangzhou is a city on the Chinese mainland.

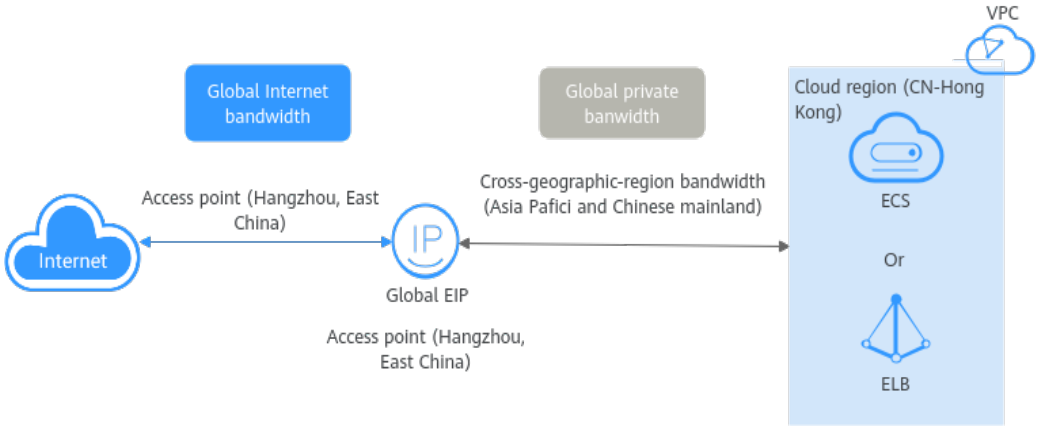
- Geographic region 1: Asia Pacific, the geographic region where the ECS is located
- Geographic region 2: Chinese mainland, the geographic region where the global EIP is accessed

NOTE

Ensure that the geographic regions 1 and 2 are configured as above.

 Copyright © Huawei Technologies Co., Ltd.

Figure 8-3 Cross-geographic-region bandwidth application scenario (global EIP)



Geographic-region/Cross-geographic-region Bandwidth Application Scenario (Central Network)

In this example, enterprise routers are connected over a cloud connection.

- Enterprise router 1 in CN East-Shanghai1 and enterprise router 2 in CN South-Guangzhou are from the same geographic region. A geographic-region bandwidth can be used for communications between the two enterprise routers.
- Enterprise router 1 in CN East-Shanghai1 and enterprise router 3 in CN-Hong Kong are in different geographic regions. A cross-geographic-region bandwidth can be used for communications between the two enterprise routers.
  - Geographic region 1: Chinese mainland, geographic region where enterprise router 1 is located
  - Geographic region 2: Asia Pacific, geographic region where enterprise router 3 is located

  NOTE

  Ensure that both the geographic regions of enterprise router 1 and enterprise router 3 have been configured.
- Enterprise router 2 in CN South-Guangzhou and enterprise router 3 in CN-Hong Kong are in different geographic regions. A cross-geographic-region bandwidth can be used for communications between the two enterprise routers.
  - Geographic region 1: Chinese mainland, geographic region where enterprise router 2 is located
  - Geographic region 2: Asia Pacific, geographic region where enterprise router 3 is located

 Copyright © Huawei Technologies Co., Ltd.

8.2 Buying a Global Connection Bandwidth

Scenarios

This section describes how to buy a global connection bandwidth for communication on a private network.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. On the console homepage, choose **Networking** > **Cloud Connect**.
4. In the navigation pane on the left, choose **Cloud Connect** > **Cloud Connections**.
5. In the cloud connection list, click the name of the cloud connection.
6. On the basic information page, click the **Global Connection Bandwidths** tab.
7. Click **Buy Global Connection Bandwidth**.
8. Configure the parameters based on **Table 8-2**.

Table 8-2 Parameters required for buying a global connection bandwidth

Parameter	Description
Billing Mode	Mandatory **Pay-per-use**: a postpaid subscription. You are charged based on the usage duration of the global connection bandwidth. Your global connection bandwidth is billed by second, and you are charged for a minimum of 60 seconds each time. If the usage is less than an hour, you are charged based on the actual duration, accurate to seconds.
Bandwidth Type	Mandatory There are different types of global connection bandwidths that are designed for different application scenarios, including multi-city, geographic-region, and cross-geographic-region bandwidths. The type of a bandwidth cannot be changed after your purchase. **Learn about the application scenarios of different types of bandwidths.** You can decide whether to use a geographic-region bandwidth or cross-geographic-region bandwidth based on service scenarios.

 Copyright © Huawei Technologies Co., Ltd.

Parameter	Description
Billed By	Mandatory The price of a global connection bandwidth varies by its size. ● After a bandwidth is purchased, the billing starts immediately regardless of whether the bandwidth is used. ● If a bandwidth is no longer required, delete it in a timely manner to avoid unnecessary fees.
Bandwidth	Mandatory Select the size of the bandwidth in Mbit/s.
Bandwidth Name	Mandatory Enter the name of the bandwidth. The name: ● Must contain 1 to 64 characters. ● Can contain letters, digits, underscores (_), hyphens (-), and periods (.).

9. Click **Next**.
10. Confirm the configurations and click **Submit**.

    The global connection bandwidth list page is displayed.
11. In the global connection bandwidth list, view the status of the bandwidth.

    If the bandwidth status is **Normal**, the purchase is successful.

8.3 Adding Instances to a Global Connection Bandwidth

Scenarios

You can bind a global connection bandwidth to a global EIP or a cloud connection.

Notes and Constraints

- Instances that a global connection bandwidth is to be bound to must be from the same region as the bandwidth.
- A global connection bandwidth can only be bound to instances of the same type. If you want to add other type of instances to a global connection bandwidth with instances bound, you need to remove the bound instances first.
  - Global EIPs: You can add or remove global EIPs in batches.
  - Cloud connections: You can bind one global connection bandwidth to or unbind it from one cloud connection at a time.

 Copyright © Huawei Technologies Co., Ltd.

Using a Global Connection Bandwidth on a Central Network

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. On the console homepage, choose **Networking** > **Cloud Connect**.
4. In the navigation pane on the left, choose **Cloud Connect** > **Central Networks**.
5. In the central network list, click the name of the target central network.
6. Switch to the **Cross-Site Connection Bandwidths** tab.
7. Locate the cross-region connection, and click **Assign now** in the **Global Connection Bandwidth** column.
8. On the **Assign Cross-Site Connection Bandwidth** page, select the global connection bandwidth.
9. Enter the bandwidth and click **OK**.

Binding Global EIPs to a Global Connection Bandwidth

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. On the console homepage, choose **Networking** > **Cloud Connect**.
4. In the navigation pane on the left, choose **Intra-Cloud** > **Global Connection Bandwidths**.
5. Locate the global connection bandwidth and click **Add** in the **Operation** column.
6. In the **Add** dialog box, set **Instance Type** to **Global EIP**.

   For a multi-city global connection bandwidth, select the two regions where the bandwidth will be used.
7. Search for global EIPs using keywords.
8. Select one or more global EIPs and click **OK**.

8.4 Unbinding a Global Connection Bandwidth

Scenarios

You can unbind a global connection bandwidth from a global EIP or a cloud connection.

Constraints

- Before a global connection bandwidth is unbound from a resource, ensure that the resource is not used for running workloads or establishing connectivity. If the resource is used, workloads will be unavailable or the network will be interrupted.
- A global connection bandwidth can only be bound to instances of the same type. If you want to add other type of instances to a global connection bandwidth with instances bound, you need to remove the bound instances first by referring to **Adding Instances to a Global Connection Bandwidth**.

 Copyright © Huawei Technologies Co., Ltd.

- If inter-region bandwidths have been assigned from a global connection bandwidth, the global private bandwidth cannot be unbound from the cloud connection. You need to delete the inter-region bandwidths first.

Deleting a Cross-Site Connection Bandwidth

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. On the console homepage, choose **Networking** > **Cloud Connect**.
4. In the navigation pane on the left, choose **Cloud Connect** > **Central Networks**.
5. Switch to the **Cross-Site Connection Bandwidths** tab, locate the cross-site connection, and click **Delete Bandwidth** in the **Operation** column.
6. In the displayed dialog box, click **OK**.

Unbinding a Global EIP from a Global Connection Bandwidth

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. On the console homepage, choose **Networking** > **Cloud Connect**.
4. In the navigation pane on the left, choose **Intra-Cloud** > **Global Connection Bandwidths**.
5. Locate the global connection bandwidth.
   - If the bandwidth is only bound to one instance, click **Remove** in the **Operation** column and then click **OK** in the displayed dialog box.
   - If the bandwidth is bound to more than one instance:
     i. On the details page of the bandwidth, click **Associated Instances**.
     ii. Select the instances.
     iii. Click **Remove** above the instance list.
     iv. In the displayed dialog box, click **OK**.

8.5 Modifying a Global Connection Bandwidth

Scenarios

Your can increase or decrease a global connection bandwidth. The new bandwidth takes effect immediately.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. On the console homepage, choose **Networking** > **Cloud Connect**.
4. In the navigation pane on the left, choose **Cloud Connect** > **Cloud Connections**.

 Copyright © Huawei Technologies Co., Ltd.

5. In the cloud connection list, click the name of the cloud connection.
6. On the basic information page, click the **Global Connection Bandwidths** tab.
7. Locate the target bandwidth and choose **More** > **Modify Bandwidth** in the **Operation** column.
8. Modify the bandwidth name and size as prompted, and click **Next**.
9. Confirm the modified information and click **Submit**.

8.6 Deleting a Global Connection Bandwidth

Scenarios

If your pay-per-use global connection bandwidth is no longer required, delete the bandwidth in a timely manner to avoid unnecessary fees.

Constraints

A global connection bandwidth with an instance bound cannot be deleted. To delete such a bandwidth, unbind its instance first. For details, see **Unbinding a Global Connection Bandwidth**.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. On the console homepage, choose **Networking** > **Cloud Connect**.
4. In the navigation pane on the left, choose **Cloud Connect** > **Cloud Connections**.
5. In the cloud connection list, click the name of the cloud connection.
6. On the basic information page, click the **Global Connection Bandwidths** tab.
7. Locate the bandwidth you want to delete and click its name to view its settings.
8. In the upper left corner of the page, click  .
9. In the global connection bandwidth list, search for the bandwidth.
10. Choose **More** > **Delete** in the **Operation** column.
11. Click **OK**.

 Copyright © Huawei Technologies Co., Ltd.

9 Monitoring

9.1 Supported Metrics

Description

This section describes the namespace, list, and measurement dimensions of metrics of EIPs and bandwidths that you can check on Cloud Eye. You can use APIs or the Cloud Eye console to query the metrics of the monitored metrics and generated alarms.

Namespace

Namespace of EIPs and bandwidths: SYS.VPC

Monitoring Metrics

Table 9-1 Metrics of EIPs and bandwidths

ID	Name	Description	Value Range	Monitored Object	Monitoring Interval (Raw Data)
upstream_bandwidth	Outbound Bandwidth	Network rate of outbound traffic (Previously called "Upstream Bandwidth") Unit: bit/s	≥ 0 bit/s	Bandwidth or EIP	1 minute

 Copyright © Huawei Technologies Co., Ltd.

ID	Name	Description	Value Range	Monitored Object	Monitoring Interval (Raw Data)
downstream_bandwidth	Inbound Bandwidth	Network rate of inbound traffic (Previously called "Downstream Bandwidth") Unit: bit/s	≥ 0 bit/s	Bandwidth or EIP	1 minute
upstream_bandwidth_usage	Outbound Bandwidth Usage	Usage of outbound bandwidth in the unit of percent. Outbound bandwidth usage = Outbound bandwidth/ Purchased bandwidth	0% to 100%	Bandwidth or EIP	1 minute
up_stream	Outbound Traffic	Network traffic going out of the cloud platform (Previously called "Upstream Traffic") Unit: byte	≥ 0 Bytes	Bandwidth or EIP	1 minute
down_stream	Inbound Traffic	Network traffic going into the cloud platform (Previously called "Downstream Traffic") Unit: byte	≥ 0 Bytes	Bandwidth or EIP	1 minute

NOTE

If a bandwidth is increased or decreased, there is a delay of 5 to 10 minutes for the monitoring metrics to update for the new bandwidth.

 Copyright © Huawei Technologies Co., Ltd.

Dimensions

Key	Value
publicip_id	EIP ID
bandwidth_id	Bandwidth ID

If a monitored object has multiple dimensions, all dimensions are mandatory when you use APIs to query the metrics.

- Query a monitoring metric:

  dim.0=bandwidth_id,530cd6b0-86d7-4818-837f-935f6a27414d&dim.1=publicip_id,3773b058-5b4f-4366-9035-9bbd9964714a

- Query monitoring metrics in batches:

  "dimensions": [

  {

  "name": "bandwidth_id",

  "value": "530cd6b0-86d7-4818-837f-935f6a27414d"

  },

  {

  "name": "publicip_id",

  "value": "3773b058-5b4f-4366-9035-9bbd9964714a"

  }

  ],

9.2 Viewing Metrics

Scenarios

You can view the bandwidth and EIP usage.

You can view the inbound bandwidth, outbound bandwidth, inbound bandwidth usage, outbound bandwidth usage, inbound traffic, and outbound traffic in a specified period.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. In the upper left corner of the page, click  to open the service list and choose **Management & Deployment** > **Cloud Eye**.
4. Click **Cloud Service Monitoring** on the left of the page, and choose **Elastic IP and Bandwidth**.

 Copyright © Huawei Technologies Co., Ltd.

5. Locate the target metric and click **View Metric** in the **Operation** column to check detailed information.

9.3 Creating an Alarm Rule

Scenarios

You can configure alarm rules to customize the monitored objects and notification policies. You can learn your resource statuses at any time.

Procedure

1. Log in to the management console.
2. Click in the upper left corner and select the desired region and project.
3. In the upper left corner of the page, click to open the service list and choose **Management & Deployment** > **Cloud Eye**.
4. In the left navigation pane on the left, choose **Alarm Management** > **Alarm Rules**.
5. On the **Alarm Rules** page, click **Create Alarm Rule** and set required parameters, or modify an existing alarm rule.
6. After the parameters are set, click **Create**.

   After the alarm rule is created, the system automatically notifies you if an alarm is triggered for the VPC service.

   NOTE

   For more information about alarm rules, see **Cloud Eye User Guide**.

9.4 Exporting Monitoring Data

Scenarios

If you want to analyze the bandwidth or traffic usage of EIPs to locate faults, you can export EIP monitoring data.

Procedure

1. Log in to the management console.
2. Click in the upper left corner and select the desired region and project.
3. Hover on the upper left corner to display **Service List** and choose **Management & Deployment** > **Cloud Eye**.
4. In the navigation pane on the left, choose **Cloud Service Monitoring** > **Elastic IP and Bandwidth**.
5. On the **Cloud Service Monitoring** page, click **Export Data**.
6. Configure the time range, period, resource type, dimension, monitored object, and metric.

 Copyright © Huawei Technologies Co., Ltd.

7. Click **Export**.

NOTE

You can export data for multiple metrics at a time to a CSV file.

- The first row in the exported CSV file displays the username, region, service, instance name, instance ID, metric name, metric data, time, and timestamp. You can view historical monitoring data.
- To convert the time using a Unix timestamp to the time of the target time zone, perform the following steps:

  a. Use Excel to open a .csv file.

  b. Use the following formula to convert the time:

     Target time = [Unix timestamp/1000 + (Target time zone) x 3600]/86400 + 70 x 365 + 19

  c. Set cell format to **Date**.

  To convert a Unix timestamp of 1475918112000 to Shanghai time (UTC+8), using the following formula:

  Target time = [1475918112000/1000 + (+8) x 3600]/86400 + 70 x 365 + 19

  Set the cell format to date and select a presentation format such as 2016/3/14 13:30. Then, the target time obtained will be presented as 2016/10/8 17:15.

 Copyright © Huawei Technologies Co., Ltd.

10 Permissions Management

10.1 Creating a User and Granting EIP Permissions

Currently, the EIP service permissions are included in the VPC permissions. **Permissions Management**

This section describes how to use IAM to implement fine-grained permissions control for your VPC resources. With IAM, you can:

- Create IAM users for personnel based on your enterprise's organizational structure. Each IAM user has their own identity credentials for accessing VPC resources.
- Grant users only the permissions required to perform a given task based on their job responsibilities.
- Entrust a HUAWEI ID or cloud service to perform efficient O&M on your VPC resources.

If your HUAWEI ID meets your permissions requirements, you can skip this section.

Figure 10-1 shows the process flow for granting permissions.

Prerequisites

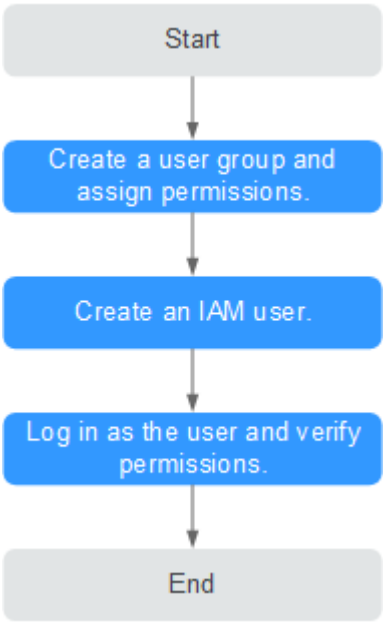
Before granting permissions to user groups, learn about **EIP Permissions** for EIP.

To grant permissions for other services, learn about all **system-defined permissions** supported by IAM.

 Copyright © Huawei Technologies Co., Ltd.

Process Flow

Figure 10-1 Process for granting EIP permissions



1. On the IAM console, **create a user group and grant it permissions**.

   Create a user group on the IAM console and assign the **EIP ReadOnlyAccess** permissions to the group.
2. **Create an IAM user and add it to the created user group**.

   Create a user on the IAM console and add the user to the group created in **1**.
3. **Log in as the IAM user** and verify permissions.

   In the authorized region, perform the following operations:

   - Choose **Service List** > **Elastic IP**. Then click **Buy EIP** on the EIP console. If a message appears indicating that you have insufficient permissions to perform the operation, the **EIP ReadOnlyAccess** policy is in effect.
   - Choose another service from **Service List**. If a message appears indicating that you have insufficient permissions to access the service, the **EIP ReadOnlyAccess** policy is in effect.

Example Custom Policies

- Example 1: Grant permissions to assign and view EIPs

```
{
    "Version": "1.1",
    "Statement": [
        {
            "Effect": "Allow",
            "Action": [
                "vpc:publicIps:create",
                "vpc:publicIps:list"
            ]
        }
    ]
}
```

 Copyright © Huawei Technologies Co., Ltd.

- Example 2: Grant permission to deny EIP deletion.

  A policy with only "Deny" permissions must be used together with other policies. If the permissions granted to an IAM user contain both "Allow" and "Deny", the "Deny" permissions take precedence over the "Allow" permissions.

  Assume that you want to grant the permissions of the **EIP FullAccess** policy to a user but want to prevent them from releasing EIPs. You can create a custom policy for denying EIP release, and attach both policies to the user. As an explicit deny in any policy overrides any allows, the user can perform all operations on EIPs except releasing them. Example policy denying EIP release:

  ```
  {
      "Version": "1.1",
      "Statement": [
          {
         "Effect": "Deny",
              "Action": [
                  "vpc:publicIps:delete"
              ]
          }
      ]
  }
  ```

- Example 3: Create a custom policy containing multiple actions.

  A custom policy can contain the actions of one or multiple services that are of the same type (global or project-level). Example policy containing multiple actions:

  ```
  {
     "Version": "1.1",
     "Statement": [
        {
           "Effect": "Allow",
           "Action": [
              "vpc:publicIps:update",
              "vpc:publicIps:create"
           ]
        },
        {
           "Effect": "Deny",
           "Action": [
              "vpc:publicIps:delete"
           ]
        }
     ]
  }
  ```

10.2 EIP Custom Policies

Custom policies can be created as a supplement to the system policies of EIP. For the actions supported for custom policies, see **Permissions Policies and Supported Actions**.

You can create custom policies in either of the following ways:

- Visual editor: Select cloud services, actions, resources, and request conditions. This does not require knowledge of policy syntax.
- JSON: Edit JSON policies from scratch or based on an existing policy.

  For details, see **Creating a Custom Policy**. The following section contains examples of common EIP custom policies.

 Copyright © Huawei Technologies Co., Ltd.

Example Custom Policies

- Example 1: Grant permissions to assign and view EIPs

```
{
   "Version": "1.1",
   "Statement": [
      {
         "Effect": "Allow",
         "Action": [
            "vpc:publicIps:create",
            "vpc:publicIps:list"
         ]
      }
   ]
}
```

- Example 2: Grant permission to deny EIP deletion.

  A policy with only "Deny" permissions must be used together with other policies. If the permissions granted to an IAM user contain both "Allow" and "Deny", the "Deny" permissions take precedence over the "Allow" permissions.

  Assume that you want to grant the permissions of the **EIP FullAccess** policy to a user but want to prevent them from releasing EIPs. You can create a custom policy for denying EIP release, and attach both policies to the user. As an explicit deny in any policy overrides any allows, the user can perform all operations on EIPs except releasing them. Example policy denying EIP release:

```
{
    "Version": "1.1",
    "Statement": [
        {
       "Effect": "Deny",
            "Action": [
                "vpc:publicIps:delete"
            ]
        }
    ]
}
```

- Example 3: Create a custom policy containing multiple actions.

  A custom policy can contain the actions of one or multiple services that are of the same type (global or project-level). Example policy containing multiple actions:

```
{
   "Version": "1.1",
   "Statement": [
      {
         "Effect": "Allow",
         "Action": [
            "vpc:publicIps:update",
            "vpc:publicIps:create"
         ]
      },
      {
         "Effect": "Deny",
         "Action": [
            "vpc:publicIps:delete"
         ]
      }
   ]
}
```

 Copyright © Huawei Technologies Co., Ltd.

A Change History

Released On	Description
2024-04-28	This issue is the twenty-fourth official release. Updated the following content: Changed the screenshots based on the console style changes.
2023-10-30	This issue is the twenty-third official release. Updated the following content: Added content about changing the EIP billing from yearly/monthly to pay-per-use (by bandwidth) immediately in **Changing EIP Billing Mode**.
2023-06-27	This issue is the twenty-second official release. Added the following sections: • **Global Internet Bandwidths** • **Global EIPs** • **Global Connection Bandwidths**
2023-06-09	This issue is the twenty-first official release. Updated the following content: Added constraints on increasing a pay-per-use shared bandwidth in **Shared Bandwidth Overview**.
2022-11-10	This issue is the twentieth official release. Updated the following content: Added the link to the price calculator in **Shared Data Package Overview**.
2022-09-30	This issue is the nineteenth official release. Modified the following content: Deleted the restriction that IPv6 NICs cannot be added to shared bandwidths of the premium BGP type in **Adding EIPs to a Shared Bandwidth**.

 Copyright © Huawei Technologies Co., Ltd.

Released On	Description
2022-08-12	This issue is the eighteenth official release. Optimized the following section: **IPv6 EIP**
2022-07-26	This issue is the seventeenth official release, which incorporates the following changes: Added descriptions that EIPs cannot be used across regions in the following section: • **What Is Elastic IP?** • **Notes and Constraints** • **EIP Overview** Added **Exporting Monitoring Data**.
2022-07-14	This issue is the sixteenth official release, which incorporates the following changes: Optimized description about premium BGP. • Updated the following sections: – **What Is Elastic IP?** – **Assigning an EIP** – **What Are the Differences Among Static BGP, Dynamic BGP, and Premium BGP?** – **When Should I Use Premium BGP and Are There Any Limitations on Using Premium BGP?** • Added section **Why Is There Network Jitter or Packet Loss During Cross-Border Communications?**
2022-05-16	This issue is the fifteenth official release, which incorporates the following changes: • Modified content about EIP billing in **Changing EIP Billing Mode** and **Renewing a Yearly/Monthly EIP**.
2021-12-30	This issue is the fourteenth official release, which incorporates the following change: • Added application scenarios of IPv6 networks in **IPv6 EIP**.
2021-01-08	This issue is the thirteenth official release, which incorporates the following changes: Supported configuring billing mode and bandwidth size when removing an EIP from a shared bandwidth.
2020-12-01	This issue is the twelfth official release, which incorporates the following changes: • Deleted FAQ "What Are EIPs?" • Added FAQ "What Are the Differences Between Static BGP and Dynamic BGP?" Added billing information.

Copyright © Huawei Technologies Co., Ltd.

Released On	Description
2020-11-03	This issue is the eleventh official release, which incorporates the following change: ● Added FAQ "Why Can't I Find My Purchased EIP on the Management Console?" ● Deleted FAQ "Will the EIP Bound to an ECS Be Changed After the ECS Is Stopped and Then Started?"
2020-09-07	This issue is the tenth official release, which incorporates the following change: ● Added information about BGP routing types in section "What Is Elastic IP?" ● Modified FAQ "Why Does Internet Access Fail Even If My ECS Is Bound with an EIP?"
2020-07-28	This issue is the ninth official release, which incorporates the following change: Added description about inbound bandwidth in section "Notes and Constraints".
2020-06-18	This issue is the eighth official release, which incorporates the following change: ● Added FAQ "Why Can't an EIP Be Pinged?" ● Added FAQ "How Do I Unblock an EIP?"
2020-05-26	This issue is the seventh official release, which incorporates the following change: ● Changed the structure of "FAQs". ● Added FAQ "Can Multiple EIPs Be Bound to an ECS?"
2020-04-15	This issue is the sixth official release, which incorporates the following change: Added FAQ "Can an EIP Be Bound to a Resource in Another Region?"
2020-03-30	This issue is the fifth official release, which incorporates the following change: ● Added section "Billing". ● Added category "Billing and Payments" in FAQs. ● Added FAQ "How Do I Change an EIP for an Instance?"
2020-03-26	This issue is the fourth official release, which incorporates the following change: ● Added section "Exporting EIP Information". ● Added FAQ "How Do I Query the Region of My EIPs?" ● Added FAQ "Can I Transfer an EIP to Another Account?"

Copyright © Huawei Technologies Co., Ltd.

Released On	Description
2020-02-18	This issue is the third official release, which incorporates the following change: ● Added FAQ "How Is an EIP Charged?" ● Optimized FAQ "How Many ECSs Can One EIP Be Assigned to?"
2020-01-14	This issue is the second official issue, which incorporates the following change: Optimized sections under **Service Overview**.
2019-12-10	This issue is the first official release.

Copyright © Huawei Technologies Co., Ltd.