Elastic IP

User Guide

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1 Elastic IP User Guide

1.1 Permissions Management

1.1.1 Creating a User and Granting EIP Permissions

Currently, the EIP service permissions are included in the VPC permissions. For details, see **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 1-1 shows the process flow for granting permissions.

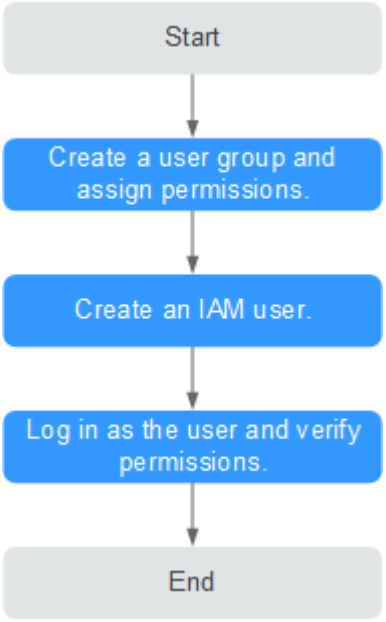
Prerequisites

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

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

Process Flow

Figure 1-1 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.

1.1.2 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 grammar.
- JSON: Create a JSON policy or edit an existing one.

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

Example Custom Policies

- Example 1: Grant permission 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"
         ]
      }
   ]
}
```

1.2 Elastic IP

1.2.1 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 both should be in the same region.

You can use public NAT gateways to enable ECSs in the VPC to share an EIP to access or be accessed by the Internet. For details, see **Using a Public NAT Gateway to Enable Servers to Share One or More EIPs to Access the Internet**.

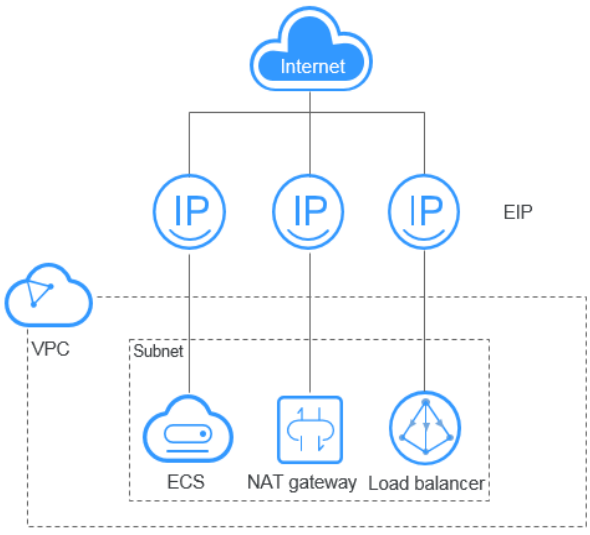
Pay-per-use EIPs can be migrated across accounts. However, you need to submit a service ticket. For details about how to submit a service ticket, see **Submitting a Service Ticket**.

NOTE

- Only EIPs in the same region can be migrated across accounts.
- An EIP to be migrated must meet the following requirements:
  - The EIP is billed on a pay-per-use basis.
  - Yearly/Monthly EIPs cannot be migrated across accounts. If you have a yearly/monthly EIP, you can change it to a pay-per-use one before migrating it across accounts.

    For details, see **Yearly/Monthly to Pay-Per-Use**.
  - The EIP must be in the **Unbound** status.

Figure 1-2 Connecting to the Internet using an EIP



EIP Quotas

You can log in to the console to query your EIP quotas.

If you want to increase your quota, see **How Do I Apply for a Higher Quota?**

- Your request for a larger quota will only be approved if your account has valid orders and you are continuously using cloud resources. If you have released resources immediately after subscribing to them multiple times, your request for quota increase will be declined.
- If you have increased the EIP quota but you have not used the quota for a long time, Huawei Cloud will reduce the quota to the default value.

Constraints

- If a yearly/monthly EIP is not renewed after it expires, or if the arrears of a pay-per-use EIP are not paid in time, the EIP may be released and cannot be recovered.
- If the used EIP bandwidth exceeds the purchased size or is attacked (usually by a DDoS attack), the EIP will be blocked but can still be bound or unbound.
- An EIP cannot be shared across accounts. Each account can only use and manage its own EIP bandwidths.
- Restrictions on binding or unbinding an EIP to or from an instance:
  - An EIP can be bound to only one cloud resource, and the EIP and the resource must be in the same region.
  - An EIP that has already been bound to a cloud resource cannot be bound to another resource without first being unbound from the current resource.
- The EIP remains unchanged:
  - No matter you start or stop the ECS.
  - When you modify its billing mode or supported bandwidth.

Binding an EIP to an Instance

Figure 1-3 Process for binding an EIP to an instance

Table 1-1 Process for binding an EIP to an instance

No.	Step	Description
1	**Assigning an EIP**	You can assign an EIP and bind it to cloud resources to allow them to access the Internet.
2	**Binding an EIP to an Instance**	• The procedure for binding an EIP varies depending on the target instance. • The EIP and the instance to be bound must be in the same region.

EIP Billing

EIPs can be billed on a yearly/monthly or pay-per-use basis. The billing options and billing items vary depending on the billing mode. For details, see **Billing**.

You can also change the billing mode later if it no longer meets your needs. For details, see **Changing the EIP Billing Mode**.

Related Operations

Binding or Unbinding an EIP: After an EIP is assigned, you can bind it to cloud resources such as ECSs for Internet access.

Adding EIPs to or Removing EIPs from a Shared Bandwidth: After a shared bandwidth is assigned, you can add multiple pay-per-use EIPs to it so that all EIPs share the same bandwidth. Then, your network operation costs will be lowered and your system O&M as well as resource statistics will be simplified.

1.2.2 Assigning an EIP

Scenarios

You can assign an EIP and bind it to cloud resources to allow them to access the Internet. This section describes how to assign a new or specific EIP.

- By default, **new EIPs** are assigned at random.
  - If you assign a new EIP within 24 hours after an EIP is released, the released EIP will be assigned first.
  - Other users can call APIs to assign the released EIP 24 hours after it is released.
- You can call APIs to **assign a specific EIP**.

Assigning a New EIP

1. Go to the **Buy EIP** page.
2. Configure parameters as prompted.

Figure 1-4 Assigning an EIP

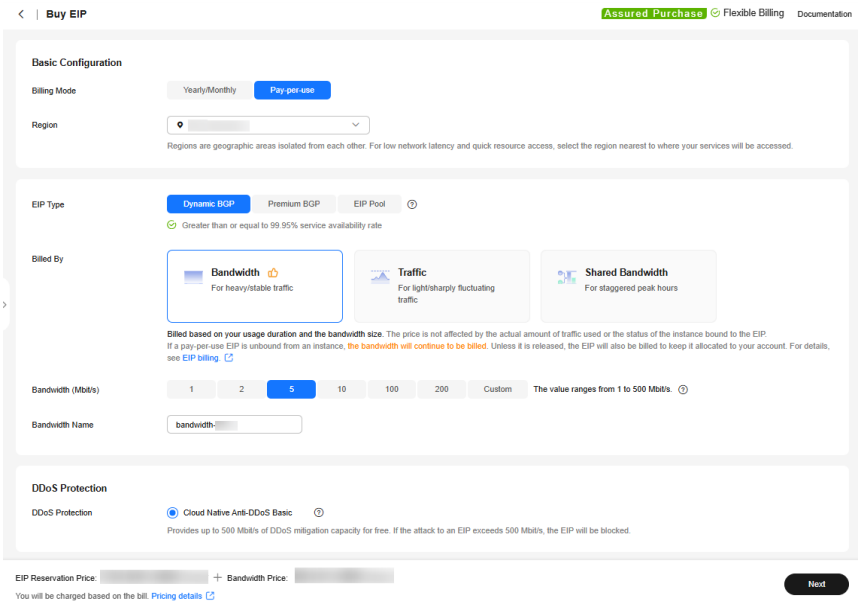


Table 1-2 Parameter descriptions

Item	Parameter	Description	Example Value
Basic Configuration	Billing Mode	The following options are available: • **Yearly/Monthly**: You pay upfront for the amount of time you expect to use the instance. You need to make sure you have a valid payment method configured first. • **Pay-per-use**: You can start using the EIP first and then pay as you go. You are billed based on the EIP usage duration (by bandwidth) or used traffic (by traffic).	Pay-per-use

Item	Parameter	Description	Example Value
Basic Configuration	Region	The desired region. Resources in different regions cannot communicate with each other over internal networks. For low network latency and quick resource access, select the region nearest to where your services will be accessed. The region selected for the EIP is its geographical location. **NOTE** • The geographical location of an EIP purchased in CN North-Ulanqab1 or CN East-Qingdao is Beijing. • The geographical location of an EIP purchased in CN East2 is Shanghai.	CN-Hong Kong

Item	Parameter	Description	Example Value
Bandwidth Details	EIP Type	• **Dynamic BGP**: Dynamic BGP provides automatic failover and chooses the optimal path when a network connection fails. **NOTE** **Dynamic BGP** is suitable for communications in CN-Hong Kong or communications between CN-Hong Kong and regions outside the Chinese mainland. If **Dynamic BGP** is used to access the regions in the Chinese mainland, data is forwarded through international egress routes, which may result in high latency and packet loss. If you need lower latency and better stability to access to the regions in the Chinese mainland, you are advised to select **Premium BGP**. • **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 the Chinese mainland and Hong Kong (China). (Premium BGP is available only in CN-Hong Kong.) • **EIP Pool**: This parameter is available only when you set **Billing Mode** to **Pay-**	Dynamic BGP

Item	Parameter	Description	Example Value
		per-use. An EIP pool helps you manage a large number of EIPs and assigns EIPs with dynamic BGP routing, ensuring network stability and optimal user experience. For details about the EIP pool, see **EIP Pool Overview**. For details, see **What Are the Differences Between Static BGP and Dynamic BGP?**	
Bandwidth Details	EIP Pool	Select your purchased EIP pool. This parameter is available only when **Billing Mode** is set to **Pay-per-use** and **EIP Type** set to **EIP Pool**.	eipPool-test
Bandwidth Details	Billed By	How the EIP bandwidth will be billed. 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 outbound traffic you use. This is suitable for scenarios with light or sharply fluctuating traffic. • **Shared Bandwidth**: The bandwidth can be shared by multiple EIPs and is suitable for scenarios with staggered traffic.	Bandwidth

Item	Parameter	Description	Example Value
Bandwidth Details	Bandwidth (Mbit/s)	The bandwidth size in Mbit/s.	100
Bandwidth Details	Bandwidth Name	The name of the bandwidth. The name: • Can contain 1 to 64 characters. • Can contain letters, digits, underscores (_), hyphens (-), and periods (.).	bandwidth
DDoS Protection	DDoS Protection	Cloud Native Anti-DDoS Basic Cloud Native Anti-DDoS Basic provides up to a certain amount (for example, less than 5 Gbit/s) of DDoS mitigation capacity for free. The actual thresholds are displayed on the console. If the attack to an EIP exceeds the threshold, the EIP will be blocked.	-
EIP Details	EIP Name (Optional)	The name of the EIP. The name: • Can contain 1 to 64 characters. • Can contain letters, digits, underscores (_), hyphens (-), and periods (.).	eip-test
EIP Details	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 default project is **default**. For details about creating and managing enterprise projects, see the **Enterprise Management User Guide**.	default

Item	Parameter	Description	Example Value
EIP Details	IPv6 EIP (Optional)	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. **NOTE** Currently, IPv6 EIP function is available only in certain regions. You can check the regions on the console.	Enable
EIP Details	Tag	Tags help you quickly identify, organize, and search for your EIPs. For more information about tags, see **Managing EIP Tags**. **NOTE** If your organization has created a tag policy for EIPs, you need to add tags for EIPs based on the tag policy. If a tag does not comply with the tagging rules, the EIP assignment may fail. Contact the organization administrator to learn details about the tag policy.	• Key: Ipv4_key1 • Value: 3005eip
Monitoring	Monitoring	Basic monitoring is 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.	-
Purchase Details	Required Duration	The duration for which the EIP will be used. The duration must be specified if the **Billing Mode** is set to **Yearly/Monthly**.	1 month

Item	Parameter	Description	Example Value
Purchase Details	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.	-
Purchase Details	Quantity	The number of EIPs you want to assign. The quantity must be specified if the **Billing Mode** is set to **Pay-per-use**.	1

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 is no shared bandwidth, create one 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.
  - 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.

3. Click **Next**.
4. On the confirmation page:
   - If you select **Pay-per-use** for **Billing Mode**, click **Submit**.
   - If you select **Yearly/Monthly** for **Billing Mode**, click **Pay Now**.

     On the payment page, confirm the order information, and click **Pay**.

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

Assigning a Specific EIP

If you want to retrieve an EIP that you have released within seven days (inclusive) or assign a specific EIP, you can use APIs.

You can set the value of **ip_address** to the one 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.
- APIs cannot be used to assign the yearly/monthly EIP that you have released or assign a specific yearly/monthly EIP.
- The management console does not support assigning a specific EIP.

Why Can't I Find My Purchased EIP on the Management Console?

You can perform the following operations to locate an EIP if you cannot find it on the management console.

EIPs Not in the Current Region

Step 1 Log in to the management console.

Step 2 Use either of the following methods to find an EIP:

- Method 1:
  a. In the upper left corner of the console, select the region that the EIP to be queried belongs to.
  b. Under **Networking**, click **Elastic IP**.
  c. In the EIP list, view your EIPs.
- Method 2:
  a. In the upper right corner of the console, choose **Resources** > **My Resources**.
  b. On the **My Resources** page, set search criteria to quickly find the target EIP.
     - **Service**: **Virtual Private Cloud (VPC)**
     - **Resource Type**: **EIPs**
     - **Region**: Retain the default value **All** or select the region that the EIP to be queried belongs to.

       For example, if you select **All** for **Region**, all of your EIPs will be displayed.
  c. In the EIP list, view your EIPs.

----End

EIPs Were Released

Yearly/Monthly EIPs will be released when they expire and have not been renewed.

- If you want to assign a new EIP and bind it to your resources such as an ECS, see **Assigning a New EIP**.
- If you want to retrieve an EIP that you released, see **Assigning a Specific EIP**.

Related Operations

Binding or Unbinding an EIP: After an EIP is assigned, you can bind it to cloud resources such as ECSs for Internet access.

Adding EIPs to or Removing EIPs from a Shared Bandwidth: After a shared bandwidth is assigned, you can add multiple pay-per-use EIPs to it so that all EIPs share the same bandwidth. This reduces network operations costs and simplifies system O&M statistics.

1.2.3 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 dedicated 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.

If the maximum bandwidth cannot meet your service requirements, you can **submit a service ticket** to request a higher quota.

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.
Yearly/ Monthly	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 current billing cycle.
Yearly/ Monthly	Bandwidth	Decrease bandwidth immediately	The change will take effect immediately.

Billing Mode	Billed By	Change	Impact
Pay-per-use	Bandwidth	Increase or decrease the bandwidth	The change will take effect immediately. **CAUTION** The pay-per-use (billed by bandwidth) billing mode is based on the fixed bandwidth you purchased. If the **actual bandwidth used exceeds the purchased one**, **no extra charges will apply**, but the **network quality may be affected**. You are advised to plan the bandwidth based on actual service requirements.
Pay-per-use	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. Go to the **EIP list** page.
2. Locate the target EIP and choose **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 immediately
     - Decrease bandwidth
3. Modify the bandwidth parameters as prompted.

Figure 1-5 Modifying the bandwidth of a pay-per-use EIP

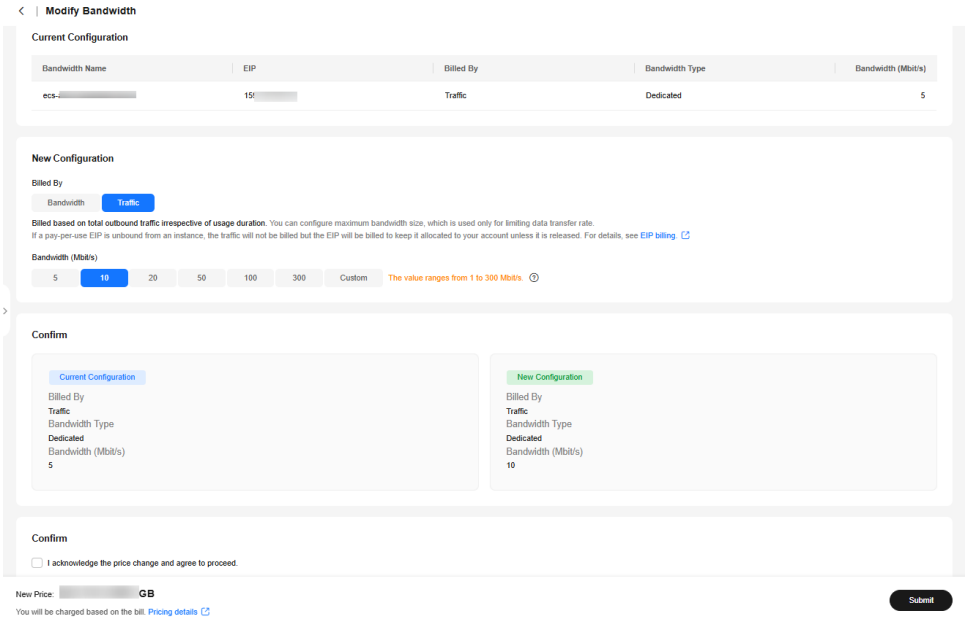
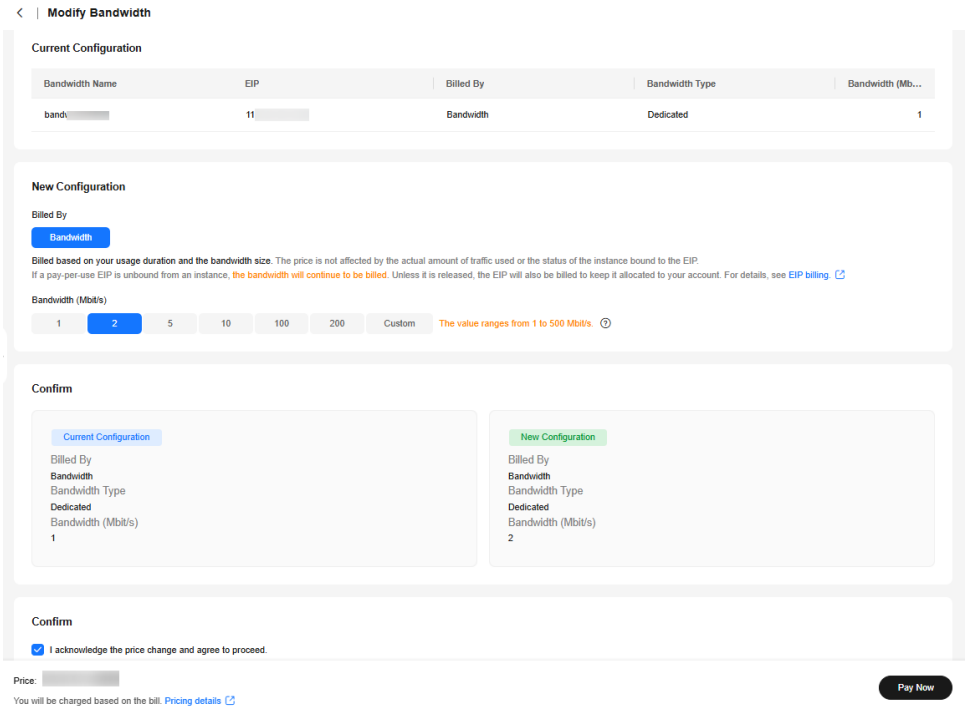


Figure 1-6 Modifying the bandwidth of a yearly/monthly EIP



4. Select "I acknowledge the price change and agree to proceed" and click **Submit**.

You can also select multiple EIPs and click **Modify Bandwidth** above the EIP list to modify 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?**

1.2.4 Binding or Unbinding an EIP

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.

If your instance no longer requires an EIP, you can unbind the EIP from it. To bind an EIP to a new instance, you need to first unbind it from the current one.

If you do not release the pay-per-use EIP after unbinding it, the EIP will be billed. For details, see **Releasing or Unsubscribing From an EIP**.

NOTE

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

Notes and Constraints

Binding an EIP

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

Unbinding an EIP

- An EIP cannot be unbound if its server is suspected of violations and the EIP is frozen by the national supervision department.
- Your account will be frozen if it is in arrears and you cannot perform any operations on pay-per-use resources in the retention period. After you top up your account, you will be billed for expenditures generated by the pay-per-use EIPs. You can view the expenditures on the **Overview** page of the Billing Center.

Binding an EIP to an Instance

Bind EIPs to resources such as ECSs, BMSs, virtual IP addresses, NAT gateways, and load balancers to allow them to access the Internet.

Binding an EIP to an ECS, BMS, or 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 **Using a Public NAT Gateway to Enable Servers to Share One or More EIPs to Access the Internet** and **Using a Public NAT Gateway to Enable Servers to Be Accessed by 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 IPv4 EIP**.

Unbinding an EIP from an Instance

If an EIP is no longer required, you can unbind it from your instance.

Unbinding an EIP from an ECS, BMS, or Virtual IP Address

Unbinding a single EIP

1. Go to the **EIP list** page.
2. 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.
3. Click **Yes** in the displayed dialog box.

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

Unbinding multiple EIPs at a time

1. Go to the **EIP list** page.
2. On the displayed page, select the EIPs to be unbound.
3. In the upper left corner of the EIP list, click **Unbind**.

A confirmation dialog box is displayed.

4. Click **Yes** in the displayed dialog box.

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

Unbinding an EIP from a NAT Gateway

You can unbind an EIP from a NAT gateway by deleting the SNAT and DNAT rules. For details, see **Deleting a DNAT Rule** and **Deleting an SNAT Rule**.

Unbinding an EIP from a Load Balancer

You can unbind an EIP from a load balancer on the ELB console. For details, see **Binding or Unbinding an IPv4 EIP**.

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?**

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**.

1.2.5 Releasing or Unsubscribing From an EIP

Scenarios

If an EIP is no longer required, you can unbind it from your instance and release it if it is a pay-per-use EIP or unsubscribe from it if it is a yearly/monthly EIP. If you do not release a pay-per-use EIP in a timely manner after unbinding it, the EIP continues to be billed. This section describes how to release or unsubscribe from an EIP.

Notes and Constraints

- An EIP that has been bound to an instance cannot be released or unsubscribed from.
- Yearly/Monthly EIPs can only be unsubscribed from.

  If you no longer need a yearly/monthly resource, but the subscription has not yet expired, you can unsubscribe from it. Depending on what coupons were

used for the purchase, Huawei Cloud may issue you a refund. For details about unsubscription rules, see **Unsubscriptions**.

- An EIP cannot be released or unsubscribed if its server is suspected of violations and the EIP is frozen by the national supervision department.
- The system preferentially assigns EIPs to you from the ones you released or unsubscribed from, if any. However, if any of these EIPs is already assigned to another user, it cannot be re-assigned to you.

  For details, see **Assigning a Specific EIP**.

Releasing a Pay-per-Use EIP

1. Go to the **EIP list** page.
2. 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.
3. Click **Yes** in the displayed dialog box.

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

You can also select multiple EIPs and choose **More** > **Release** above the list to release EIPs. Only pay-per-use EIPs can be released in batches.

Unsubscribing From a Yearly/Monthly EIP

1. Go to the **EIP list** page.
2. In the EIP list, locate the target EIP, and choose **More** > **Unsubscribe** in the **Operation** column. The unsubscription page is displayed.
3. Confirm the information and click **Confirm**. A confirmation dialog box is displayed.
4. Confirm the information and click **Yes**.

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

You can also select multiple EIPs and choose **More** > **Unsubscribe** above the list to release EIPs. Only yearly/monthly EIPs can be unsubscribed from in batches.

Scenarios Where EIPs Cannot Be Released or Unsubscribed from

- An EIP has been bound to an instance.

  Only EIPs that have no instances bound can be released or unsubscribed from. To release or unsubscribe from an EIP that has been bound to an instance, unbind it first. For details, see **Binding or Unbinding an EIP**.
- Yearly/Monthly EIPs

  Yearly/Monthly EIPs cannot be released. If you no longer need them, you can **unsubscribe** them.
- Frozen EIPs

  An EIP cannot be released or unsubscribed if its server is suspected of violations and the EIP is frozen by the national supervision department. For details, see **Why My EIPs Are Frozen? How Do I Unfreeze My EIPs?**

1.2.6 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. Go to the **EIP list** page.
2. 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.

1.2.7 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 1-4** lists the tag key and value requirements.

Table 1-4 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

Parameter	Requirement	Example Value
Value	• Can contain a maximum of 43 characters. • Can contain letters, digits, underscores (_), periods (.), and hyphens (-).	eip-01

Procedure

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

1. Go to the **EIP list** page.
2. 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. Go to the **EIP list** page.
2. On the displayed page, locate the EIP whose tags you want to manage and click the EIP name.
3. 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.
   - 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**.

1.2.8 EIP Configuration Examples

1.2.8.1 Binding a Premium BGP EIP to an ECS to Enable Internet Access

Scenarios

Premium BGP provides fast and high-quality public network lines between Chinese mainland and the rest of the world. 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 CN-Hong Kong.

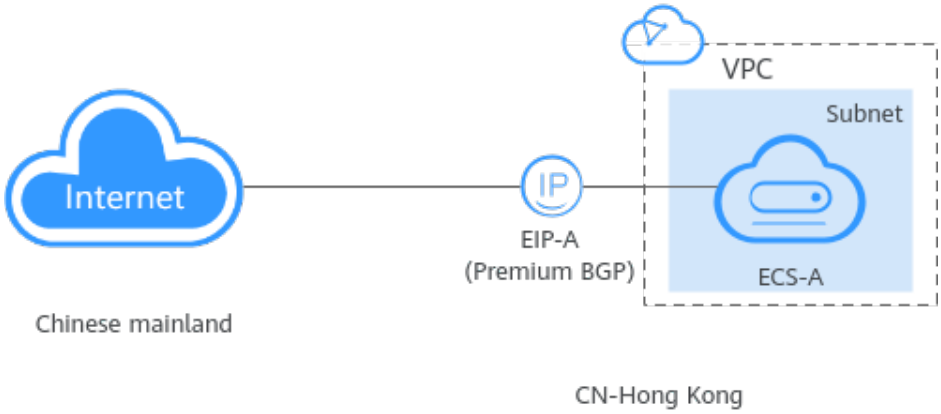
NOTE

- Bandwidths of the premium BGP type are available only in **CN-Hong Kong**.
- Premium BGP EIPs can be billed on a yearly/monthly or pay-per-use basis.
- Premium BGP bandwidths do not support shared data packages and bandwidth add-on packages.

Architecture

This document takes **Figure 1-7** as an example. Suppose you deploy your web application on an ECS in CN-Hong Kong and bind a premium BGP EIP to this ECS. And then users from the Chinese mainland can access your application faster through the optimal path.

Figure 1-7 Binding a premium BGP EIP to an ECS



In this example, ECS-A is deployed in CN-Hong Kong, and EIP-A is a premium BGP EIP in CN-Hong Kong. To bind EIP-A to ECS-A, you need to:

1. **Assign a premium BGP EIP.**
2. **Bind an EIP to an ECS.**

Constraints

- Each EIP can be bound to only one cloud resource and both should be in the same region.
- An EIP and its bound cloud resource can use different billing modes.

  For example, a yearly/monthly EIP can be bound to a pay-per-use ECS.

Step 1: Assign a Premium BGP EIP

1. Go to the **Buy EIP** page.
2. Set the parameters as prompted.
3. The values in **Table 1-5** are only examples for your reference. You can modify them as required.

Table 1-5 Parameter description

Item	Parameter	Description	Example Value
Basic Configuration	Billing Mode	You can select: • Yearly/Monthly • Pay-per-use	Yearly/Monthly
Basic Configuration	Region	The region where your EIP is deployed. In this example, select CN-Hong Kong.	CN-Hong Kong
Bandwidth Details	EIP Type	Premium BGP **NOTE** Premium BGP is available only in **CN-Hong Kong**.	Premium BGP
Bandwidth Details	Bandwidth (Mbit/s)	The bandwidth size in Mbit/s.	1
Bandwidth Details	Bandwidth Name	The name of the bandwidth.	bandwidth
DDoS Protection	DDoS Protection	Cloud Native Anti-DDoS Basic Cloud Native Anti-DDoS Basic provides up to a certain amount of DDoS mitigation capacity for free, for example, 500 Mbit/s. The actual thresholds are displayed on the console. If the attack to an EIP exceeds the threshold, the EIP will be blocked.	-
EIP Details	EIP Name (Optional)	The EIP name.	EIP-A
EIP Details	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 default project is **default**. For details about creating and managing enterprise projects, see the **Enterprise Management User Guide**.	default

Item	Parameter	Description	Example Value
EIP Details	IPv6 EIP (Optional)	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.	Enable
EIP Details	Tag	The EIP tags. Each tag contains a key and value pair. **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	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.	-
Purchase Details	Required Duration	How long you will use your EIP. The duration must be specified if the **Billing Mode** is set to **Yearly/Monthly**.	1 month

4. Click **Next**.
5. Confirm the information and click **Pay Now**.
6. On the order page, click **Confirm**.

Step 2: Bind an EIP to an ECS

1. In the EIP list, locate the target EIP, and click **Bind** in the **Operation** column.
2. Select the ECS and bind the EIP to it.

   NOTE

   If the ECS has an EIP bound to it, unbind that EIP from the ECS first.
3. Click **OK**.

1.2.8.2 Changing an EIP for an Instance

Scenarios

If you want to change an EIP for an ECS, a load balancer, a NAT gateway, or other cloud resources, you need to unbind the current EIP from the cloud resource first. Then, you can bind a new EIP to the cloud resource to enable Internet access for it.

Changing an EIP for a Cloud Resource

Figure 1-8 Process description

Table 1-6 Process description

No.	Procedure	Description
1	Unbind an EIP	After an EIP is unbound from a cloud resource, the cloud resource can have a new EIP bound for Internet access.
2	Assign a new EIP	If you already have an EIP that you require, skip this step.
3	Bind a new EIP	After a cloud resource has a new EIP bound, it can access the Internet using the new EIP.
4	Release the EIP that has been unbound	• If an unbound EIP still needs to be used, skip this step. • If an unbound EIP is no longer required, you can release it. If you do not release an unbound EIP, it will continue to be billed.

Scenario 1: Unbinding an EIP from an ECS and Binding a New EIP to the ECS

1. Unbind an EIP.
   a. Go to the **EIP list** page.
   b. 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.
   c. Click **Yes** in the displayed dialog box.
      In the EIP list, the target EIP has no associated instance.
2. Assign an EIP.

   NOTE

   If you already have an EIP that you require, skip this step.

   a. Go to the **EIP list** page.
   b. On the displayed page, click **Buy EIP**.
   c. Configure parameters as prompted.
   d. Click **Next**.
3. Bind the new EIP to the ECS.
   a. Go to the **EIP list** page.
   b. On the **EIPs** page, locate the target EIP, and click **Bind** in the **Operation** column.

c. Select the desired ECS.
d. Click **OK**.

4. Release the EIP that is unbound.

NOTE

If an unbound EIP is no longer required, you can release it. If you do not release an unbound EIP, it will continue to be billed.

a. Go to the **EIP list** page.
b. 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.

c. Click **Yes** in the displayed dialog box.

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

Scenario 2: Unbinding an EIP from a Load Balancer and Binding a New EIP to the Load Balancer

1. Assign an EIP by referring to **2**.

NOTE

If you already have an EIP that you require, skip this step.

2. Unbind an EIP from a load balancer and bind the new EIP to the load balancer.
   a. Go to the **load balancer list page**.
   b. On the displayed page, locate the row that contains the load balancer and click **More** in the **Operation** column.
      i. Unbinding an IPv4 EIP
         1) Click **Unbind IPv4 EIP**.
         2) In the displayed dialog box, confirm the IPv4 EIP that you want to unbind and click **OK**.
      ii. Binding an IPv4 EIP
         1) Click **Bind IPv4 EIP**.
         2) In the **Bind IPv4 EIP** dialog box, select the EIP you want to bind to the load balancer and click **OK**.
3. Release the EIP that was replaced. For details, see **4**.

NOTE

If an unbound EIP is no longer required, you can release it. If you do not release an unbound EIP, it will continue to be billed.

Scenario 3: Unbinding an EIP from a NAT Gateway and Binding a New EIP to the NAT Gateway

1. Assign an EIP by referring to **2**.

NOTE

If you already have an EIP that you require, skip this step.

2. Modify an SNAT rule.

   For details, see **Modifying an SNAT Rule**. In the EIP list, select the new EIP and deselect the existing EIP.

3. Modify a DNAT rule.

   For details, see **Modifying a DNAT Rule**. Select the newly assigned EIP.

4. Release the EIP that was replaced. For details, see **4**.

   NOTE

   If an unbound EIP is no longer required, you can release it. If you do not release an unbound EIP, it will continue to be billed.

1.2.8.3 Binding an EIP to the Extended Network Interface of an ECS to Enable Internet Access

Scenarios

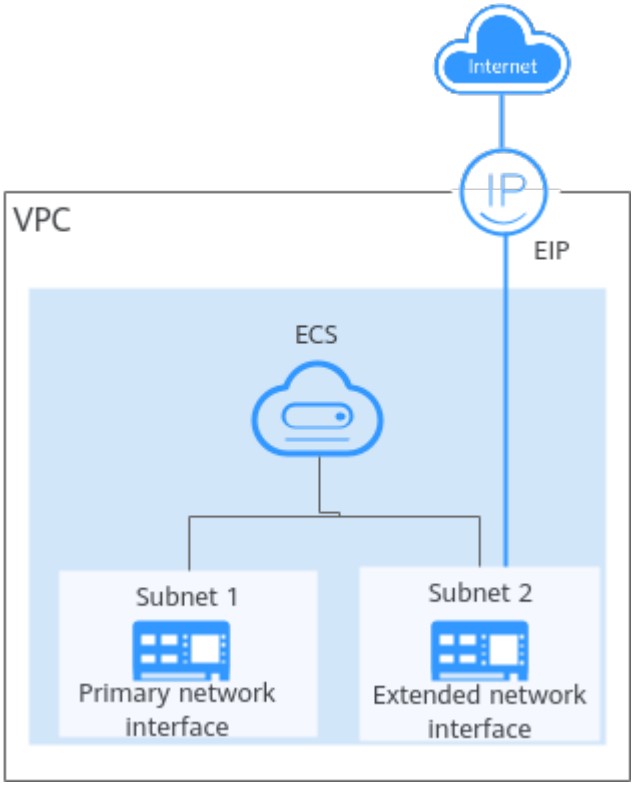
As shown in **Figure 1-9**, the ECS has two network interfaces, one primary network interface and one extended network interface. You can bind an EIP to the extended network interface of the ECS and configure policy-based routes to ensure that the ECS can access the Internet through the EIP.

This section uses a Linux ECS as an example.

CAUTION

- After the configuration, the ECS will access the Internet through the **EIP bound to the extended network interface** instead of the **EIP bound to the primary network interface**. The ECS will not be able to communicate with the Internet through the primary network interface, and the original network connection will be interrupted. Exercise caution when performing this operation.
- If you need to communicate with the Internet through both the primary and extended network interfaces, see **Configuring Policy-based Routes for an ECS with Multiple Network Interfaces**.

Figure 1-9 Accessing the Internet through the EIP bound to the extended network interface



Step 1: Create Cloud Resources and Attach an Extended Network Interface

1. Create a VPC and two subnets in the VPC.

   In this example, the primary and extended network interfaces of the ECS are in different subnets.

   For details, see **Creating a VPC and Subnet**.
2. Create an ECS in the VPC subnet.

   For details, see **Purchasing a Custom ECS**.
3. Create a network interface and attach it to the ECS as an extended network interface.

   When creating a network interface, select a different subnet from where the primary network interface is created. For details, see **Creating a Network Interface**.

   Attach the network interface to the ECS. For details, see **Attaching a Network Interface to a Cloud Server**.
4. Assign an EIP and bind it to the extended network interface of the ECS.

   For details, see **Assigning an EIP**.

   Bind the EIP to the extended network interface of the ECS. For details, see **Binding an EIP to a Network Interface**.

Step 2: Obtain the ECS Network Information

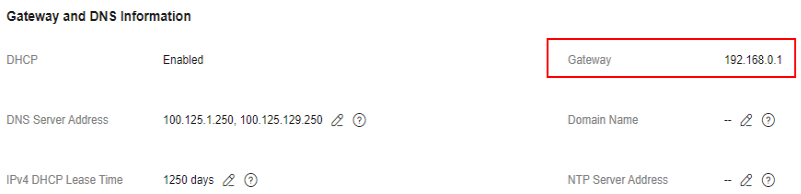
Before configuring policy-based routes for the extended network interface, you need to obtain the network information in **Table 1-7**.

Table 1-7 Required ECS network information

Item	Primary Network Interface	Extended Network Interface
Private IP address of the network interface	192.168.11.42	192.168.17.191
Subnet gateway address	192.168.11.1	192.168.17.1

1. Obtain the private IP addresses of the ECS's network interfaces.
   a. Go to the **ECS list** page.
   b. In the ECS list, locate the target ECS and click its name.
      The **Summary** tab page of the ECS is displayed.
   c. Click the **Network Interfaces** tab and view the private IP addresses of the primary and extended network interfaces of the ECS.
2. Obtain the gateway address of the subnet.
   a. Go to the **ECS list** page.
   b. In the ECS list, locate the target ECS and click its name.
      The **Summary** tab page of the ECS is displayed.
   c. In the **ECS Information** area, click the VPC name.
      The **Virtual Private Cloud** page is displayed.
   d. In the VPC list and click the number in the **Subnets** column.
      The **Subnets** page is displayed.
   e. In the subnet list, click the subnet name.
      The **Summary** page is displayed.
   f. In the **Gateway and DNS Information** area, view the gateway address of the subnet.

   Figure 1-10 Viewing the gateway address of the subnet



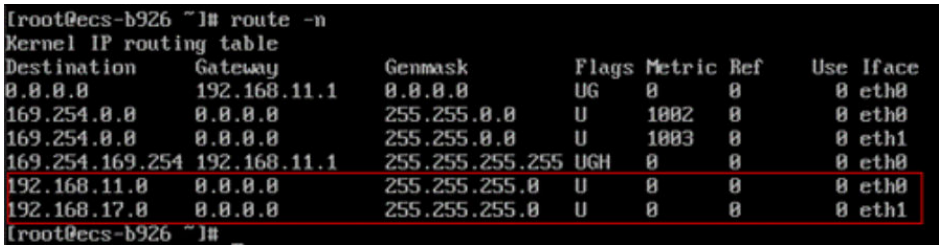
Step 3: Configure Policy-based Routes for the Extended Network Interface

1. ECS Remotely log in to the ECS.
   For details, see **How Do I Log In to My ECS?**
2. Run the following command to query the route information of the network interface:

route -n

The following figure is displayed. In this figure:

- The destination of the route for the primary network interface is 192.168.11.0/24.
- The destination of the route for the extended network interface is 192.168.17.0/24.

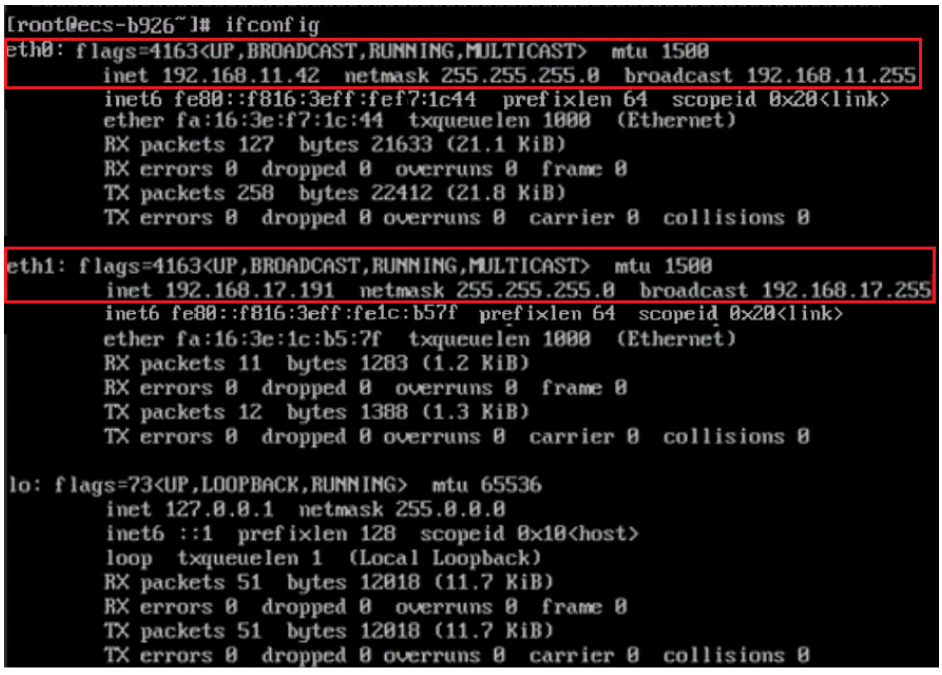


3. Run the following command to query the network interface names of the ECS:

   ifconfig

   The following figure is displayed. Search for the network interface name based on the network interface address. In this figure:

   - 192.168.11.42 is the IP address of the primary network interface, and the network interface name is eth0.
   - 192.168.17.191 is the IP address of the extended network interface, and the network interface name is eth1.



4. Configure the default route for the ECS so that it can access the Internet through the extended network interface.

   a. Run the following command to delete the default route of the primary network interface:

      route del -net 0.0.0.0 gw *<subnet-gateway-IP-address>* **dev** *<network interface-name>*

The parameters are described as follows:

- 0.0.0.0: destination IP address, indicating that multiple IP addresses are matched. Do not change the value.
- Subnet gateway IP address: Enter the subnet gateway address of the primary network interface collected in section **Table 1-7**.
- Network interface name: Enter the name of the primary network interface obtained in **3**.

Example command:

route del -net 0.0.0.0 gw 192.168.11.1 dev eth0

CAUTION

This operation will interrupt the ECS traffic. Ensure that services will not be affected before deleting the default route of the primary network interface.

b. Run the following command to configure the default route for the extended network interface:

route add default gw *Subnet-gateway-IP-address*

The parameters are described as follows:

Subnet gateway IP address: Enter the subnet gateway address of the extended network interface collected in section **Table 1-7**.

Example command:

route add default gw 192.168.17.1

5. Verify network connectivity.

Run the following command to check whether the ECS can access the Internet:

ping *Public-IP-address-or-domain-name*

Example command:

ping support.huaweicloud.com

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

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

1.3 IPv6 EIP

1.3.1 IPv6 EIP Overview

Overview

Both IPv4 and IPv6 EIPs are available. You can 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.

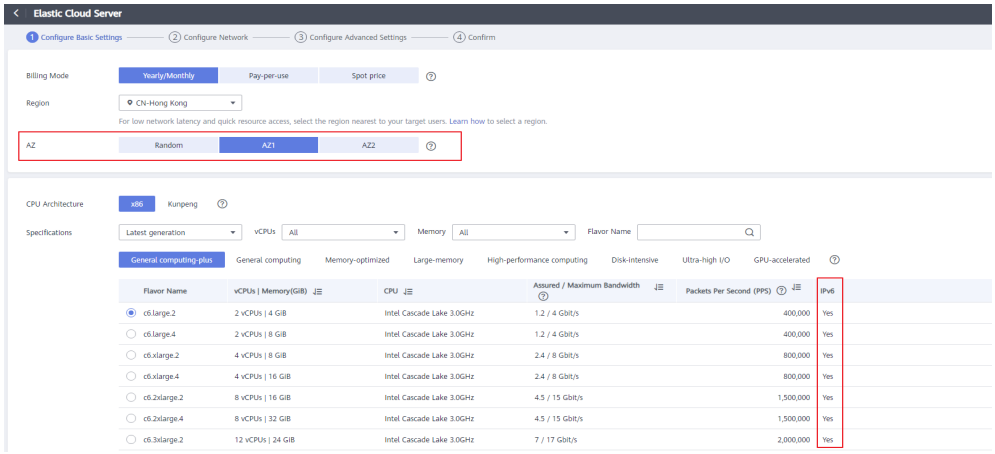
IPv4 EIPs are billed. IPv6 EIPs are currently free, but will be billed at a later date (price yet to be determined).

Application Scenarios of IPv4/IPv6 Dual Stack

If your ECS supports IPv6, you can use the IPv4/IPv6 dual stack. For details about application scenarios and resource planning, see **Table 1-8**.

The ECS flavors that support IPv6 vary depending on regions and AZs. Check whether an ECS flavor supports IPv6 after you select a region and AZ on the management console.

Figure 1-11 Checking whether an ECS flavor supports IPv6



If the value of **IPv6** is **Yes** for an ECS flavor, the flavor supports IPv6.

NOTE

AZ and **Flavor** determine whether IPv6 is supported.

After you select an AZ, if **IPv6** is not displayed or the value of **IPv6** is **No**, IPv6 is not supported by any or certain flavors in the AZ.

Table 1-8 Application scenarios of IPv4/IPv6 dual stack

Applicable 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.
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.

Applicable 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 **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.

Applicable 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 **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

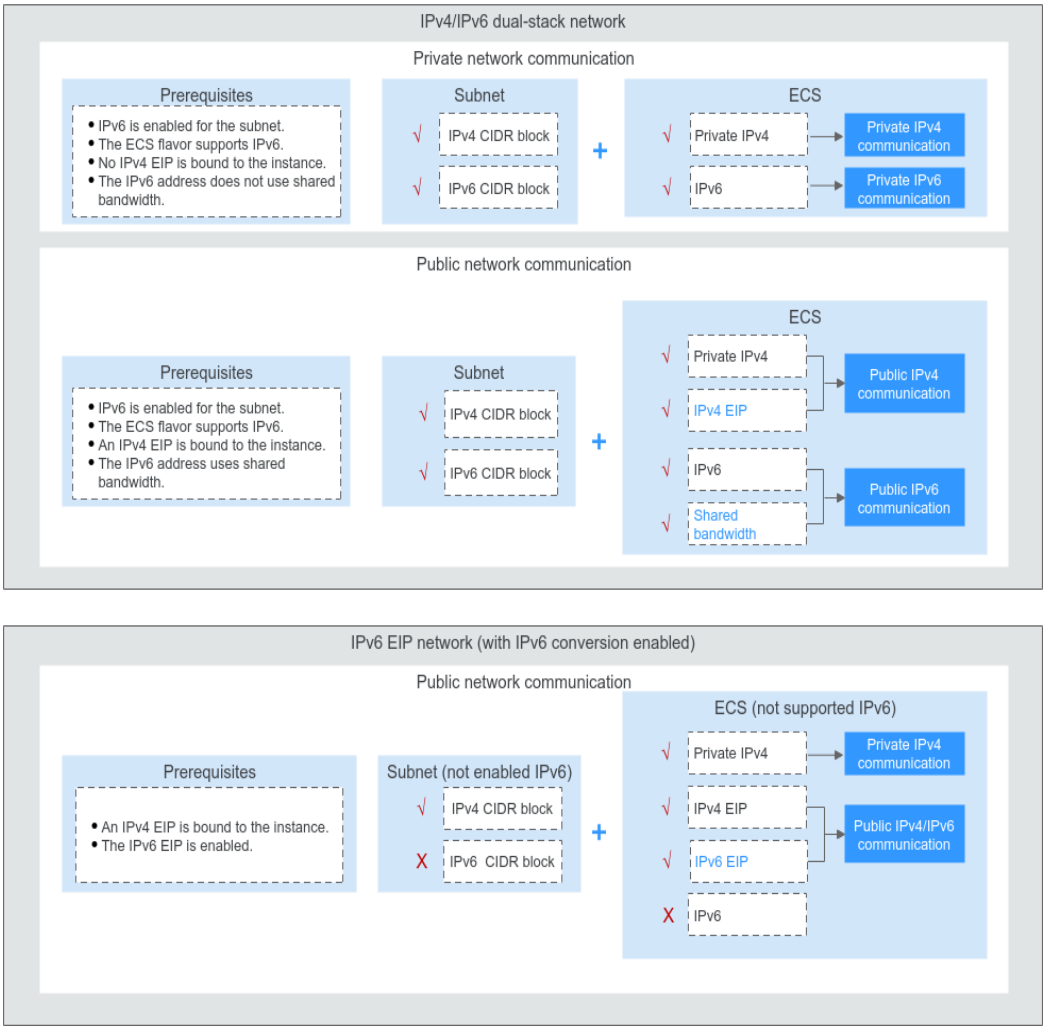
quickly address your requirements. For details about application scenarios and resource planning, see **Table 1-9**.

Table 1-9 Application scenarios and resource planning of an IPv6 EIP network (with IPv6 EIP enabled)

Applicable 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.	• EIPs have been bound to the ECSs. • 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.

Application Scenarios and Resource Planning of IPv6 Networks

Figure 1-12 Application scenarios and resource planning of IPv6 networks



1.3.2 Enabling or Disabling IPv6 EIP

Scenarios

If your applications deployed on an ECS need to provide services through IPv6 addresses but the ECS does not support IPv6 networks and you do not want to build an IPv6 network either, you can use the IPv6 EIP function to quickly meet your requirements.

Enabling IPv6 EIP

- Method 1:

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

  After the IPv6 EIP function 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:

  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 function 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

- Only dynamic BGP EIPs support the IPv6 EIP function.
- There is no adverse impact on the cloud resources bound with existing IPv4 EIPs.

Configuring Security Groups

After the IPv6 EIP function is enabled, you need to configure security group rules to allow traffic to and from 198.19.0.0/16. For details about the security group rules, see **Table 1-10**. 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 1-10 Security group rules

Direction	Protocol	Source/Destination
Inbound	All **NOTE** Configure as required.	Source: 198.19.0.0/16
Outbound	All	Destination: 198.19.0.0/16

Disabling IPv6 EIP (Releasing an IPv6 EIP)

If you do not need an IPv6 EIP anymore, do as follows:

1. Configure security group rules to deny traffic to and from 198.19.0.0/16.
2. In the EIP list, locate the row that contains its corresponding IPv4 EIP, click **More** in the **Operation** column, and click **Disable IPv6 EIP**. Then, the IPv6 EIP will also be released.

You will only have the IPv4 EIP.

1.4 EIP Billing

1.4.1 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 1-11 describes the details of changing EIP billing modes.

Table 1-11 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.

Change	Description
• 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)**
- **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: Billing Change Between By Traffic and By Bandwidth**

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

1. Go to the **EIP list** page.
2. 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 upon Expiration** in the **Operation** column.
   - Multiple EIPs:

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

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

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

1. Go to the **EIP list** page.
2. 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.
3. In the displayed dialog box, confirm the information and click **Yes**.

You are switched to a page of the Billing Center.

4. Confirm the information and click **Change to Pay-per-Use**.

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

1. Go to the **EIP list** page.
2. 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.
3. In the displayed dialog box, confirm the information and click **Yes**.
4. On the **Change Subscriptions** page, set parameters such as **Renewal Duration**.
5. Click **Pay**.

Pay-per-Use EIPs: Billing Change Between By Traffic and By Bandwidth

1. Go to the **EIP list** page.
2. In the EIP list, locate the row that contains the EIP, click **More** in the **Operation** column, and click **Modify Bandwidth**.
3. On the **Modify Bandwidth** page, change the billing option as prompted.

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

1.4.2 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. Go to the **EIP list** page.
2. 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**.

3. 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.
4. Click **Pay**.

1.4.3 Viewing the EIP Billing Information

Scenarios

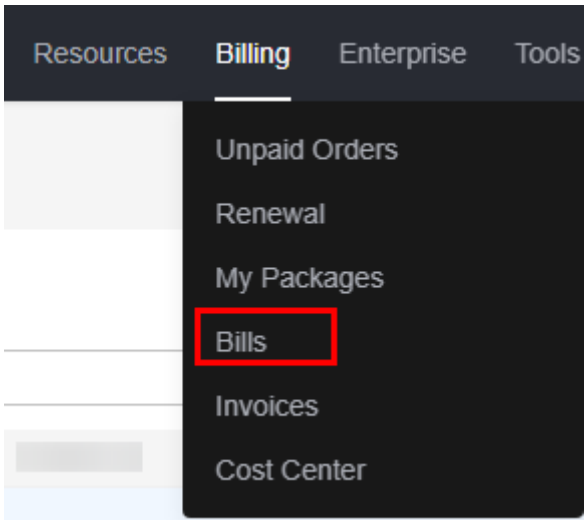
This section describes how to view the billing details of EIPs and their bandwidths.

To view the bandwidth usage, see **Monitoring EIPs**.

Procedure

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

Figure 1-13 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.

1.5 EIP Pool

1.5.1 EIP Pool Overview

An EIP pool helps you manage a large number of EIPs and assigns EIPs with dynamic BGP routing, ensuring network stability and optimal user experience. The price of an EIP pool is subject to that displayed on the EIP pool console.

Notes and Constraints

- The billing mode of an EIP from an EIP pool cannot be changed to yearly/monthly.

EIP Pool Billing

EIP pools are billed on a yearly/monthly basis. A yearly/monthly EIP pool is billed based on your purchased duration and the EIP quota you have specified. If your EIP is allocated from an EIP pool, you only need to pay for the bandwidth associated with the EIP.

You can renew a yearly/monthly EIP pool on the console anytime before it is automatically released.

1.5.2 Purchasing an EIP Pool

Scenarios

EIP pools can only be billed on a yearly/monthly basis. The price of an EIP pool is subject to that displayed on the EIP pool console. You can purchase multiple EIP pools.

EIPs allocated from EIP pools do not occupy your EIP quota.

Procedure

1. In the upper right corner, click **Buy EIP Pool**.
2. Set the parameters as prompted.

Table 1-12 Parameter description

Item	Parameter	Description	Example Value
Basic Configuration	Billing Mode	The billing mode of the EIP pool. EIP pools are billed on a yearly/monthly basis.	Yearly/Monthly

Item	Parameter	Description	Example Value
Basic Configuration	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 to your target users.	-
EIP Pool	EIP Type	Dynamic BGP Pool	Dynamic BGP Pool
EIP Pool	EIP Quota	The number of EIPs in the EIP pool. An EIP pool assigns EIPs with dynamic BGP routing, ensuring network stability and optimal user experience. You can assign EIPs within the EIP quota configured for the EIP pool.	50
Basic Information	Name	The name of the EIP pool. The name is 1–36 characters long and can contain only letters, digits, underscores (_), hyphens (-), and periods (.).	eipPool-test
Basic Information	Description	Supplementary information about the EIP pool. This parameter is optional. The description can contain a maximum of 255 characters and cannot contain angle brackets (<>).	-
Basic Information	Required Duration	Required duration of the EIP pool. Plan the required duration as required because an EIP pool cannot be unsubscribed from.	3 months

Item	Parameter	Description	Example Value
Basic Information	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 purchase duration. • Monthly subscription: The subscription is renewed every month. • Yearly subscription: The subscription is renewed each year.	-

3. Click **Next**.

Related Operations

If you need to buy pay-per-use EIPs, you can select the EIP pool to assign EIPs. For details, see **Assigning an EIP**.

If your EIP is allocated from an EIP pool, you only need to pay for the bandwidth associated with the EIP.

1.5.3 Managing EIP Pools

Scenarios

You can perform the following operations to manage your EIP pools:

- **Modifying the Quota of EIPs in an EIP Pool**
- **Renewing an EIP Pool**
- **Unsubscribing From an EIP Pool**

Modifying the Quota of EIPs in an EIP Pool

1. Go to the **EIP pool list page**.
2. Locate the row that contains the EIP pool to be modified and click **Modify** in the **Operation** column. On the displayed **Modify EIP Pool** page, modify the EIP quota.

   You can decrease or increase the quota as required. The change is applied immediately.

   - Decreasing the EIP quota
     i. Select or enter a lower quota and click **Next**.
     ii. Confirm the configuration and submit your request.
   - Increasing the EIP quota

i. Select or enter a higher quota and click **Next**.
ii. Confirm the configuration and click **Pay Now**.
iii. On the payment page, select a payment method and click **Confirm**.

Renewing an EIP Pool

1. Go to the **EIP pool list page**.
2. Locate the EIP pool to be renewed and click **Renew** in the **Operation** column.
3. On the **Renew** page, set the renewal duration.
4. Set **Renewal Date**.

   The new renewal date may extend the subscription based on the current subscription. You can check the renewal information in the table on the **Renew** page.
5. On the payment page, confirm the order information and click **Confirm**.

Unsubscribing From an EIP Pool

1. Go to the **EIP pool list page**.
2. Locate the EIP pool you want to unsubscribe from and click **Unsubscribe** in the **Operation** column.
3. On the **Unsubscribe from Resource** page, click **Confirm**.

1.6 Shared Bandwidth

1.6.1 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.

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.

NOTE

- After **QoS** is enabled, you can configure the bandwidth limits for each EIP that uses the shared bandwidth.

Advantages

- 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.

Methods of Using a Shared Bandwidth

You can use the shared bandwidth in either of the two ways shown in the following table.

Table 1-13 Methods of using a shared bandwidth

Description	Step
Method 1: Assign a shared bandwidth and add your pay-per-use EIPs to the bandwidth.	1. **Assigning a Shared Bandwidth** 2. **Adding EIPs to or Removing EIPs from a Shared Bandwidth**
Method 2: Assign a shared bandwidth, set **Billed By** to **Shared Bandwidth** and select the shared bandwidth when you assign pay-per-use EIPs.	1. **Assigning a Shared Bandwidth** 2. **Assigning an EIP**

QoS

With QoS enabled, you can configure bandwidth limits for each EIP that uses the shared bandwidth. The bandwidth of each EIP is guaranteed and will not affect the other EIPs that use the same shared bandwidth, improving the shared bandwidth utilization. The minimum bandwidth of the EIP that uses a shared bandwidth can be configured when the shared bandwidth is congested. The maximum bandwidth of the EIP that uses a shared bandwidth can be reached only when the shared bandwidth is not used by any other EIP. The maximum bandwidth cannot exceed the shared bandwidth.

This function supports both IPv4 and IPv6 EIPs. QoS can be enabled only when the shared bandwidth is greater than or equal to 50 Mbit/s. For details about QoS, see **QoS**.

QoS applies to the following scenarios:

- After you migrate services to the cloud, you want to allocate bandwidth to each department in a unified manner, implementing proper allocation of bandwidth resources.
- The peak hours of multiple services are different, and you want to limit the bandwidth of all EIPs that use the same shared bandwidth to ensure efficient use of bandwidth resources.
- If some services are attacked and occupy too much bandwidth, you need to limit the bandwidth to prevent other services from being affected.

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.

- A maximum of 20 EIPs that are billed on a pay-per-use basis can be added to a shared bandwidth. If you want to add more EIPs to a shared bandwidth, 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

- A shared bandwidth can only be used by resources from its same account.
- 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.

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**.

Related Operations

- **Adding EIPs to or Removing EIPs from a Shared Bandwidth**: After a shared bandwidth is assigned, you can add multiple pay-per-use EIPs to it so that all EIPs share the same bandwidth.
- **Modifying a Shared Bandwidth**: You can change the size of the shared bandwidth you have assigned.

1.6.2 Assigning a Shared Bandwidth

Scenarios

When you host a large number of applications on the cloud, if each EIP uses a 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. Go to the **Buy Shared Bandwidth** page.
2. Set the parameters as prompted.

Table 1-14 Description

Module	Parameter	Description	Example Value
Basic Configuration	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 to you.	CN-Hong Kong
Basic Configuration	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
Basic Configuration	Name	The name of the shared bandwidth.	Bandwidth-001
Basic Configuration	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

Module	Parameter	Description	Example Value
Bandwidth Details	Bandwidth Type	Select a type of the shared bandwidth based on your EIP type. • **Standard**: Dynamic BGP and static 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
Bandwidth Details	Billed By	The billing method for the shared bandwidth. You can specify a shared bandwidth to be billed by bandwidth, 95th percentile bandwidth (enhanced). **NOTE** • 95th percentile bandwidth (enhanced) can be selected only when **Billing Mode** is set to **Pay-per-use**. • Only customers with a level of V4 or higher can use the enhanced 95th percentile bandwidth billing. Enhanced 95th percentile bandwidth billing is based on average monthly bandwidth usage excluding peak traffic values. The charges will be deducted from your account balance on a monthly basis. You can specify the guaranteed minimum bandwidth by setting the bandwidth size and the minimum bandwidth percentage. If the monthly peak bandwidth is less than or equal to the guaranteed minimum bandwidth, you will be billed based on the guaranteed minimum bandwidth. If the monthly peak bandwidth is greater than the guaranteed minimum bandwidth, you will be billed based on the monthly peak bandwidth. • If the enhanced 95th percentile bandwidth billing is used, the minimum shared bandwidth is 300 Mbit/s. For more information, see **95th Percentile Bandwidth Billing (Enhanced)**.	Bandwidth

Module	Parameter	Description	Example Value
Bandwidth Details	Bandwidth (Mbit/s)	The bandwidth size in Mbit/s. The minimum value is 5 Mbit/s.	10
Bandwidth Details	QoS	After QoS is enabled, you can configure the bandwidth limits for each EIP that uses the shared bandwidth. This makes sure each EIP gets enough bandwidth and uses it better. Configuring bandwidth limits for EIPs is free of charge. For details, see **QoS**.	N/A
Required Duration	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
Required Duration	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.	N/A

3. Click **Next**.
4. Confirm the configurations.
   - If you set **Billing Mode** to **Pay-per-Use**, click **Submit**.
   - If you set **Billing Mode** to **Yearly/Monthly**, click **Pay Now**.
     On the payment page, confirm the order information and click **Confirm**.

Related Operations

- **Adding EIPs to or Removing EIPs from a Shared Bandwidth**: After a shared bandwidth is assigned, you can add multiple pay-per-use EIPs to it so that all EIPs share the same bandwidth.
- **Modifying a Shared Bandwidth**: You can change the size of the shared bandwidth you have assigned.

1.6.3 Adding EIPs to or Removing EIPs from a Shared Bandwidth

Scenarios

You can add multiple EIPs to a shared bandwidth or remove EIPs that are no longer required from a shared bandwidth.

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

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.

Adding EIPs to a Shared Bandwidth

1. Go to the **shared bandwidth list** page.
2. 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**.
3. On the **Add Public IP Address** page, select the EIPs or IPv6 addresses to be added.

   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.
   - EIPs already in other shared bandwidths can be selected when adding EIPs to a shared bandwidth. Adding an EIP to a new shared bandwidth automatically removes it from the original one.
4. Click **OK**.

Removing EIPs from a Shared Bandwidth

1. Go to the **shared bandwidth list** page.
2. In the shared bandwidth list, locate the row that contains the bandwidth from which EIPs are to be removed, choose **More** > **Remove Public IP Address** in the **Operation** column.
3. On the **Remove Public IP Address** page, select the EIPs or IPv6 addresses to be removed.
4. Set the EIP bandwidth after the EIP is removed. You can configure the EIP billing mode and bandwidth size.
5. 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?

1.6.4 Modifying a Shared Bandwidth

Scenarios

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

- 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)**.
- You can perform the following operations on a yearly/monthly shared bandwidth:
  - **Increasing a Shared Bandwidth (Yearly/Monthly)**: The change will be applied immediately and the price difference will be billed accordingly.
  - **Decreasing a Shared Bandwidth (Yearly/Monthly) Immediately**: The change will be applied immediately.
  - **Decreasing a Shared Bandwidth (Yearly/Monthly)**: The change will be applied 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. Go to the **shared bandwidth list** page.
2. 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.
3. Select "I acknowledge the price change and agree to proceed" and click **Submit**.

   The modification takes effect immediately.

Increasing a Shared Bandwidth (Yearly/Monthly)

1. Go to the **shared bandwidth list** page.
2. In the shared bandwidth list, locate the row that contains the target shared bandwidth, and click **Modify Bandwidth** in the **Operation** column.
3. Select **Increase bandwidth** and click **Continue**.
4. In the **New Configuration** area on the **Modify Bandwidth** page, change the bandwidth size.
5. Select "I acknowledge the price change and agree to proceed" and click **Pay Now**.

   After you complete the payment, the change will be applied immediately.

Decreasing a Shared Bandwidth (Yearly/Monthly) Immediately

1. Go to the **shared bandwidth list** page.
2. In the shared bandwidth list, locate the target shared bandwidth, and click **Modify Bandwidth** in the **Operation** column.

3. Select **Decrease bandwidth immediately** and click **Continue**.
4. In the **New Configuration** area on the **Modify Bandwidth** page, change the bandwidth size.
5. Select "I acknowledge the price change and agree to proceed" and click **Submit**.

   After you complete the payment, the change will be applied immediately.

Decreasing a Shared Bandwidth (Yearly/Monthly)

1. Go to the **shared bandwidth list** page.
2. In the shared bandwidth list, locate the row that contains the target shared bandwidth, and click **Modify Bandwidth** in the **Operation** column.
3. Select **Decrease bandwidth** and click **Continue**.
4. In the **New Configuration** area on the **Modify Bandwidth** page, change the bandwidth size.
5. Select "I acknowledge the price change and agree to proceed" and click **Pay Now**.

   After you complete the payment, the change will be applied in the first billing cycle after the current subscription ends.

1.6.5 Deleting or Unsubscribing from a Shared Bandwidth

Scenarios

You can delete a pay-per-use shared bandwidth or unsubscribe from a yearly/monthly shared bandwidth if it is no longer needed. This section describes how to delete or unsubscribe from a shared bandwidth.

Notes and Constraints

If you want to delete or unsubscribe from a shared bandwidth with EIPs added, you have to **remove the EIPs from the shared bandwidth** first.

Deleting a Pay-per-Use Shared Bandwidth

1. Go to the **shared bandwidth list** page.
2. 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**.
3. Confirm the deletion as prompted. Click **OK**.

Unsubscribing from a Yearly/Monthly Shared Bandwidth

1. Go to the **shared bandwidth list** page.
2. In the shared bandwidth list, locate the row that contains the yearly/monthly shared bandwidth you want to delete, click **More** in the **Operation** column, and then click **Delete**. The unsubscription page is displayed.
3. Confirm the information and click **Confirm**. A confirmation dialog box is displayed.

4. Confirm the information and click **Yes**.

   Return to the shared bandwidth list and check whether the target shared bandwidth is unsubscribed from.

1.6.6 Exporting Shared Bandwidths

Scenarios

You can export all your shared bandwidth as an Excel file to a local directory. The Excel records the name, status, ID, type, size, and EIP of the shared bandwidth.

Procedure

1. Go to the **shared bandwidth list** page.
2. 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.

1.6.7 QoS

Scenarios

You can enable or disable QoS as required. You can configure or cancel bandwidth limits for each EIP using a shared bandwidth.

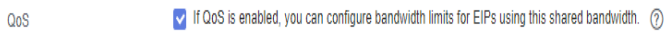
Notes and Constraints

- QoS can only be enabled when the shared bandwidth is at least equal to 50 Mbit/s.
- The maximum guaranteed bandwidth can be 2000 Mbit/s.
- The sum of guaranteed bandwidths that you configured for the EIPs in a shared bandwidth cannot exceed the shared bandwidth.
- If the size of a shared bandwidth is changed, for example, its bandwidth add-on package expires or the shared bandwidth is decreased, the guaranteed bandwidth and the maximum bandwidth of the EIPs that use the shared bandwidth may be affected.
- The bandwidth limit will be disabled when the bandwidth add-on package used by the shared bandwidth expires.

Enabling QoS

- Assign a shared bandwidth by referring to **Assigning a Shared Bandwidth** and select the **QoS** option.

  Figure 1-14 Selecting the QoS option

- In the shared bandwidth list, locate the row that contains the shared bandwidth, click **More** in the **Operation** column, and click **Enable QoS**.

Disabling QoS

In the shared bandwidth list, locate the target shared bandwidth, click **More** in the **Operation** column, and click **Disable QoS**.

Configuring or Canceling Bandwidth Limits

1. Go to the **shared bandwidth list** page.
2. In the shared bandwidth list, click the name of the target shared bandwidth.
3. On the **EIPs** or **IPv6 Addresses** tab page, configure or cancel bandwidth limits as required.
   - **Configuring bandwidth limit**
     i. Locate the target EIP or IPv6 address and click **Configure Bandwidth Limit** in the **Operation** column.
     ii. Set **Guaranteed Bandwidth** and **Maximum Bandwidth**.
     iii. Click **OK**.
   - **Canceling bandwidth limit**
     i. Locate the target EIP or IPv6 address and click **Cancel Bandwidth Limit** in the **Operation** column.
     ii. Click **OK**.

1.7 Resource Package

1.7.1 Resource Package Overview

Resource packages are prepaid resources that you can purchase to save money. A resource package takes effect immediately once it is purchased. It cannot be used upon expiration and cannot be extended. A resource package is suspended when it is used up. Purchase a new resource package if you want to continue using it.

For details about how to reduce costs, see **Lower Network Costs**.

Shared Data Package

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. Yearly packages are more cost effective. If you have multiple shared data packages, the one that expires first 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.

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 anymore.
- Shared data packages can only be used by pay-per-use dedicated bandwidth billed by traffic. Two types of shared data packages are available: dynamic BGP (for dynamic BGP bandwidth) and static BGP (for static 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.

Related Operations

Viewing the Usage Details and Configuring Remaining Usage Alerts: View the usage of a shared data package and configure remaining usage alerts.

1.7.2 Shared Data Package

1.7.2.1 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.

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. Go to the **Buy Shared Data Package** page.
2. Set the parameters as prompted.

Table 1-15 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

3. Click **Next**.
4. Confirm the configurations and click **Submit**.
5. On the payment page, confirm the order information and click **Confirm**.

Related Operations

Viewing the Usage Details and Configuring Remaining Usage Alerts: Viewing the usage of a shared data package and configuring remaining usage alerts are supported.

1.7.2.2 Viewing the Usage Details and Configuring Remaining Usage Alerts

Scenarios

Viewing the Usage of a Shared Data Package and **Configuring Remaining Usage Alerts** are supported. After a remaining usage alert is configured, you can receive notifications via 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, preventing 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.

Viewing the Usage of a Shared Data Package

1. Go to the **shared data package list** page.
2. In the **Usage/Total** column of the target shared data package, view the shared data usage and the total amount.

Configuring Remaining Usage Alerts

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**.

1.8 Cloud Eye Monitoring

1.8.1 Monitoring EIPs

Scenario

Cloud Eye is a multi-dimensional resource monitoring service that you can use to monitor EIP and bandwidths in real time, set alarm rules, identify resource exceptions, and quickly respond to resource changes.

Cloud Eye is enabled automatically after an EIP is assigned. For more information about Cloud Eye, see **What Is Cloud Eye?**

Setting an Alarm Rule

You can configure alarm rules on the Cloud Eye console to send you notifications in case of exceptions.

For details about how to create alarm rules, see **Creating an Alarm Rule**.

Viewing Metrics

1. Log in to the **Cloud Eye console**.
2. In the navigation pane, choose **Cloud Service Monitoring**.

   On the **Cloud Service Monitoring** page, click **Virtual Private Cloud VPC** in the **Dashboard** column and go to the **Details** page.
3. Select **Elastic IPs** or **Bandwidths** as required to view detailed data.

NOTE

If you select **Elastic IPs**, you can search for an EIP by IPv4 or IPv6 address to quickly locate and view the monitoring details of the EIP.

4. On the **Overview** tab, perform the following operations:
   a. View information under **Resource Overview**, **Alarm Statistics**, and **Key Metrics**. For details, see **Table 1-16**.

      Table 1-16 Three modules on the **Overview** tab

Module	Description
Resource Overview	You can view the resource data of the current cloud service in the current dimension, including **Total Resources**, **Resources in Alarm**, and **Resources in Alarm in the Last 7 Days**.
Alarm Statistics	You can view the total number of alarms in the last seven days, alarms of different severities (critical, major, minor, and informational), top 5 instances by total alarms, and top 5 resource groups by total alarms.
Key Metrics	You can view monitoring details of key metrics recommended by the cloud service.

   b. In the upper left corner of the **Details** page, select **Resources** to view corresponding monitoring details or select another cloud service to switch to its dashboard.
5. On the **Resources** tab, perform the following operations:
   - Click **Export Data** to export cloud service monitoring data. For details, see **How Can I Export Monitoring Data?**
   - Locate an instance and click **View Metric** to view the instance metrics and HTTP status codes.
   - Locate an instance and choose **More** > **Create Alarm Rule** to create an alarm rule for the instance. For details about the parameters, see **Setting an Alarm Rule**.
   - Locate an instance and choose **More** > **View Alarm Rule** to view the alarm rules created for the instance.

Related Operations

You can enable batch notification policy setting as required and select existing notification policies. For details about how to create a notification policy, see **Creating a Notification Policy**.

1.8.2 Monitoring Metrics

Overview

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 1-17 EIP and bandwidth metrics

ID	Name	Description	Value Range	Unit	Conversion Rule	Monitored Object (Dimension)	Monitoring Interval (Raw Data)
upstream_bandwidth	Outbound Bandwidth	Network rate of outbound traffic (Previously called "Upstream Bandwidth")	≥ 0	bit/s	1000 (SI)	Bandwidth or EIP	1 minute
downstream_bandwidth	Inbound Bandwidth	Network rate of inbound traffic (Previously called "Downstream Bandwidth")	≥ 0	bit/s	1000 (SI)	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	0-100	%	N/A	Bandwidth or EIP	1 minute

ID	Name	Description	Value Range	Unit	Conversion Rule	Monitored Object (Dimension)	Monitoring Interval (Raw Data)
up_stream	Outbound Traffic	Network traffic going out of the cloud platform (Previously called "Upstream Traffic")	≥ 0	Byte	1000 (SI)	Bandwidth or EIP	1 minute
down_stream	Inbound Traffic	Network traffic going into the cloud platform (Previously called "Downstream Traffic")	≥ 0	Byte	1000 (SI)	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.

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"
}
],

1.8.3 EIP Events That Can Be Monitored

Function Description

On Cloud Eye, you can use event monitoring for data collection, query, and alarm reporting. You can create alarm rules for both system events and custom events. When there are specified events, you will receive alarm notifications.

Namespace

SYS.EIP

EIP Events That Can Be Monitored

Table 1-18 EIP events

Event Source	Namespace	Event Name	Event ID	Event Severity	Description	Solution	Impact
EIP	SYS.EIP	EIP bandwidth overflow	EIPBandwidthOverflow	Major	The used bandwidth exceeded the purchased one, so the network may become slow or packets may be lost. The event value reflects the peak in a monitoring period, and the value of the EIP inbound and outbound bandwidth is taken from a specific point within that period. • **egressDropBandwidth**: dropped outbound packets (bytes) • **egressAcceptBandwidth**: accepted outbound packets (bytes) • **egressMaxBandwidthPerSec**: peak outbound bandwidth (byte/s) • **ingressAcceptBandwidth**: accepted inbound packets (bytes) • **ingressMaxBandwidthPer-Sec**: peak inbound bandwidth (byte/s) • **ingressDropBandwidth**: dropped inbound packets (bytes) **NOTE** The **EIP bandwidth overflow** event is available only in certain regions. You can check the regions on the console.	Check whether the used EIP bandwidth keeps increasing and whether services are normal. Increase the bandwidth if necessary.	The network becomes slow or packets are lost.

EventSource	Namespace	Event Name	EventID	EventSeverity	Description	Solution	Impact
		Delete EIP	deleteEip	Minor	The EIP was released.	Check whether the EIP was released by mistake.	The resource cannot access the Internet.
		EIP blocked	blockEIP	Critical	The used bandwidth of an EIP exceeded 5 Gbit/s, so the EIP was blocked and packets were discarded. Such an event may be caused by DDoS attacks.	Replace the EIP to prevent services from being affected. Locate and deal with the fault.	Services are impacted.
		EIP unblocked	unblockEIP	Critical	The EIP was unblocked.	Use the previous EIP to save resources.	None
		Start DDoS traffic scrubbing	ddosCleanEIP	Major	Traffic scrubbing on the EIP was started to prevent DDoS attacks.	Check whether the EIP was attacked.	Services may be interrupted.

Event Source	Namespace	Event Name	Event ID	Event Severity	Description	Solution	Impact
		Stop DDoS traffic scrubbing	ddosEndCleanEip	Major	Traffic scrubbing on the EIP to prevent DDoS attacks was ended.	Check whether the EIP was attacked.	Services may be interrupted.
		Enterprise-class QoS bandwidth limit exceeded	EIPBandwidthRuleOverflow	Major	The allocated QoS bandwidth was exceeded, which may slow down the network or cause packet loss. The event value reflects the peak in a monitoring period, and the value of the EIP inbound and outbound bandwidth is taken from a specific point within that period. • **egressDropBandwidth**: dropped outbound packets (bytes) • **egressAcceptBandwidth**: accepted outbound packets (bytes) • **egressMaxBandwidthPerSec**: peak outbound bandwidth (byte/s) • **ingressAcceptBandwidth**: accepted inbound packets (bytes) • **ingressMaxBandwidthPer-Sec**: peak inbound bandwidth (byte/s) • **ingressDropBandwidth**: dropped inbound packets (bytes)	Check whether the used EIP bandwidth keeps increasing and whether services are normal. Increase the bandwidth if necessary.	The network becomes slow or packets are lost.

EventSource	Namespace	Event Name	EventID	EventSeverity	Description	Solution	Impact
		Unbound EIP	EipNotBoundStatus	Major	The EIP is not bound to any resource.	N/A	When an EIP is unbound, you will be billed for IP reservation fees and bandwidth fees (billed by bandwidth).

1.8.4 Creating an Alarm Rule

Scenarios

Cloud Eye allows you to use alarm templates to create alarm rules to monitor cloud resource usage and key operations. After an alarm rule is created, if a metric reaches the specified threshold or there is a specified event, Cloud Eye immediately informs you of the exception through Simple Message Notification (SMN).

This section describes how to create alarm rules to monitor **metrics** and **events**.

Creating an Alarm Rule for Metric Monitoring

1. Log in to the **Cloud Eye console**.
2. In the navigation pane, choose **Alarm Management** > **Alarm Rules**.
3. Click **Create Alarm Rule** in the upper right corner.

4. On the **Create Alarm Rule** page, configure parameters as needed.

   Configure the key parameters as follows:

   a. **Configure the alarm rule name and description.**

      - **Name**: Name of the alarm rule. The name is automatically generated, but you can change it to a custom one.
      - **Description**: (Optional) Describe the alarm rule.

   b. **Configure alarm content parameters.**

      - **Alarm Type**: Select **Metric**.
      - **Cloud Product**: Select **Virtual Private Cloud-Bandwidths** or **Virtual Private Cloud-Elastic IPs** as required.
      - **Resource Level**: Select the resource level of the monitored object. This parameter is available only if **Alarm Type** is set to **Metric**. The value can be **Cloud product** or **Specific dimension**. **Cloud product** is recommended.
      - **Monitoring Scope**: Select **All resources**, **Resource groups**, or **Specific resources** that the alarm rule will apply to.
      - **Method**: Select **Associate template** or **Configure manually**.
      - **Alarm Policy**: Specify the policy for triggering an alarm.

   c. **Configure alarm notification parameters.**

      To send alarm notifications by email, SMS, HTTP, or HTTPS, enable **Alarm Notifications**.

   For details about the related parameters, see **Creating an Alarm Rule**.

5. Click **Create**.

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

Creating an Alarm Rule for Event Monitoring

1. Log in to the **Cloud Eye console**.
2. In the navigation pane on the left, choose **Event Monitoring**.
3. On the displayed page, click **Create Alarm Rule** in the upper right corner.

   NOTE

   If you want to create an alarm rule for an existing event, locate the target event in the event list and click **Create Alarm Rule** in the **Operation** column. On the displayed **Create Alarm Rule** page, required parameters have been configured for that event.

4. On the **Create Alarm Rule** page, configure parameters as needed.

   a. **Configure the alarm rule name and description.**

      - **Name**: Enter a name for the alarm rule, which can be customized or automatically generated by the system.
      - **Description**: (Optional) Describe the alarm rule.

b. **Configure alarm content parameters.**

- **Alarm Type**: Select **Event**.
- **Event Type**: **System event** or **Custom event**. Select **System event**.
- **Event Source**: The cloud service for which the event is generated. Select **Elastic IP**.
- **Monitoring Scope**: The resources that the alarm rule applies to. **All resources** is selected by default.
- **Method**: Select **Associate template** or **Configure manually**.
- **Alarm Policy**: Specify the policy for triggering an alarm.

c. **Configure alarm notification parameters.**

To send alarm notifications by email, SMS, HTTP, or HTTPS, enable **Alarm Notifications**.

For more information, see **Creating an Alarm Rule and Notification for Event Monitoring**.

5. Click **Create**.

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

1.9 Managing EIP Quotas

What Is a Quota?

A quota limits the quantity of a resource available to users, thereby preventing spikes in the usage of the resource. For example, an EIP quota limits the number of EIPs that can be assigned.

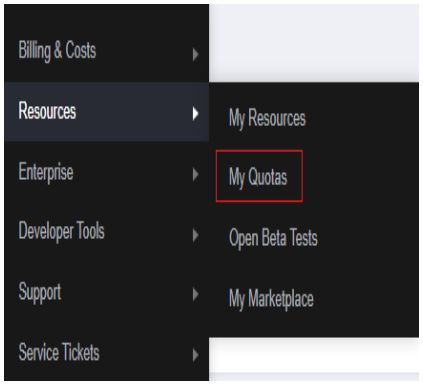
You can also request for an increased quota if your existing quota cannot meet your service requirements.

How Do I View My Quotas?

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 right corner of the page, choose **Resources** > **My Quotas**.

   The **Quotas** page is displayed.

Figure 1-15 My Quotas



4. View the used and total quota of each type of resources on the displayed page.

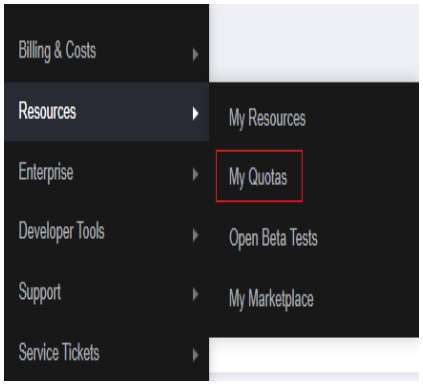
   If a quota cannot meet service requirements, apply for a higher quota.

How Do I Apply for a Higher Quota?

1. Log in to the **management console**.
2. In the upper right corner of the page, choose **Resources** > **My Quotas**.

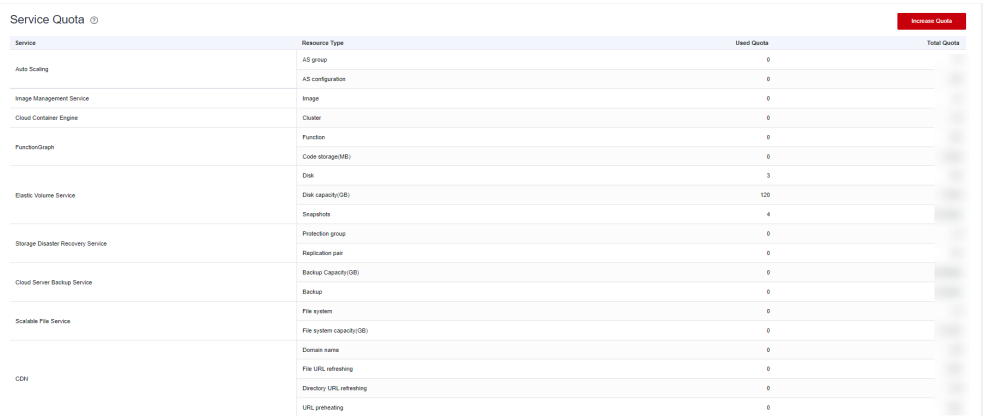
   The **Quotas** page is displayed.

Figure 1-16 My Quotas



3. Click **Increase Quota** in the upper right corner of the page.

Figure 1-17 Increasing quota



4. On the **Create Service Ticket** page, configure parameters as required.

   In the **Problem Description** area, fill in the content and reason for adjustment.

5. After all necessary parameters are configured, select **I have read and agree to the Ticket Service Protocol and Privacy Statement** and click **Submit**.

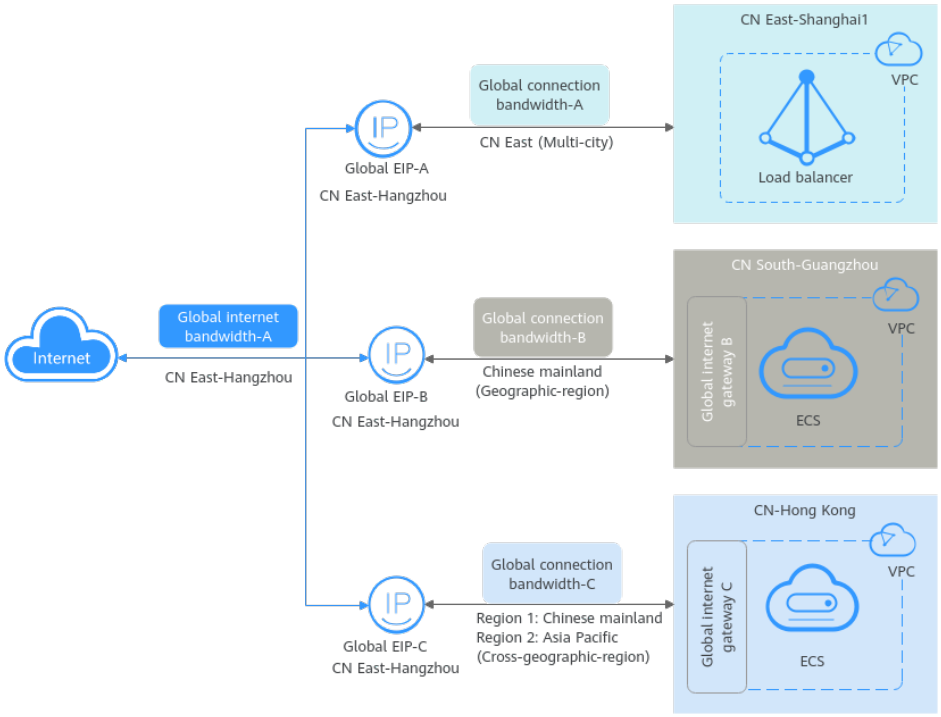
2 Global Elastic IP User Guide

2.1 Global EIPs

2.1.1 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 a load balancer or an ECS) from any region. To enable an ECS to communicate with the Internet through a global EIP, you also need to bind a global internet gateway to the global EIP.

Figure 2-1 Global EIP architecture



Global EIP Quotas

If you want to increase your quota, see **How Do I Apply for a Higher Quota?**

- Your request for a larger quota will only be approved if your account has valid orders and you are continuously using cloud resources. If you have released resources immediately after subscribing to them multiple times, your request for quota increase will be declined.
- If you have increased the global EIP quota but you have not used the quota for a long time, Huawei Cloud will reduce the quota to the default value.

Constraints

- 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**.
- After a global EIP is bound to an instance, you need to bind a global connection bandwidth to the global EIP. For details, see **Adding Instances to a Global Connection Bandwidth**.

Binding a Global EIP to an Instance

Figure 2-2 Binding a global EIP to an instance

Table 2-1 Process for binding a global EIP to an instance

No.	What You Need to Do	Description
1	Preparations	• Buy a global internet bandwidth. A global internet bandwidth can only be shared by global EIPs from its same city. • Buy a global connection bandwidth. • Create a global internet gateway. To enable an ECS to communicate with the Internet through a global EIP, you also need to bind a global internet gateway to the global EIP. The global internet gateway and the ECS must be in the same region.
2	**Assigning a Global EIP**	Assign a global EIP and select a global internet bandwidth. You can add the global EIP to an existing global internet bandwidth or **purchase a new global internet bandwidth**. A global internet bandwidth can only be shared by global EIPs from its same city.

No.	What You Need to Do	Description
3	Binding a Global EIP to an Instance	To enable an ECS to communicate with the Internet through a global EIP, you also need to bind a global internet gateway to the global EIP. You can select an existing global internet gateway or create a new one.

Related Operations

Modifying the Global Connection Bandwidth of a Global EIP: Increase or decrease the global connection bandwidth bound to your global EIP as required.

Modifying the Global Internet Bandwidth of a Global EIP: Modify the billing option or size of a global internet bandwidth.

2.1.2 Assigning a Global EIP

Scenarios

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

If you want to assign a global EIP, submit a service ticket to apply for permissions.

Procedure

1. Go to the Assign Global EIP page.
2. Configure the parameters based on Table 2-2.

Table 2-2 Parameter descriptions

Parameter	Description	Example Value
Region	Mandatory 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

Parameter	Description	Example Value
Global EIP Type	Mandatory • You can select: – Static BGP – Dynamic BGP Reverse resolution is not supported for static single-line IP addresses (non-cloud vendor IP addresses). • 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.	-
Mask Length	This parameter is available only when **Type** is set to **Global EIP range**. You can call the following API obtain all available mask lengths: GET /v3/{domain_id}/global-eip-segments/support-masks	24
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	You can select: • Yearly/Monthly • Pay-per-use	Pay-per-use
Bandwidth Type	You can select: • Standard • IPv6 Static Bandwidth	Standard
Billed By	This parameter is available only when **Billing Mode** is set to **Pay-per-use**. You can select: • 95th percentile bandwidth (standard) • 95th percentile bandwidth (bidirectional)	95th percentile bandwidth (standard)

Parameter	Description	Example Value
Guaranteed Bandwidth	This parameter is available only when **Billing Mode** is set to **Pay-per-use**. 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 (.).	g-eip01
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
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 2-3**.	• 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.	-

Parameter	Description	Example Value
Quantity	This parameter is available only when **Type** is set to **Global EIP**. Number of global EIPs to be assigned.	3
Required Duration	The duration for which the yearly/monthly global EIP will be used.	1 month
Upon Expiration	This parameter must be specified if the **Billing Mode** is set to **Yearly/Monthly**. The value can be one of the following: • Change to pay-per-use • Auto-renew • Enter grace period	Change to pay-per-use

Table 2-3 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 128 characters. • Can contain letters, digits, underscores (_), and hyphens (-). Cannot start with _sys_ or a space or end with a space.	geip_1
Value	• Can contain a maximum of 255 characters. • Can contain letters, digits, underscores (_), periods (.), hyphens (-), and cannot start or end with a space.	184.100.101.102

3. Click **Next**.
4. Confirm the configurations and click **Submit**.

   The global EIP list is displayed.

5. In the global EIP list, view the global EIP status.

   If the status of the global EIP is **Unbound**, the EIP is assigned successfully.

Related Operations

- (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**.
- (Mandatory) After a global EIP is bound to an instance, you need to bind a global connection bandwidth to the global EIP. For details, see **Adding Instances to a Global Connection Bandwidth**.

2.1.3 Binding a Global EIP to an Instance

Scenarios

This section describes how to 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.

NOTE

By default, a global EIP can be bound to instances in the same geographic region. To bind a global EIP to an instance in another geographic region, **submit a service ticket**.

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.
- A global EIP cannot be bound to a shared load balancer.

Prerequisites

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

Procedure

1. Go to the **global EIP list page**.
2. In the global EIP list, search for or locate the target global EIP.
3. Locate the target global EIP, and click **Bind Instance** in the **Progress** column.

   The page for binding an instance is displayed.
4. Select the region that the instance to be bound is located.

   A global EIP can be bound to an instance in any region.
5. Select the type of the instance to be bound and then select the instance.
6. Select the global internet gateway to be bound.

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

7. Click **Next**.
8. Configure **Global Connection Bandwidth**, **Bandwidth Name**, and **Bandwidth** as prompted.

   If there is no global connection bandwidth, click **Manage Global Connection Bandwidth** to create one. For details, see **Buying a Global Connection Bandwidth**.
9. Click **OK**.

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

Related Operations

- (Mandatory) After a global EIP is bound to an instance, you need to bind a global connection bandwidth to the global EIP. For details, see **Adding Instances to a Global Connection Bandwidth**.
- You need to create a global internet gateway for the VPC of the ECS. For details, see **Creating a Global Internet Gateway**.

2.1.4 Unbinding a Global EIP from an Instance

Scenarios

This section describes how to unbind a global EIP from an instance, such as a load balancer or an ECS.

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**.

Notes and Constraints

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.

Procedure

1. Go to the **global EIP list page**.
2. In the global EIP list, search for or locate the target global EIP.
3. Locate the row that contains the target global EIP, and click **Unbind** in the **Operation** column.

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

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

2.1.5 Releasing a Global EIP

Scenarios

This section describes how to release a global EIP.

If your global EIPs are no longer required, release them.

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. Go to the **global EIP list page**.
2. In the global EIP list, search for or locate the target global EIP.
3. In the list, search for or locate the global EIP.
4. Locate the row that contains the target global EIP, and click **Release** in the **Operation** column.

   A confirmation dialog box is displayed.
5. Confirm the information and click **OK**.

   The released global EIP is not displayed in the global EIP list.

2.1.6 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. Go to the **global EIP list page**.
2. In the global EIP list, search for or locate the target global EIP.
3. 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.
4. Locate the target bandwidth and choose **More** > **Modify Bandwidth** in the **Operation** column.
5. Modify the bandwidth name and size as prompted, and click **Next**.
6. Confirm the modified information and click **Submit**.

2.1.7 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. Go to the **global EIP list page**.
2. In the global EIP list, search for or locate the target global EIP.
3. 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.
4. Modify the bandwidth parameters as required.
5. Click **Next**.
6. Confirm the configurations and click **Submit**.

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

2.1.8 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.

Procedure

1. Go to the **global EIP list page**.
2. Click **Global EIPs** or **Global EIP Ranges** as required. In the list, search for or locate the global EIP.

2.1.9 Exporting Global EIPs

Scenarios

This section describes how to export all your global EIPs as an Excel file to a local directory. The Excel records the ID, status, type, bandwidth name, and bandwidth size of global EIPs.

Procedure

1. Go to the **global EIP list page**.
2. In the global EIP list, select one or more global EIPs and click **Export** in the upper left corner.

The system will automatically export information about all global EIPs under your account in the current region as an Excel file to a local directory.

2.2 Global Internet Gateways

2.2.1 Global Internet Gateway Overview

After a global EIP is bound to an ECS, a global internet gateway is required to connect the VPC of the ECS to the global EIP so that the ECS can access the

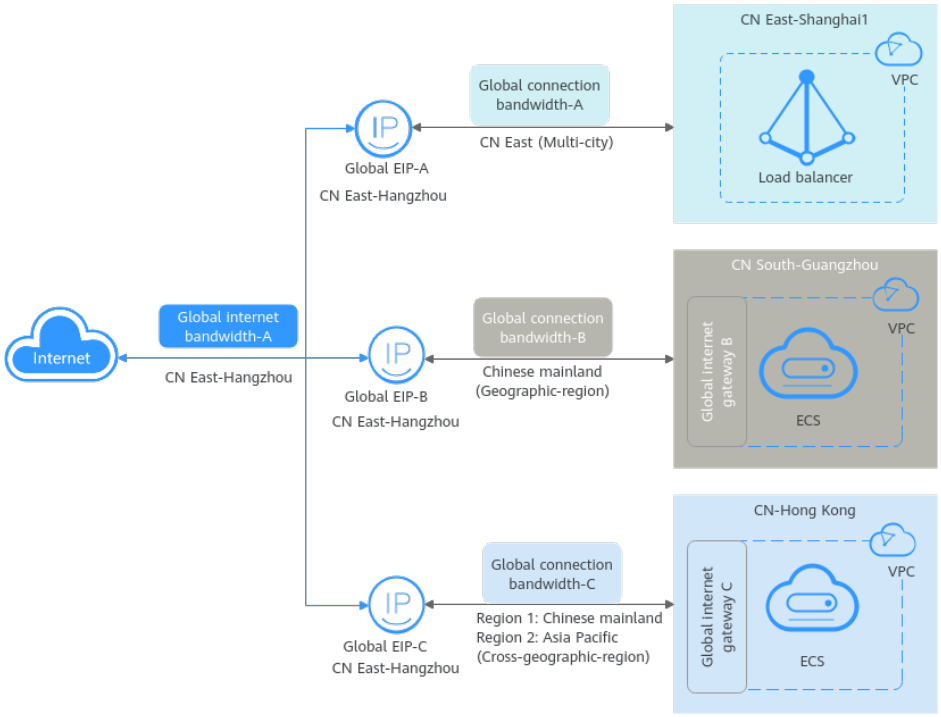
Internet through the global EIP. Before binding an ECS, you need to create a global internet gateway. Global internet gateways are free of charge.

When you bind a global internet gateway to a global EIP of an ECS, the system automatically lists the global 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 a global internet gateway for the VPC that the load balancer belongs to.

Figure 2-3 Global EIP architecture



Global Internet Gateway Quotas

Each VPC can only have one global internet gateway attached.

Notes and Constraints

After a global internet gateway is purchased, you cannot modify parameters such as subnet and more. If you want your global internet gateway to work in another subnet, delete it and create another global internet gateway.

Binding a Global Internet Gateway to a Global EIP

Figure 2-4 Binding a global internet gateway to a global EIP

Table 2-4 Process for binding a global internet gateway to a global EIP

No.	What You Need to Do	Description
1	**Creating a Global Internet Gateway**	The global Internet gateway and the instance (for example, ECS) to be bound are in the same VPC.
2	**Binding a Global Internet Gateway to a Global EIP**	To enable an ECS to communicate with the Internet through a global EIP, you also need to bind a global internet gateway to the global EIP.

Related Operations

- **Binding a Global Internet Gateway to a Global EIP**: After a global EIP is bound to an ECS, you need to bind a global internet gateway to the global EIP so that the ECS can access the Internet through the global EIP.
- **Unbinding a Global Internet Gateway from a Global EIP**: When you unbind a global EIP from an ECS, the system automatically unbinds the global internet gateway of the VPC that ECS belongs to from the global EIP.
- **Managing a Global Internet Gateway**: You can modify or delete a global internet gateway as required.

2.2.2 Creating a Global Internet Gateway

Scenarios

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

Notes and Constraints

Each VPC can only have one global internet gateway attached.

Procedure

1. Go to the **global internet gateway list** page.
2. In the upper right corner of the page, click **Create Global Internet Gateway**.
   The **Create Global Internet Gateway** is displayed.
3. Configure the parameters based on **Table 2-5**.

Table 2-5 Parameter descriptions

Parameter	Description	Example Value
Name	Mandatory Enter the name of the global internet gateway. The name: • Must contain 1 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 bind the global internet gateway. A global internet gateway is used to work together with the global EIP of your instance for Internet access.	-
Subnet	Mandatory Select the subnet where you want to bind the global 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 global 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 global internet gateway.	-

4. Click **OK**.

Related Operations

After a global EIP is bound to an instance, a global internet gateway is required so that the instance can access the Internet through the global EIP. For details, see **Binding a Global Internet Gateway to a Global EIP**.

2.2.3 Binding a Global Internet Gateway to a Global EIP

Scenarios

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

Prerequisites

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

Procedure

1. Go to the **global EIP list page**.
2. In the global EIP list, search for or locate the target global EIP.
3. Locate the target global EIP, and click **Bind Instance** in the **Progress** column.

   The page for binding an instance is displayed.
4. Select the region that the instance to be bound is located.

   A global EIP can be bound to an instance in any region.
5. Select the type of the instance to be bound and then select the instance.
6. Select the global internet gateway to be bound.
7. Click **Next**.

   You can select an existing global connection bandwidth or purchase a new one.
8. Click **Finish**.

2.2.4 Unbinding a Global Internet Gateway from a Global EIP

Scenarios

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

Notes and Constraints

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.

Procedure

1. Go to the **global EIP list page**.
2. In the global EIP list, search for or locate the target global EIP.

3. Locate the row that contains the target global EIP, and click **Unbind** in the **Operation** column.

   A confirmation dialog box is displayed.

4. Click **OK**.

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

2.2.5 Managing a Global Internet Gateway

Scenarios

You can perform the following operations to manage your global internet gateways:

- **Modifying a Global Internet Gateway**
- **Deleting a Global Internet Gateway**

Notes and Constraints

- You cannot modify parameters such as subnet and more. If you want your global internet gateway to work in another subnet, delete it and create another global internet gateway.
- A global internet gateway cannot be deleted if its attached VPC has instances (such as ECSs) with global EIPs bound. To delete such a global internet gateway, unbind the global EIPs from the instances first by referring to **Unbinding a Global EIP from an Instance**.

Modifying a Global Internet Gateway

1. Go to the **global internet gateway list** page.
2. In the global internet gateway list, search for or locate the target global internet gateway.
3. Change the name of the global internet gateway.

Deleting a Global Internet Gateway

1. Go to the **global internet gateway list** page.
2. In the global internet gateway list, search for or locate the target global internet gateway.
3. Locate the row that contains the target global internet gateway and click **Delete** in the **Operation** column.

   A confirmation dialog box is displayed.

4. Click **OK**.

2.3 Global Internet Bandwidths

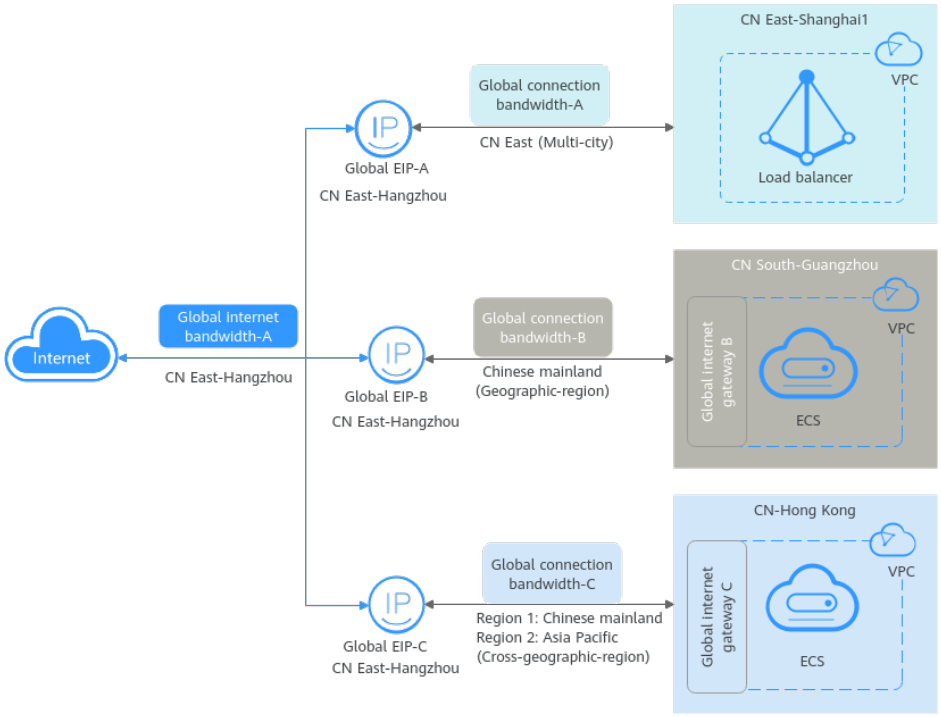
2.3.1 Global Internet Bandwidth Overview

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 2-5** 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 must have the same access point, that is, CN East-Hangzhou in this example.

Figure 2-5 Global EIP architecture



Notes and Constraints

- The global EIPs must have the same access information, including geographic region, geographic area, access point, and type, as their global internet bandwidth.
- A global EIP to be removed from a global internet bandwidth cannot have an instance bound. If there is an instance, unbind the global EIP from its instance first by referring to **Unbinding a Global EIP from an Instance**.
- To unbind a global EIP from an instance, ensure that there are no services running on the instance. Otherwise, services will be interrupted.
- A global internet bandwidth to be deleted cannot have any global EIP associated.

Adding Global EIPs to a Global Internet Bandwidth

Figure 2-6 Adding global EIPs to a global internet bandwidth

Table 2-6 Process for adding global EIPs to a global internet bandwidth

No.	What You Need to Do	Description
2	**Buying a Global Internet Bandwidth**	Buy a global internet bandwidth and add global EIPs to the global internet bandwidth. In this way, instances with the global EIPs bound can access the Internet.
3	**Adding Global EIPs to a Global Internet Bandwidth**	A global internet bandwidth can only be shared by global EIPs from its same city.

Related Operations

- **Modifying a Global Internet Bandwidth**: Modify a global internet bandwidth as required.
- **Managing a Global Internet Bandwidth**: Delete a global internet bandwidth that is no longer needed.

2.3.2 Buying a Global Internet Bandwidth

Scenarios

This section describes how to buy a global internet bandwidth.

If you want to buy a global internet bandwidth, **submit a service ticket** to apply for permissions.

Procedure

1. Go to the **Buy Global Internet Bandwidth** page.
2. Configure the parameters based on **Table 2-7**.

Table 2-7 Parameter descriptions

Parameter	Description	Example Value
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
City	Mandatory A global internet bandwidth can only be shared by global EIPs from its same city.	Shanghai

Parameter	Description	Example Value
Type	Mandatory The types vary according to the selected city. You can select: • Static BGP • Dynamic BGP • CU • CM • CT	Dynamic BGP
Billing Mode	You can select: • Pay-per-use • Yearly/Monthly The billing modes vary according to the selected city.	Pay-per-use
Bandwidth Type	You can select: • Standard • IPv6 Static Bandwidth The bandwidth types vary according to the selected city.	Standard
Billed By	You can select: • Bandwidth • 95th percentile bandwidth (standard) The billing options vary according to the selected city.	95th percentile bandwidth (standard)
Guaranteed Bandwidth	This parameter is available only when **Billing Mode** is set to **Pay-per-use**. The system automatically generates the guaranteed bandwidth percentage based on what you select for **Billed By**.	0%
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

Parameter	Description	Example Value
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
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 2-8**.	• Key: geip_1.1 • Value: 10
Description	Supplementary information about the global internet bandwidth. This parameter is optional.	-
Required Duration	The duration for which the yearly/monthly global internet bandwidth will be used.	1 month
Upon Expiration	This parameter must be specified if the **Billing Mode** is set to **Yearly/Monthly**. The value can be one of the following: • Change to pay-per-use • Auto-renew • Enter grace period	Change to pay-per-use

Table 2-8 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

Parameter	Requirement	Example Value
Value	• Can contain a maximum of 43 characters. • Can contain letters, digits, underscores (_), periods (.), and hyphens (-).	10

3. Click **Next**.
4. Confirm the configurations and click **Submit**.

   The global internet bandwidth list page is displayed.
5. 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**.

2.3.3 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. Go to the **global internet bandwidth list page**.
2. In the global internet bandwidth list, search for or locate the target bandwidth.
3. 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.

2.3.4 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. Go to the **global internet bandwidth list page**.
2. In the global internet bandwidth list, search for or locate the target bandwidth.
3. Locate the row that contains the target bandwidth, and click **Modify Bandwidth** in the **Operation** column.

   The **Modify Global Internet Bandwidth** page is displayed.
4. Modify the bandwidth parameters as required.
5. Click **Next**.
6. Confirm the configurations and click **Submit**.

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

2.3.5 Managing a Global Internet Bandwidth

Scenarios

You can perform the following operations to manage your global internet bandwidths:

- **Viewing a Global Internet Bandwidth**
- **Deleting a Global Internet Bandwidth**
- **Exporting Global Internet Bandwidths**

Notes and Constraints

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

Viewing a Global Internet Bandwidth

1. Go to the **global internet bandwidth list page**.
2. In the global internet bandwidth list, search for or locate the target bandwidth.
3. Click the name of the target global internet bandwidth.

   Go to the **Basic Information** tab page to view more information.

Deleting a Global Internet Bandwidth

1. Go to the **global internet bandwidth list page**.
2. In the global internet bandwidth list, search for or locate the target bandwidth.
3. Locate the row that contains the target bandwidth, and click **Delete** in the **Operation** column.

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

   The deleted bandwidth is not displayed in the global internet bandwidth list.

Exporting Global Internet Bandwidths

1. Go to the **global internet bandwidth list page**.
2. On the global internet bandwidth list page, select one or more global internet bandwidths and click **Export** in the upper left corner.

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

2.4 Cloud Eye Monitoring

2.4.1 Monitoring Global EIPs

Scenario

Cloud Eye is a multi-dimensional resource monitoring service. You can use Cloud Eye to monitor global EIPs in real time, set alarm rules and notifications, identify resource exceptions, and quickly respond to resource changes.

Cloud Eye is enabled automatically after a global EIP is assigned. For more information about Cloud Eye, see **What Is Cloud Eye?**

Setting an Alarm Rule

You can set alarm rules on the Cloud Eye console to send you notifications in case of exceptions.

For details about how to create alarm rules, see **Creating an Alarm Rule**.

Viewing Metrics

1. Log in to the **Cloud Eye console**.
2. In the navigation pane on the left, choose **Cloud Service Monitoring**.

   On the **Cloud Service Monitoring** page, click **Global EIP and Bandwidth GEIP** in the **Dashboard** column and go to the **Details** page.
3. Select global EIPs or internet bandwidth as required to view detailed data under the **Resources** and **Overview** tabs.
4. On the **Overview** tab, perform the following operations:

   a. View information under **Resource Overview**, **Alarm Statistics**, and **Key Metrics**. For details, see **Table 2-9**.

   Table 2-9 Three modules on the **Overview** tab

Module	Description
Resource Overview	You can view the resource data of the current cloud service in the current dimension, including **Total Resources**, **Resources in Alarm**, and **Resources in Alarm in the Last 7 Days**.
Alarm Statistics	You can view the total number of alarms in the last seven days, alarms of different severities (critical, major, minor, and informational), top 5 instances by total alarms, and top 5 resource groups by total alarms.
Key Metrics	You can view monitoring details of key metrics recommended by the cloud service.

   b. In the upper left corner of the **Details** page, select **Resources** to view corresponding monitoring details or select another cloud service to switch to its dashboard.
5. On the **Resources** tab, perform the following operations:
   - Click **Export Data** to export cloud service monitoring data. For details, see **How Can I Export Monitoring Data?**
   - Locate an instance and click **View Metric** to view the instance metrics and HTTP status codes.
   - Locate an instance and choose **More** > **Create Alarm Rule** to create an alarm rule for the instance. For details about the parameters, see **Setting an Alarm Rule**.
   - Locate an instance and choose **More** > **View Alarm Rule** to view the alarm rules created for the instance.

Related Operations

You can enable batch notification policy setting as required and select existing notification policies. For details about how to create a notification policy, see **Creating a Notification Policy**.

2.4.2 Monitoring Metrics

Overview

This section describes the namespace, list, and measurement dimensions of metrics of global EIPs and global internet 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 global EIPs and global internet bandwidths: SYS.GEIP

Monitoring Metrics

Table 2-10 Global EIP and global internet bandwidth metrics

ID	Name	Description	Value Range	Unit	Conversion Rule	Monitored Object (Dimension)	Monitoring Interval (Raw Data)
upstream_bandwidth	Outbound bandwidth	Network rate of outbound traffic (Previously called "Upstream Bandwidth")	≥ 0	bit/s	1000 (SI)	Global EIP or global internet bandwidth	1 minute
downstream_bandwidth	Inbound bandwidth	Network rate of inbound traffic (Previously called "Downstream Bandwidth")	≥ 0	bit/s	1000 (SI)	Global EIP or global internet bandwidth	1 minute

ID	Name	Description	Value Range	Unit	Conversion Rule	Monitored Object (Dimension)	Monitoring Interval (Raw Data)
upstream_bandwidth_usage	Outbound Bandwidth Usage	Usage of outbound bandwidth in the unit of percent. Outbound bandwidth usage = Outbound bandwidth/ Purchased bandwidth	0-100	%	N/A	Global EIP or global internet bandwidth	1 minute
downstream_bandwidth_usage	Inbound Bandwidth Usage	Usage of inbound bandwidth in the unit of percent. Inbound bandwidth usage = Inbound bandwidth/ Purchased bandwidth	0-100	%	N/A	Global EIP or global internet bandwidth	1 minute
up_stream	Outbound Traffic	Network traffic going out of the cloud platform (Previously called "Upstream Traffic")	≥ 0	Bytes	1000 (SI)	Global EIP or global internet bandwidth	1 minute
down_stream	Inbound Traffic	Network traffic going into the cloud platform (Previously called "Downstream Traffic")	≥ 0	Bytes	1000 (SI)	Global EIP or global internet bandwidth	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.

Dimensions

Key	Value

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=geip_internet_bandwidth_id,530cd6b0-86d7-4818-837f-935f6a27414d&
  dim.1=geip_global_eip_id,3773b058-5b4f-4366-9035-9bbd9964714a
- Query monitoring metrics in batches:

  "dimensions": [

  {

  "name": "geip_internet_bandwidth_id",

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

  },

  {

  "name": "geip_global_eip_id",

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

  }

  ],

2.5 Managing Global EIP Quotas

What Is a Quota?

A quota limits the quantity of a resource available to users, thereby preventing spikes in the usage of the resource. For example, a global EIP quota limits the number of global EIPs that can be assigned.

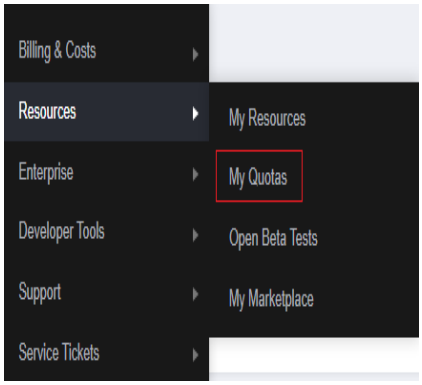
You can also request for an increased quota if your existing quota cannot meet your service requirements.

How Do I Apply for a Higher Quota?

1. Log in to the **management console**.
2. In the upper right corner of the page, choose **Resources** > **My Quotas**.

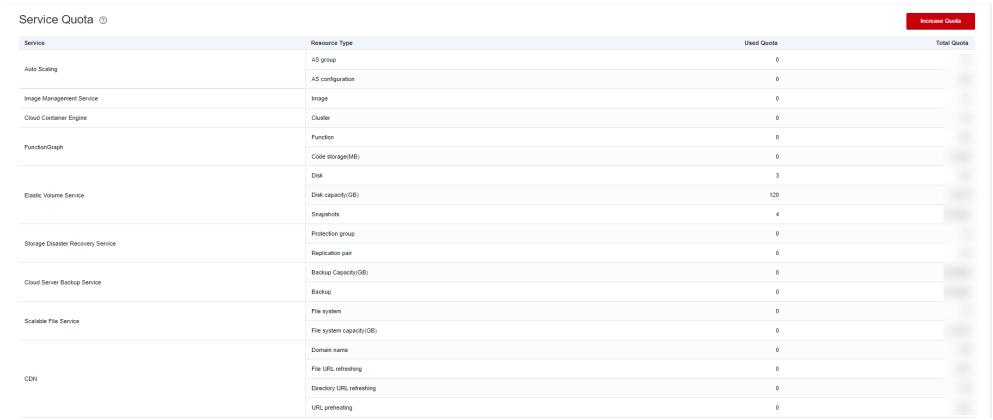
   The **Quotas** page is displayed.

Figure 2-7 My Quotas



3. Click **Increase Quota** in the upper right corner of the page.

Figure 2-8 Increasing quota



4. On the **Create Service Ticket** page, configure parameters as required.

   In the **Problem Description** area, fill in the content and reason for adjustment.

5. After all necessary parameters are configured, select **I have read and agree to the Ticket Service Protocol and Privacy Statement** and click **Submit**.

