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NAT Gateway

Bandwidth Package

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Document conventions

Style	Description	Example
Danger	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	**Danger:** Resetting will result in the loss of user configuration data.
Warning	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	**Warning:** Restarting will cause business interruption. About 10 minutes are required to restart an instance.
Notice	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	**Notice:** If the weight is set to 0, the server no longer receives new requests.
Note	A note indicates supplemental instructions, best practices, tips, and other content.	**Note:** You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click **Settings**> **Network**> **Set network type**.
Bold	Bold formatting is used for buttons , menus, page names, and other UI elements.	Click **OK**.
`Courier font`	Courier font is used for commands	Run the `cd /d C:/window` command to enter the Windows system folder.
Italic	Italic formatting is used for parameters and variables.	`bae log list --instanceid` *Instance_ID*
[] or [a|b]	This format is used for an optional value, where only one item can be selected.	`ipconfig [-all|-t]`
{} or {a|b}	This format is used for a required value, where only one item can be selected.	`switch {active|stand}`

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1.Convert a NAT service plan to an EIP bandwidth plan

You can convert an existing NAT service plan to an EIP bandwidth plan. EIP bandwidth plans support bandwidth sharing and transfer on a regional scale. After you purchase an EIP bandwidth plan, you can associate all elastic IP addresses (EIPs) that are in the same region with the EIP bandwidth plan. This way, the EIPs can share the bandwidth of the EIP bandwidth plan. This reduces bandwidth costs.

Description

When you convert a NAT service plan to an EIP bandwidth plan, the current connections are not interrupted. Therefore, your workloads are not affected. After you convert a NAT service plan to an EIP bandwidth plan:

- The public IP addresses in the NAT service plan are converted to EIPs.
- The NAT service plan is converted to an EIP bandwidth plan, which is easier to manage and more cost-effective.
- If you fail to convert a NAT service plan to an EIP bandwidth plan, you can continue to use the NAT service plan. If you fail to locate the cause of the failure, you can contact technical support from the DingTalk group 35128151.

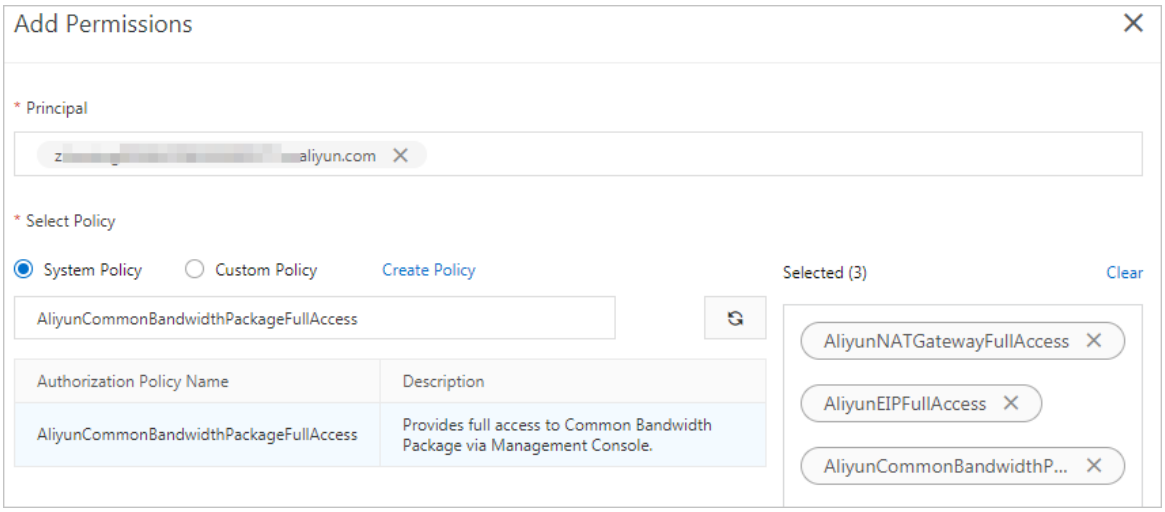
Preparations

Before you convert a NAT service plan, make sure that the following requirements are met:

- The permissions to convert NAT service plans are acquired by your account.

  We recommend that you use your Alibaba Cloud account to convert NAT service plans. If you convert the NAT service plan as a Resource Access Management (RAM) user, you must use your Alibaba Cloud account to attach the following permission policies to the RAM user in the RAM console.

  - AliyunNATGatewayFullAccess
  - AliyunEIPFullAccess
  - AliyunCommonBandwidthPackageFullAccess



- Idle EIPs are sufficient within your account.

After the NAT service plan is converted to an EIP bandwidth plan, the public IP addresses in the NAT service plan are converted to EIPs. Make sure that the number of EIPs is greater than or equal to the number of public IP addresses in the NAT service plan. In the Virtual Private Cloud (VPC) console, you can view the number of EIPs on the Quota Management page. If the number of EIPs is insufficient, you can apply for more EIPs in the VPC console.

- Permissions to convert a pay-by-data-transfer NAT service plan are acquired.

  If the NAT service plan to be converted is billed on a pay-by-data-transfer basis, you must submit a ticket before you can convert the NAT service plan.

- The information about the NAT service plan is backed up.

  Before you convert a NAT service plan, back up the information as described in the following table. This way, you can track the conversion progress and verify the result.

ID of the NAT service plan	Region	Maximum bandwidth	Number of public IP addresses	Status	ID of the EIP bandwidth plan
bwp-xxx1	China (Hangzhou)	200 Mbps	20	Successful	cbwp-xxx1
bwp-xxx2	China (Shanghai)	500 Mbps	50	Pending	N/A

Procedure

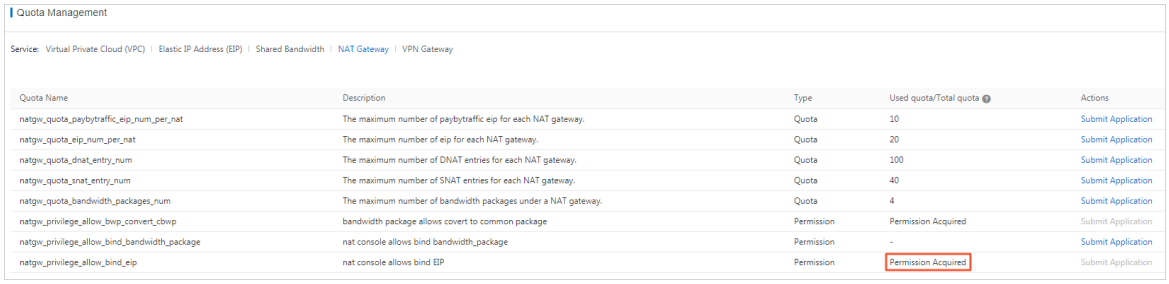
After the prerequisites are met, perform the following operations to start the conversion:

1. Call the ConvertBandwidthPackage operation to complete the conversion. For more information, see ConvertBandwidthPackage.
2. Verify the conversion result.

   You can check the ID of the EIP bandwidth plan to verify the conversion result. IDs of NAT service plans are converted based on the following rule: `${cbwpId}='c'+${bwpId}`. For example, if the ID of the NAT service plan is `${bwpId}=bwp-e8caejcj`, the ID of the EIP bandwidth plan is `cbwp-e8caejcj`.
3. After all NAT service plans are converted, navigate to the NAT Gateway tab on the Quota Management page and apply for the **natgw_privilege_allow_bind_eip** permission.

   The application is automatically reviewed. Wait 1 minute and click the Refresh icon to view the latest status of the application.

   > **Note** If you want to associate other EIPs with the NAT gateway after you apply for the **natgw_privilege_allow_bind_eip** permission, log off from the NAT Gateway console and log on again. Then, you can associate the EIPs with the NAT gateway. For more information, see Associate an EIP with a NAT gateway.


Quota Management

Service: Virtual Private Cloud (VPC) | Elastic IP Address (EIP) | Shared Bandwidth | NAT Gateway | VPN Gateway

Quota Name	Description	Type	Used quota/Total quota	Actions
natgw_quota_paybytraffic_eip_num_per_nat	The maximum number of paybytraffic eip for each NAT gateway.	Quota	10	Submit Application
natgw_quota_eip_num_per_nat	The maximum number of eip for each NAT gateway.	Quota	20	Submit Application
natgw_quota_dnat_entry_num	The maximum number of DNAT entries for each NAT gateway.	Quota	100	Submit Application
natgw_quota_snat_entry_num	The maximum number of SNAT entries for each NAT gateway.	Quota	40	Submit Application
natgw_quota_bandwidth_packages_num	The maximum number of bandwidth packages under a NAT gateway.	Quota	4	Submit Application
natgw_privilege_allow_bwp_convert_cbwp	bandwidth package allows covert to common package	Permission	Permission Acquired	Submit Application
natgw_privilege_allow_bind_bandwidth_package	nat console allows bind bandwidth_package	Permission	-	Submit Application
natgw_privilege_allow_bind_eip	nat console allows bind EIP	Permission	Permission Acquired	Submit Application

2.Billing of NAT service plans

A NAT service plan consists of bandwidth resources and one or more public IP addresses. When you use a NAT service plan, you are charged a rental fee for the public IP addresses and a data transfer fee.

Billing methods

NAT service plans support the pay-as-you-go billing method. You are charged and billed on an hourly basis. If the usage duration is less than 1 hour within a billing cycle, the usage duration is rounded up to 1 hour.

Billable item

When you use a NAT service plan, you are charged a rental fee for the public IP addresses and a data transfer fee. The fees are calculated based on the following formulas:

- Rental fee = Unit price × Number of public IP addresses × Duration
- Data transfer fee = Unit price × Amount of outbound data transfer
  - You are charged only for outbound data transfer (from Alibaba Cloud to the Internet). You are not charged for inbound data transfer.
  - The unit price for outbound data transfer is fixed and does not vary with the maximum bandwidth of the NAT service plan. We recommend that you set the maximum bandwidth based on your business requirements. This helps you prevent unnecessary costs that may be caused by malicious requests or service malfunction.

The following table describes the unit prices for data transfer and public IP address rental in different regions.

> **Note** If the prices in this table are different from those on the buy page, the prices on the buy page shall prevail.

Region	Unit price of public IP address rental (USD/public IP address/hour)	Unit price of data transfer (USD/GB)
China (Qingdao)	0.003	0.113
China (Hangzhou), China (Shanghai), China (Beijing), China (Zhangjiakou), and China (Shenzhen)	0.003	0.125
China (Hong Kong)	0.009	0.156
Singapore (Singapore)	0.125	0.081
US (Virginia)	0.005	0.078
US (Silicon Valley)	0.005	0.078
Japan (Tokyo)	0.005	0.12

Region	Unit price of public IP address rental (USD/public IP address/hour)	Unit price of data transfer (USD/GB)
UAE (Dubai)	0.009	0.447
Australia (Sydney)	0.006	0.13
Malaysia (Kuala Lumpur)	0.112	0.13
Germany (Frankfurt)	0.006	0.07

3.Manage NAT service plans

After you create a NAT gateway, you must purchase a NAT service plan for the NAT gateway before you can configure DNAT or SNAT. Each NAT service plan consists of bandwidth resources and multiple public IP addresses.

Modify a NAT service plan

1. Log on to the NAT Gateway console.
2. In the top navigation bar, select the region where the NAT gateway is deployed.
3. On the **Internet NAT Gateway** page, find the NAT gateway that you want to manage and click its ID.
4. Click the **NAT Bandwidth Package** tab.
5. In the **Bandwidth Package Details** section, click **Edit**.
6. In the dialog box that appears, modify the name and description of the NAT service plan, and then click **OK**.

Add or remove public IP addresses

1. Log on to the NAT Gateway console.
2. In the top navigation bar, select the region where the NAT gateway is deployed.
3. On the **Internet NAT Gateway** page, find the NAT gateway that you want to manage and click its ID.
4. Click the **NAT Bandwidth Package** tab.
5. In the **Public IP List** section, click **Add Public** to add public IP addresses.
6. In the **Public IP List** section, click **Release** next to a public IP address to remove the public IP address.

> **Notice** You can remove a public IP address only if it is not used in an SNAT entry or port forwarding entry.

Modify the maximum bandwidth of a NAT service plan

1. Log on to the NAT Gateway console.
2. In the top navigation bar, select the region where the NAT gateway is deployed.
3. On the **Internet NAT Gateway** page, find the NAT gateway that you want to manage and click its ID.
4. Click the **NAT Bandwidth Package** tab.
5. In the **Billing Info** section, click **Modify Bandwidth**.
6. In the **Change configuration** section, specify a new bandwidth value and set the number of IP addresses, and then click **Activate**.

Delete a NAT service plan

1. Log on to the NAT Gateway console.
2. In the top navigation bar, select the region where the NAT gateway is deployed.

3. On the **Internet NAT Gateway** page, find the NAT gateway that you want to manage and click its ID.
4. Click the **NAT Bandwidth Package** tab.
5. Find the NAT service plan that you want to delete and click **Delete**.
6. In the message that appears, click **OK**.

4.FAQ about NAT service plans

Why are NAT service plans unavailable in the NAT Gateway console?

If you did not purchase a NAT service plan for a NAT gateway before 23:59 (UTC+8) January 26, 2018, you can associate only elastic IP addresses (EIPs) with the NAT gateway to provide public IP addresses for the NAT gateway. For more information about how to associate an EIP with a NAT gateway, see Associate an EIP with a NAT gateway.

How many NAT service plans can be associated with a NAT gateway?

By default, you can associate up to four NAT service plans with one NAT gateway.

The name of this service quota is *natgw_quota_bandwidth_packages_num*. You can find this service quota on the Quota Management page in the Virtual Private Cloud (VPC) console and apply for a quota increase.

What is the difference between NAT service plans and EIP bandwidth plans?

NAT service plans can be associated only with NAT gateways.

EIP bandwidth plans can be associated with various cloud resources, such as Elastic Compute Service (ECS) instances and Server Load Balancer (SLB) instances.

What is the difference between public IP addresses in NAT service plans and EIPs?

Public IP addresses in NAT service plans cannot be disassociated from NAT gateways.

EIPs can be associated with or disassociated from NAT gateways.

Does the maximum bandwidth value of a NAT service plan apply to inbound and outbound data transfer?

The maximum bandwidth value of a NAT service plan applies to both inbound and outbound data transfer. If the maximum bandwidth value is reached, some packets are dropped due to bandwidth throttling.