

Alibaba Cloud

AnalyticDB for PostgreSQL Instances

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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 <code>cd /d C:/window</code> command to enter the Windows system folder.
<i>Italic</i>	Italic formatting is used for parameters and variables.	<code>bae log list --instanceid</code> <i>Instance_ID</i>
[] or [a b]	This format is used for an optional value, where only one item can be selected.	<code>ipconfig [-all -t]</code>
{ } or {a b}	This format is used for a required value, where only one item can be selected.	<code>switch {active stand}</code>

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1. Manage public endpoints

If your application is deployed on an ECS instance within the same region and has the same **network type** as your AnalyticDB for PostgreSQL instance, you do not need to apply for a public endpoint. If your application is deployed on a third-party system or on an ECS instance in a different region or has a different network type from your AnalyticDB for PostgreSQL instance, you must apply for a public endpoint.

 **Note** If your application is deployed on an ECS instance within the same region (but maybe in different zones) and has the same network type as your AnalyticDB for PostgreSQL instance, the application can connect to the AnalyticDB for PostgreSQL instance over their internal network.

Scenarios

Internal and public endpoints apply to the following scenarios:

- Only use an internal endpoint.
 - Your application is deployed on an ECS instance within the same region and has the same **network type** as your AnalyticDB for PostgreSQL instance.
- Only use a public endpoint.
 - Your application is deployed on an ECS instance in a region different from your AnalyticDB for PostgreSQL instance.
 - Your application is deployed on a third-party system.
- Use both an internal endpoint and a public endpoint.
 - Some modules of your application are deployed on an ECS instance within the same region and have the same **network type** as your AnalyticDB for PostgreSQL instance, but other modules are deployed on an ECS instance in a region different from your AnalyticDB for PostgreSQL instance.
 - Some modules of your application are deployed on an ECS instance within the same region and have the same **network type** as your AnalyticDB for PostgreSQL instance, but other modules are deployed on a third-party system.

Precautions

- Before you connect your application to your AnalyticDB for PostgreSQL instance, you must add the IP address or the corresponding CIDR block of the application to a whitelist of the instance. For more information, see [Configure an IP address whitelist for an AnalyticDB for PostgreSQL instance](#).
- For security purposes, exercise caution when you use the public endpoint to connect to your AnalyticDB for PostgreSQL instance. To increase security and expedite transmission, we recommend that you migrate your application to an ECS instance in the same region as your AnalyticDB for PostgreSQL instance.

Apply for a public endpoint

1. Log on to the [AnalyticDB for PostgreSQL console](#).
2. In the upper-left corner of the page, select the region where the target instance resides

from the drop-down list.

3. Find the target instance and click its ID.
4. On the **Basic Information** page that appears, click **Apply for Public Endpoint**. Alternatively, in the left-side navigation pane, click **Database Connection**.
5. On the **Database Connection** page, click **Apply for Public Endpoint**.

On the **Database Connection** page, you can click **Release Public Endpoint** to release the public endpoint.

Release a public endpoint

1. Log on to the [AnalyticDB for PostgreSQL console](#).
2. In the upper-left corner of the page, select the region where the target instance resides from the drop-down list.
3. Find the target instance and click its ID.
4. In the left-side navigation pane, click **Database Connection**.
5. On the **Database Connection** page, click **Release Public Endpoint**.

If you have not applied for a public endpoint, only the **Apply for Public Endpoint** button is displayed on the **Database Connection** page.

6. In the message that appears, click **OK** to release the public endpoint.

Related API operations

API	Description
AllocateInstancePublicConnection	Specifies the public endpoint of the instance.
ReleaseInstancePublicConnection	Releases the public endpoint of the instance.

2. Release an Internet IP address

If the network environment changed after the Internet address is allocated, you can release the Internet address on AnalyticDB for PostgreSQL console if you don't need it any more. After releasing the Internet address, make sure to change the application configurations which related to this address.

Before performing this operation, please read the following scenarios.

Scenarios

Internet IP addresses and intranet IP addresses are used in the following scenarios:

- Use an intranet IP addresses only:
 - Your application is deployed on an ECS instance in the same region as your AnalyticDB for PostgreSQL instance and shares the same **network type** with the ECS instance.
- Use an Internet IP addresses only:
 - The ECS instance where your application is deployed and your AnalyticDB for PostgreSQL instance are in different regions.
 - Your application is deployed in a third-party system other than Alibaba Cloud.
- Use both Internet and intranet IP addresses:
 - Some application modules are deployed on an ECS instance in the same region with the same **network type**, while other modules are deployed on an ECS instance in a different region.
 - Some modules of the application are deployed on an ECS instance in the same region with the same **network type**, while other modules are deployed in systems other than Alibaba Cloud.

Procedure

1. Log on to the [AnalyticDB for PostgreSQL console](#).
2. Select the **Region** of the instance.
3. Click the ID of the instance to go to its **Basic Information** page.
4. Click **Database Connection** on the left-side navigation.
5. On the **Database Connection** page, Click **Release Internet Address**.

If you haven't applied for an Internet address since you created an instance, there is only **Apply for Internet address** on the **Database Connection** page.

6. Click **OK** on the dialog box to release the Internet address.

Related API

API	Description
ReleaseInstancePublicConnection	Release the Internet address of an instance.

3.Enable SQL audit

AnalyticDB for PostgreSQL provides the SQL audit feature for you to view SQL details and audit SQL activities on a regular basis. Enabling SQL audit does not affect instance performance.

Background information

SQL audit records all DML and DDL operations. The system captures such operations by analyzing data transmitted through network protocols. A few records may be lost when a large number of SQL queries are sent to database instances.

Precautions

- SQL audit records are saved for 30 days.
- By default, SQL audit is disabled for instances. When this feature is enabled for instances, additional fees will be incurred. For more information, see [AnalyticDB for PostgreSQL pricing](#).

Procedure


1. Log on to the [AnalyticDB for PostgreSQL console](#).
2. Select the region where an instance is located from the **Region** drop-down list.
3. Click the instance ID to go into its **Basic Information** page.
4. In the left-side navigation pane, click **Security**.
5. Click the **SQL Audit** tab, and click **Enable**.
6. In the message that appears, click **OK** to enable SQL audit.
 - After enabling SQL audit, you can query SQL information based on conditions such as **Select Time Range, DB, User, and Keyword**.
 - To disable SQL audit, click **Disable SQL Audit** on the **SQL Audit** tab.

Related API operations

API operation	Description
ModifySQLCollectorPolicy	You can call this operation to enable or disable the SQL collection feature for a specified instance.


4. Update the kernel of an AnalyticDB for PostgreSQL instance

To better meet your requirements, AnalyticDB for PostgreSQL regularly updates its kernels. When you create an AnalyticDB for PostgreSQL instance, the latest kernel is used by default. When a kernel update is released, you need to update the kernel of your instance to use the extensions provided with the latest kernel. This topic describes how to update the kernel of an instance.

 **Note** When you update the kernel of an instance, the instance restarts and is unavailable during the restart. We recommend that you update a kernel during off-peak hours.

To update the kernel of an instance, follow these steps:

1. Log on to the [AnalyticDB for PostgreSQL console](#).
2. In the top navigation bar of the page, select the region where the target instance resides, such as China (Hangzhou).
3. Find the target instance and click its ID.
4. In the upper-right corner of the page that appears, click **Upgrade Minor Version**. In the message that appears, click **OK**. If your account is bound to your mobile phone number, you must provide a verification code.

 **Note** The update of a kernel can take 3 to 30 minutes, and the target instance is unavailable during the update. Therefore, we recommend that you make appropriate preparations before the update. After the update is complete, the instance enters the **Running** state, and you can access databases in it.

You can view the instance status in the console. If the update is complete, the instance enters the **Running** state. Otherwise, the instance remains in the **Upgrading** state. Before the update, the system checks the kernel version of your instance. If you are already using the latest kernel, the system skips the update and instance restart.

View the kernel version of an instance

Connect to the target instance and run `show rds_release_date;` .

```
postgres=# show rds_release_date;
 rds_release_date
-----
20190603
(1 row)
```

If you want to check whether you are using the latest kernel or want to view the features provided by the current kernel, see [Release notes](#).

Related operations

Operation	Description
UpgradeDBInstance	Updates the kernel of an AnalyticDB for PostgreSQL instance.

5. Upgrade the instance configuration

During the usage of AnalyticDB for PostgreSQL, some computing resources (such as CPU, disk space, memory, and the number of data processing nodes) may become the bottleneck hindering further growth of data processing speed as the data size and computing workload surge dynamically.

AnalyticDB for PostgreSQL provides online upgrading of the instance configuration to support dynamic expansion of instances, but downgrading instance configuration is not supported. This document describes how to upgrade the instance configuration.

View the instance configuration

AnalyticDB for PostgreSQL instance configuration includes [group types](#) and [number of groups](#). For more information, see [Instance types](#).

Follow these steps to view the current instance configuration.

1. Log on to the [AnalyticDB for PostgreSQL console](#).
2. Select the region of the instance. For example, China East 1.
3. Click on the instance name in the list to enter the basic information page.

On the **Basic Information** page, displays the instance class, instance details, instance groups, and the total computing resources.

AnalyticDB for PostgreSQL currently has two instance classes available:

- High-performance group: the group type name starts with gpdb.group.segsdx. This type features a better I/O capability that secures higher performance.
- High-capacity group: the group type name starts with gpdb.group.seghdx. This type features a larger and more affordable space to meet higher storage demands.

Upgrade the instance configuration

Follow these steps to upgrade the instance configuration.

1. Log on to the [AnalyticDB for PostgreSQL console](#).
2. Select the region of the instance. For example, China East 1.
3. Click the **Upgrade** on the right side of the target instance.
4. On the **Configuration upgrade** page, select the expected group type and group quantity, and then click **Activate**.

AnalyticDB for PostgreSQL supports a diversity of group type and group quantity combos. For more information, see [Configuration combo lookup table](#). A new group type and group quantity combo must meet the following constraints:

- The new and old computing groups must be of the same instance class, and the new group configuration must be equal to or higher than the old one.
- If the new group configuration is equal to the old group type, the new group quantity must be larger than the old one.

Apart from the preceding constraints, you must also evaluate the data size and computing workload of your service to select a proper group type and quantity combo. For more information, see [How to select instance type](#).

 **Note**

The instance upgrading process may take 30 minutes to three hours depending on your data size. Your instance remains read-only in this process to ensure data consistency, and experiences two transient disconnections. Be prepared in advance. When the upgrading process is completed, the instance resumes the running state. You can visit the database normally and the instance's database kernel is automatically upgraded to the latest version.

After the preceding operations are done, you can return to the console to check the running state of the target instance. When the upgrading process is completed, the instance state becomes **Running. Otherwise, it is in **Upgrading**.**

6.Restart an AnalyticDB for PostgreSQL instance

This topic describes how to restart an AnalyticDB for PostgreSQL instance in the AnalyticDB for PostgreSQL console.

Notice

An AnalyticDB for PostgreSQL instance is unavailable while it is being restarted. We recommend that you restart your AnalyticDB for PostgreSQL instance during off-peak hours.

Procedure

To restart an AnalyticDB for PostgreSQL instance, follow these steps:

1. Log on to the [AnalyticDB for PostgreSQL console](#).
2. In the top navigation bar, select the region where the target instance resides. For example, select the China (Hangzhou) region.
3. Find the target instance and click its ID. The **Basic Information** page appears.
4. In the upper-right corner, click **Restart Instance**. In the message that appears, click **OK**. If your account is bound to your mobile phone number, you must provide a verification code.

Notice

In most cases, the restart process takes 3 minutes to 30 minutes. The instance is unavailable while it is being restarted. We recommend that you make arrangements for your business before you restart the instance. After the instance is restarted, its status becomes **Running**. This means it is available again.

After you complete the preceding steps, check the status of the instance. If the instance is restarted, its status shows **Running**. Otherwise, its status shows **Restarting**.

Related operations

Operation	Description
RestartDBInstance	Restarts an AnalyticDB for PostgreSQL instance.

7. Change from Pay-As-You-Go to Subscription

Based on your needs, you can change the billing method of a purchased Pay-As-You-Go instance to Subscription.

Note


- You cannot change the billing method from Subscription billing to Pay-As-You-Go billing. To optimize your cost plan, evaluate your usage model carefully before you change to Subscription.
- Subscription instances can only be upgraded within the subscription period, and cannot be downgraded or released.
- Your switch from Pay-As-You-Go to Subscription billing takes effect immediately.
- The system generates a new order for the Subscription billing method. You must complete the order payment to use the billing method. If the order payment is not received, an unpaid order is displayed on the [Orders](#) page. In this case, you cannot purchase any instances or change the billing method.

Prerequisites for changing the billing method

- The billing method of the instance is Pay-As-You-Go, and the instance is in the **Running** status.
- There are no unpaid instance orders (a new purchase) for changing the billing method.

Procedure

1. Log on to the [AnalyticDB for PostgreSQL console](#).
2. Locate the target instance. In the Actions column, click **Subscription Billing**.
3. On the page displayed, specify the **Duration**. Read and select the **Product Terms of Service**. Click **Pay Now**.
4. On the **Confirm Order** page, click **Pay** to complete the payment.

 **Note** The system will generate an order for Subscription billing method. If this order is canceled or unpaid, you cannot purchase a new instance or change to the Subscription billing method. You can pay the order or cancel the order on the [Orders](#) page.

8. Bind tags to an AnalyticDB for PostgreSQL instance

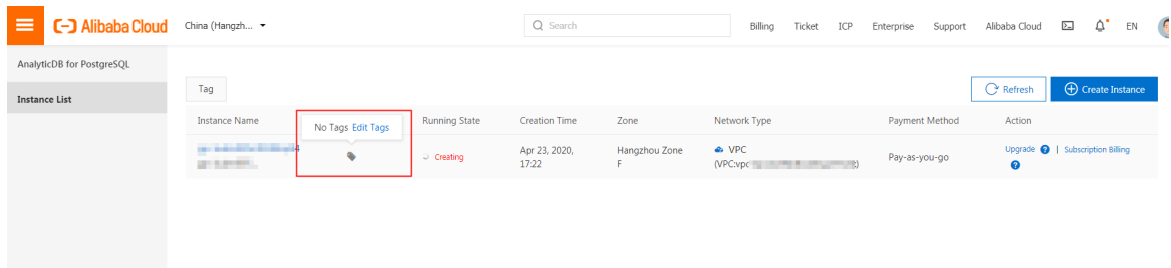
If you have a large number of instances, you can manage them by binding tags to them. A tag is composed of a key-value pair. You can use tag values to further classify instances.

Limits

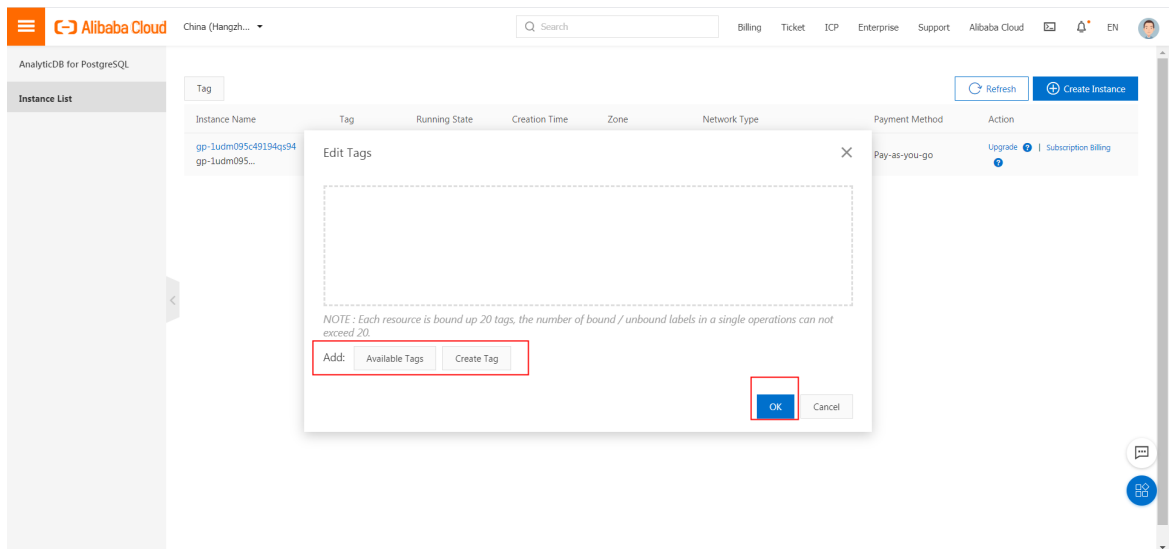
- You can bind a maximum of 20 tags to an instance. Each tag must have a unique key. If you create a tag that has the same key as an existing tag, the existing tag is overwritten.
- You can bind tags to a maximum of 50 instances at a time.
- Tag information in each region is independent.
- After you unbind a tag from an instance, the system deletes the tag if the tag is not bound to any other instances.

Procedure

1. Log on to the [AnalyticDB for PostgreSQL console](#).
2. Find the target instance, move the pointer over the icon in the Tag column, and click Edit Tags.



3. In the dialog box that appears, click Create Tag, set Tag Key and Tag Value, and click OK.



4. After you enter the keys and values of all tags you want to bind to the instance, click OK.

9. Unbind a tag from an AnalyticDB for PostgreSQL instance

This topic describes how to unbind a tag from an AnalyticDB for PostgreSQL instance after the instance no longer needs the tag.

Limits

- You can unbind a maximum of 20 tags at a time.
- After you unbind a tag from an instance, the system deletes the tag if the tag is not bound to any other instances.

Procedure

1. Log on to the [AnalyticDB for PostgreSQL console](#).
2. Find the target instance, move the pointer over the icon in the Tag column, and click Edit Tags.
3. Click the X icon next to the tag you want to unbind from the instance.

Edit Tags

ddd:ddd X

NOTE : Each resource is bound up 20 tags, the number of bound / unbound labels in a single operations can not exceed 20.

Add: Available Tags Tag Key Tag Value OK Cancel

OK Cancel

4. Click OK.

10. Set alert rules for an AnalyticDB for PostgreSQL instance

This topic describes how to set alert rules for an AnalyticDB for PostgreSQL instance in the CloudMonitor console.

Background information

Monitoring and alerting are implemented by using [CloudMonitor](#). CloudMonitor enables you to set metrics and contacts. If the alert rules of a metric are triggered, CloudMonitor notifies all the contacts in the alert contact group. You can maintain alert contact groups so that relevant contacts can be promptly notified if an alert is triggered.

Procedure

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, click **Event Monitoring**. The **Event Monitoring** page appears.
3. Click the **Alarm Rules** tab. In the upper-right corner of this tab, click **Create Event Alert**. In the **Create/Modify Event Alert** dialog box that appears, set parameters.

Create / Modify Event Alert

Product Type

Event Type

Event Level

Event Name

Resource Range
 All Resources Application Groups

Alarm Type

Alarm Notification

Contact Group Delete

Notification Method

[+Add](#)

MNS queue

Function service

URL callback

Log Service

Parameters for setting alert rules

Parameter	Description
Alarm Rule Name	The name of the alert rule you want to configure. The name can be up to 30 characters in length, and can contain letters, digits, and underscores (_).
Event Type	Select System Event.
Product Type	Select AnalyticDB for PostgreSQL.

Event Type	Select All types.
Event Level	Select All Levels.
Event Name	Select All Events or a specific event.
Resource Range	Select All Resources, which indicates that alert contacts are notified if any resource-related event occurs.
N/A	Select Alarm Notification.
Contact Group	The alert contact group. For more information, visit Create an alert contact and an alert contact group and Manage alarm contacts and alarm contact groups .
Notification Method	The notification method of alerts.

Events triggering alerts

Event	Description
The CPU utilization of a compute group exceeds 90%.	
The memory usage of a compute group exceeds 85%.	
The disk usage of a compute group exceeds 80%.	
The instance is unavailable.	The instance cannot be connected, or it processes all requests. No alerts are triggered when the instance is being restarted, created, or upgraded, or is deleted or locked.
There are five or more long-running transactions.	If a transaction is active for more than 2 hours but is not in the idle state and has a lock, it is defined as a long-running transaction.
The CPU utilization of the coordinator node exceeds 90%.	
The memory usage of the coordinator node exceeds 85%.	
The proportion of connections with an instance exceeds 80%.	

4. Click OK.

11. Release an instance

You can manually release Pay-As-You-Go instances based on your business needs.


Prerequisite

The instance must be a Pay-As-You-Go type instance.

 **Note** Pay-As-You-Go instances can be released at any time.

Procedure

1. Log on to the [AnalyticDB for PostgreSQL console](#).
2. Select the region of the instance you want to release.
3. Select the instance and click **Click Instance Name** in the Actions bar.
4. On the **Basic Information** page, click **Release** on the right-side of the Status section.
5. In the dialog box that appears, click the check box before **Yes, delete this instance** and then click **OK** to release the specified instance.

 **Notice** Released instances cannot be recovered. Make sure if you need the instance before you perform this operation.

Related API

API	Description
DeleteDBInstance	Release an instance.