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AnalyticDB for PostgreSQL
Specifications and Pricing

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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}`

Table of Contents

1.Instance specifications

This topic describes AnalyticDB for PostgreSQL instance specifications and provides recommendations.

Storage types

- **High-performance SSD**: provides better I/O capabilities and higher analysis performance.
- **High-capacity HDD**: provides larger storage capacity at a lower cost.

Node specifications

Storage type	Number of cores per node	Memory	Storage space	Description
High-performance SSD	1	8 GB	80 GB	These specifications are recommended for low-concurrency scenarios that require less than 5 concurrent queries and less than 32 nodes. These specifications are available for 2 to 128 nodes.
High-performance SSD	4	32 GB	320 GB	These specifications are recommended for high-performance SSD storage and available for 8 to 4,096 nodes.
High-capacity HDD	2	16 GB	1 TB	These specifications are recommended for low-concurrency scenarios that require less than 5 concurrent queries and less than 8 nodes. These specifications are available for 4 to 32 nodes.
High-capacity HDD	4	32 GB	2 TB	These specifications are recommended for high-capacity HDD storage and available for 8 to 4,096 nodes.

Number of nodes

A single instance can have up to 4,096 nodes. In the massively parallel processing (MPP) architecture, each node is a partition that is used to store and process a portion of data on the instance. You can add nodes to increase the storage capacity and maintain a stable query response time.

Recommendations on how to select instance specifications

When you create or upgrade the specifications of an AnalyticDB for PostgreSQL instance, you must configure **Storage Type**, **Node Cores**, and **Node Num**. AnalyticDB for PostgreSQL supports data storage to Object Storage Service (OSS) external tables. You can use the gzip utility to compress data that is not needed for real-time computing and then upload the data to OSS buckets to reduce storage costs.

- **Storage type**
  - If high performance is your primary concern, we recommend that you choose the SSD storage type.
  - If large storage capacity is your primary concern, we recommend that you choose the HDD storage type.
- **Number of cores per node**

Each node stores and processes data from a partition of each user table. We recommend that you configure four cores for each node. The SSD configuration that supports one core per node is suitable only for an instance that has 32 nodes or less and processes a small amount concurrent queries. The HDD configuration that supports two cores per node is suitable only for an instance that has eight nodes or less and processes few concurrent queries.

- **Number of nodes**

  AnalyticDB for PostgreSQL uses the MPP architecture. This architecture enables the data processing capability of an instance to linearly increase in proportion with the number of nodes. However, the query response time remains constant when the data volume increases. You can determine the number of nodes the instance needs based on your business scenario and the volume of raw data.

Row store and column store

AnalyticDB for PostgreSQL supports two storage models: row store and column store. You can specify a storage model when you create a table.

- If you want to write data in real time or frequently update data by executing INSERT, UPDATE, and DELETE statements, we recommend that you choose row store.

  If you choose row store, 1 TB of raw data requires about 1 TB of storage space. However, the indexes, logs, and temporary files generated during computing also occupy storage space. Therefore, we recommend that you reserve 2 TB of storage space for every 1 TB of raw data. To improve query performance, you can add nodes to increase available CPU and memory resources.

- In batch extract, transform, and load (ETL) scenarios, we recommend that you choose column store. Data is rarely updated by executing UPDATE and DELETE statements and most queries require aggregations and joins of table data based on only a small amount of columns

  Column store provides a compression ratio in the range of 1:5 to 1:2. For example, if 1 TB of raw data is reduced to 0.5 TB or less after compression, you need to reserve only 1 TB of storage space for user data.

Examples

If you want to process 5 TB of raw data with high performance to respond to more than 100 concurrent queries, we recommend that you choose the SSD storage type to support 4 cores per node and 32 nodes per instance. In this scenario, a total of 10 TB of storage space is available for user data.

> **Note** From August 23, 2019, the basic building block of an AnalyticDB for PostgreSQL instance is compute node. The previous building block was compute group. A compute group contains multiple partitions, whereas a compute node is equivalent to an MPP partition. This simplifies the definition of instance specifications and complies with cluster database naming conventions. For information about the mappings between compute groups and compute nodes, see Mappings between compute node types and compute group types.

2.Pricing

For more information about pricing, see AnalyticDB for PostgreSQL Pricing.

3.Impact of expiration or overdue payments

After an instance expires or you have an overdue payment in your Alibaba Cloud account, the instance is locked for a period of time and then released. After the instance is released, its data cannot be restored.

Instance billing method	Impact	Solution
Subscription	From the first day to the 15th day after a subscription instance expires, the instance is locked and cannot be accessed.	Renew the instance. The instance is immediately unlocked.
	On the 16th day after a subscription instance is locked, the instance is released.	Data of the instance is deleted and cannot be restored.
Pay-as-you-go	From the first day to the 15th day after the payment becomes overdue, each pay-as-you-go instance is locked and cannot be accessed.	Add funds to your Alibaba Cloud account in the Billing Management console. Each pay-as-you-go instance is unlocked.
	On the 16th day after a pay-as-you-go instance is locked, the instance is released.	Data of the instance is deleted and cannot be restored.

4.Change the billing method from pay-as-you-go to subscription

This topic describes how to change the billing method of an AnalyticDB for PostgreSQL instance from pay-as-you-go to subscription after you purchase that instance.

Precautions

- You cannot change the billing method from subscription to pay-as-you-go. To optimize your cost plan, we recommend that you evaluate your usage model carefully before you change the billing method to subscription.
- You can upgrade the specifications of your subscription instance during the subscription period. However, you cannot release your subscription instance nor can you downgrade its specifications.
- Subscription billing immediately takes effect after you change the billing method of your instance from pay-as-you-go to subscription.
- After you change the billing method of your instance from pay-as-you-go to subscription, the system generates a subscription order. Subscription billing takes effect after you pay the subscription fee. If you do not pay for this order, an unpaid order is displayed on the Orders page. In this situation, you cannot purchase a new instance or change the billing method of another instance until you pay the unpaid balance.

Prerequisites

- The billing method of the instance is pay-as-you-go and the instance is in the **Running** state.
- The instance does not have an unpaid balance.

Procedure

1. Log on to the AnalyticDB for PostgreSQL console.
2. Find the target instance and click **Subscription Billing** in the Action column.
3. On the order confirmation page, specify a **Purchase Cycle**, read and select Agreement of Service, and click **Activate**.
4. On the **Orders** page, click **Confirm Payment**.

> **Note** You must complete the subscription order generated for the instance. You cannot purchase a new instance or change the billing method of another instance until you pay for or cancel this order. You can pay for or cancel this order on the Billing Management page.