GaussDB

# Getting Started

**Issue** 01

**Date** 2025-06-19

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# Contents



# 1 Buying a GaussDB Instance and Connecting to It Through the DAS Console (Recommended)

Data Admin Service (DAS) enables you to manage instances on a web-based console, simplifying database management and improving working efficiency. You can connect to and manage instances through DAS.

This section describes how to use DAS to connect to a GaussDB instance you have bought on the GaussDB management console. For more methods of connecting to an instance, see **GaussDB Instance Connection**.

## Operation Process

| Step | Description |
| --- | --- |
| **Preparations** | Sign up for a HUAWEI ID, enable Huawei Cloud services, make sure you have a valid payment method configured, create IAM users, and grant them specific GaussDB permissions. |
| **Step 1: Buy an Instance** | Configure basic information about a GaussDB instance and submit the purchase request. |
| **Step 2: Log In to a GaussDB Instance Through DAS** | Connect to the GaussDB instance using Data Admin Service (DAS). |

## Preparations

1. **Sign up for a HUAWEI ID and enable Huawei Cloud services**.
2. Before purchasing an instance, ensure that there is a valid payment method configured.
3. For fine-grained permissions management on Huawei Cloud resources, use Identity and Access Management (IAM) to create a user or user group and grant it specific operation permissions. For details, see **Creating a User and Granting Permissions**.

## Buying an Instance

**Step 1** Log in to the management console.

**Step 2** Click in the upper left corner and select a region and project.

**Step 3** Click in the upper left corner of the page and choose **Databases** > **GaussDB**.

**Step 4** On the **Instances** page, click **Buy DB Instance**.

**Step 5** On the displayed page, set **Billing Mode**, enter **DB Instance Name**, select **Edition Type**, **DB Engine Version**, **DB Instance Type**, and **Deployment Model**, and complete other configurations.

**Figure 1-1** Billing mode and basic information

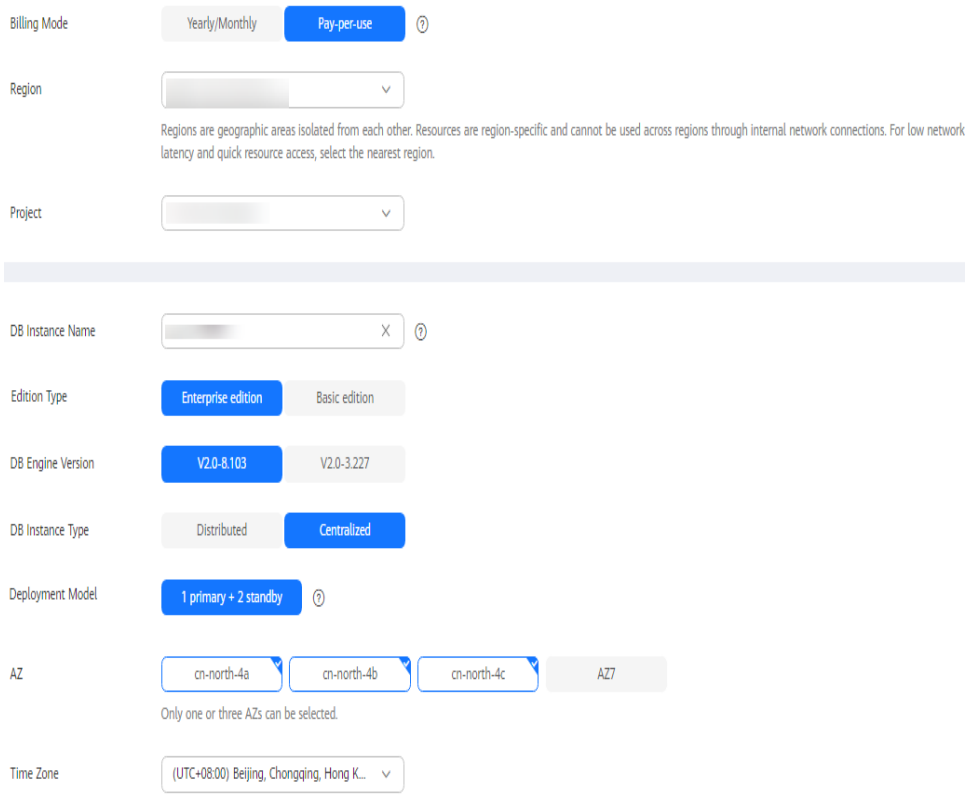


**Table 1-1** Parameters

| Parameter | Example Value | Description |
| --- | --- | --- |
| Billing Mode | Pay-per-use | GaussDB provides yearly/monthly billing and pay-per-use billing.<br>• **Yearly/Monthly**: You pay upfront for the amount of time you expect to use the DB instance for. You will need to make sure you have a top-up account with a sufficient balance or have a valid payment method configured first.<br>For distributed instances using the combined deployment model, yearly/monthly billing is only available to whitelisted users. To apply for the permissions needed, **submit a service ticket**.<br>• **Pay-per-use**: You can start using the DB instance first and then pay as you go. Pricing is listed on a per-hour basis, but bills are calculated based on the actual usage duration. |
| Region and Project | CN-Hong Kong | Region where the tenant is located.<br>Products in different regions cannot communicate with each other over a private network. After the instance is created, you cannot change its region. |
| DB Instance Name | gauss-d0a7 | The instance name is case-sensitive, must start with a letter, and can contain 4 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. |
| Edition Type | Enterprise edition | GaussDB provides **Basic edition** and **Enterprise edition**.<br>The basic edition lacks certain advanced features that are available in the enterprise edition. The basic edition delivers the same level of performance as the enterprise edition at a more affordable price. This edition is ideal for users who prioritize cost and do not need advanced features.<br>For more details about the differences between the two editions, see **Differences Between the Basic and Enterprise Editions of GaussDB Instances**. |
| DB Engine Version | V2.0-8.103 | GaussDB database version. |

| Parameter | Example Value | Description |
| --- | --- | --- |
| DB Instance Type | Centralized | • **Distributed**: You can add nodes for distributed instances as needed to handle large volumes of concurrent requests.<br>• **Centralized**: Centralized instances are suitable for scenarios with small and stable volumes of data, where data reliability and service availability are extremely important.<br>**CAUTION**<br>Per-host licenses allow you to create only centralized instances. |
| Deployment Model | 1 primary + 2 standby | • Distributed<br>– **Independent**: Database components are deployed on different nodes. This model is suitable for where high availability and stability are required and the instance scale is large.<br>– **Combined**: Different database components are deployed on the same node. This option is available only when **Edition Type** is **Basic edition**.<br>• Centralized<br>– **HA (1 primary + 2 standby)**: 3-node deployment where there is a shard. The shard contains one primary DN and two standby DNs.<br>– **Single**: single-node deployment where there is only one CMS component and one DN. To create a single-replica instance, ensure that the instance version is V2.0-2.2 or later.<br>– **1 primary + 1 standby + 1 log**: 3-node deployment where there is one shard with three replicas. The shard contains one primary DN, one standby DN, and one log-dedicated DN. This model is available only for instances of version V2.0-3.200 or later. |
| AZ | AZ1 | An AZ is a physical region where resources have their own independent power supply and networks. AZs are physically isolated but interconnected through an internal network. |

| Parameter | Example Value | Description |
| --- | --- | --- |
| Time Zone | (UTC+08:00) Beijing, Chongqing, Hong Kong, Urumqi | You need to select a time zone for your instance based on the region it is hosted in. |

**Step 6** Configure instance specifications.

**Figure 1-2** Specifications and storage

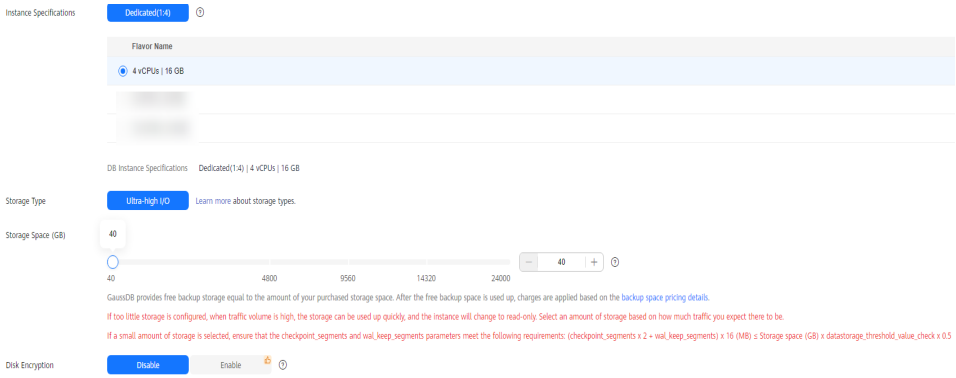


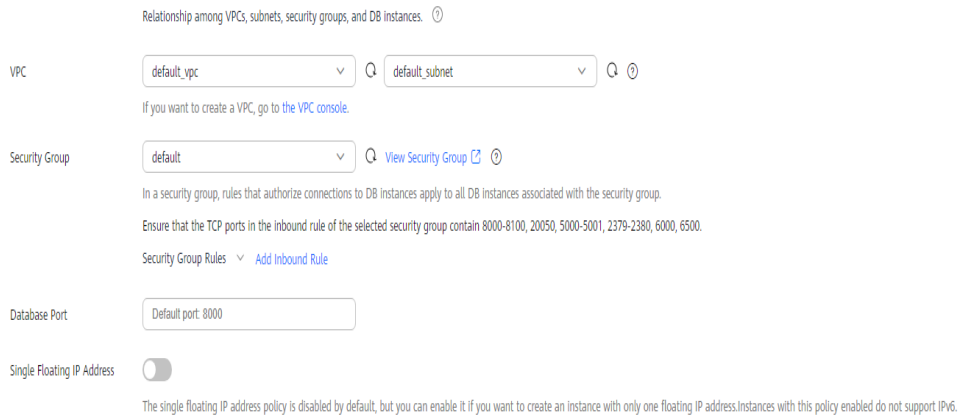

**Table 1-2** Parameters

| Parameter | Example Value | Description |
| --- | --- | --- |
| Instance Specifications | Dedicated(1:4), 4 vCPUs \| 16 GB | The vCPUs and memory of an instance. |
| Storage Type | Ultra-high I/O | The storage type determines the read/write speed of an instance. The higher the maximum throughput is, the higher the instance read/write speed can be. |
| Storage Space | 40 GB | The storage space contains the file system overhead required for inodes, reserved blocks, and database operations. |
| Disk Encryption | Disable | Enabling disk encryption improves data security, but slightly affects the read and write performance of the database.<br>If a shared KMS key is used, the corresponding CTS event is **createGrant**. Only the key owner can receive this event. |

**Step 7** Retain the default settings for the network information.

**Figure 1-3** Network configuration




**Step 8** Configure the instance password and enterprise project.

**Figure 1-4** Database configuration

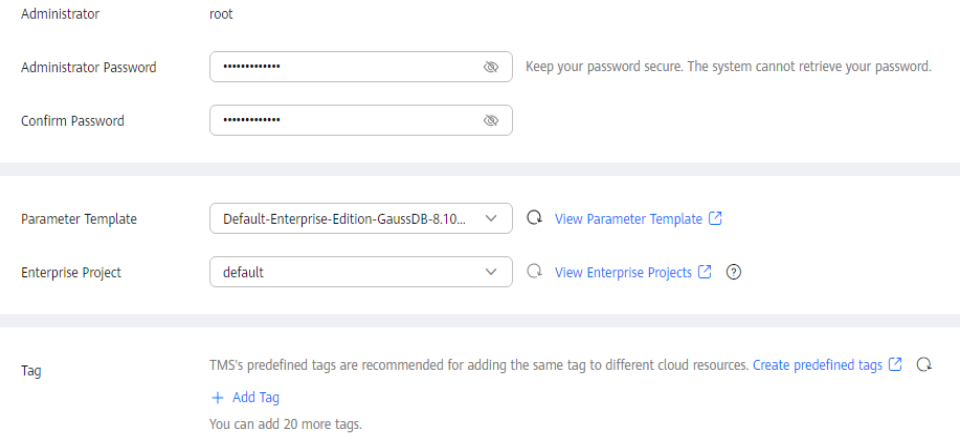



**Table 1-3** Parameters

| Parameter | Example Value | Description |
| --- | --- | --- |
| Administrator Password | - | Enter a strong password and periodically change it to improve security, preventing security risks such as brute force cracking. |
| Confirm Password | - | Enter the administrator password again. |

| Parameter | Example Value | Description |
| --- | --- | --- |
| Enterprise Project | default | If the instance has been associated with an enterprise project, select the target project from the **Enterprise Project** drop-down list.<br>You can also go to the Enterprise Project Management console to create a project. For details, see ***Enterprise Management User Guide***. |

**Step 9** Click **Next**, confirm the instance information, and click **Submit**.

**Step 10** Go to the instance list.

If status of the instance becomes **Available**, the instance has been created.

**----End**

## Logging In to a GaussDB Instance Through DAS

**Step 1** **Log in to the management console**.

**Step 2** Click  in the upper left corner and select a region and project.

**Step 3** Click  in the upper left corner of the page and choose **Databases** > **GaussDB**.

**Step 4** On the **Instances** page, locate the DB instance you want to log in to and click **Log In** in the **Operation** column.

Alternatively, click the DB instance name on the **Instances** page. On the displayed **Basic Information** page, click **Log In** in the upper right corner of the page.

**Step 5** On the **Custom Login** page, select the node to be logged in to. Enter the correct database username and password, and click **Test Connection**. After the connection test is successful, click **Log In**.

**Figure 1-5** Login page

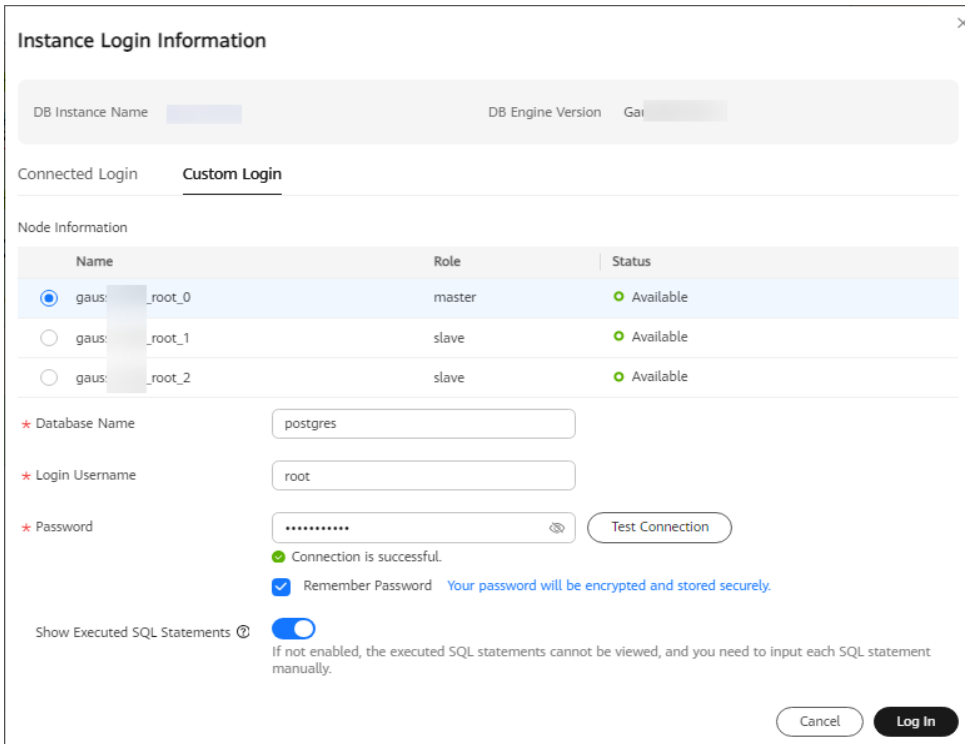



**Table 1-4** Parameters

| Parameter | Example Value | Description |
| --- | --- | --- |
| Login Username | root | Username of the GaussDB database account. The default administrator is **root**. |
| Database Name | postgres | Name of the database to be connected. The default management database is **postgres**. |
| Password | - | Password of the database user. |
| Show Executed SQL Statements | Enabled | You are advised to enable **Show Executed SQL Statements**. With it enabled, you can view the executed SQL statements under **SQL Operations** > **SQL History** and execute them again without entering the SQL statements. |

**----End**

## Getting Started with SQL

After logging in to an instance, you can create database users, databases, and tables through DAS.

**Step 1** Create a database user.

Only administrators that are created during the instance installation can access the initial database by default. You can also create other database users.

**CREATE USER** *joe* **WITH PASSWORD** "xxxxxxxxx**";**

If information similar to the following is displayed, the creation is successful.

**Figure 1-6** Creating a database user


In this case, you have created a user named **joe**, and the user password is **xxxxxxx**.

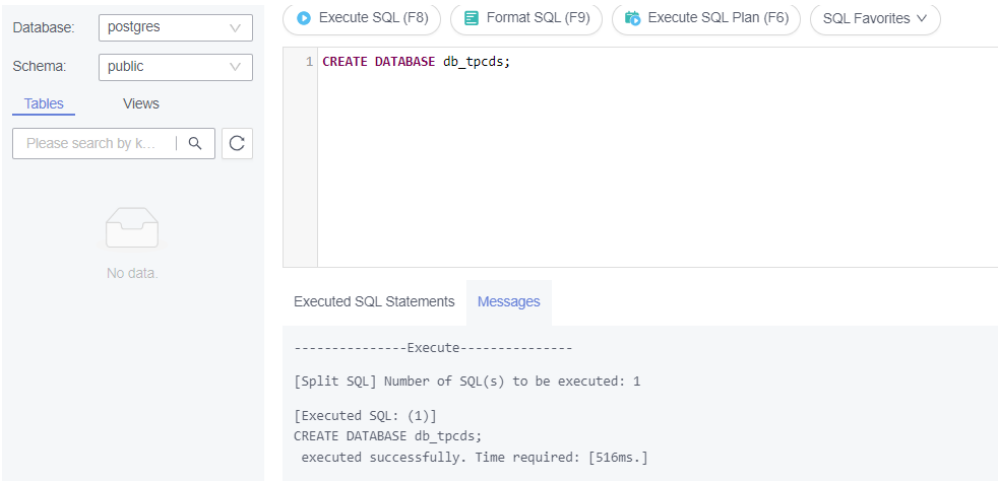
For more information about database users, see **Users and Permissions**.

**Step 2** Create a database.

**CREATE DATABASE** *db_tpcds*;

If information similar to the following is displayed, the creation is successful.

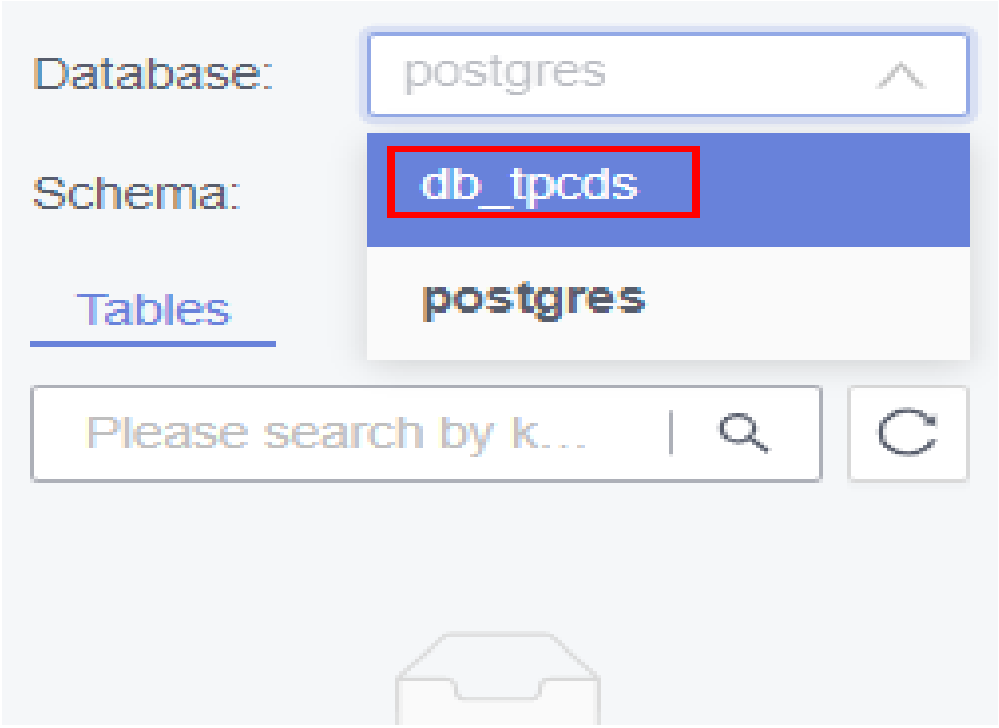
**Figure 1-7** Creating a database




Switch to the newly created database in the upper left corner.

**Figure 1-8** Switching to the new database




**Step 3** Create a table.

- Run the following command to create a schema:

  **CREATE SCHEMA** *myschema*;
- Create a table named **mytable** that has only one column. The column name is **firstcol** and the column type is integer.

  **CREATE TABLE** myschema.mytable *(firstcol int)*;
- Insert data to the table.

  **INSERT INTO** myschema.mytable values (100);
- View data in the table.

  **SELECT * FROM** myschema.mytable;

**Note:**

- By default, new database objects, such as the **mytable** table, are created in the *$user* schema. For more information about schemas, see **Creating and Managing Schemas**.
- For details about how to create a table, see **Creating and Managing Tables**.
- In addition to the created tables, a database contains many system catalogs. These system catalogs contain information about instance installation as well as the queries and processes running in GaussDB. You can collect information about the database by querying the system catalogs. For details about querying system catalogs, see **Querying a System Catalog**.

**Step 4** In the **db_tpcds** database, run the following statement as user **root** to grant all permissions of the **db_tpcds** database to user **joe**:

**GRANT ALL ON DATABASE** db_tpcds **TO** joe;

**GRANT USAGE ON schema** myschema **TO** joe*;*

**GRANT ALL ON TABLE** myschema.mytable **TO** joe;

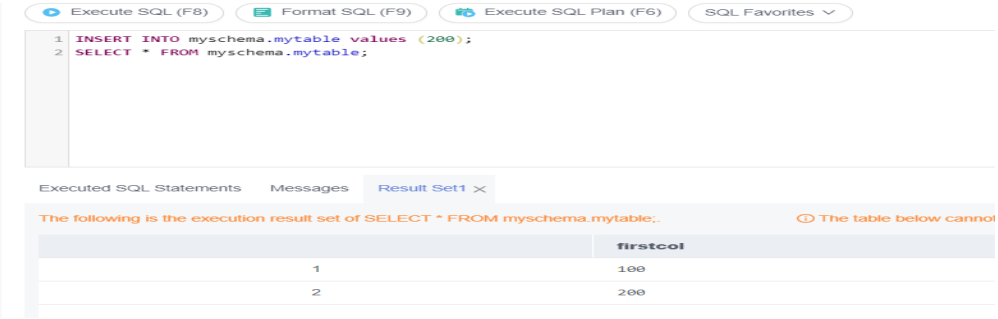
**Step 5** Log in to the **db_tpcds** database as user **joe**.

**Step 6** After login, insert data into the table and verify the data.

**INSERT INTO** myschema.mytable values (200);

**SELECT * FROM** myschema.mytable;

**Figure 1-9** Inserting and verifying data




**----End**

## Follow-up Operations

After logging in to the instance, you can create alarm rules, set automated backup policies, create databases, and migrate data. For details, see:

- **Creating an Alarm Rule**
- **Setting an Automated Backup Policy**
- **Creating a Database Using SQL**
- **Creating a Database Through an API**
- **Managing GaussDB Databases Through DAS**
- **Migrating Data to GaussDB**

## FAQ

Question: What can I do if the DAS console is not displayed after I click **Log In** in the **Operation** column of an instance on the **Instances** page?

Solution: Set your browser to allow pop-ups and try again.

# 2 Buying a GaussDB Instance and Connecting to It Using gsql

This section describes how to use the gsql client to connect to a GaussDB instance you have bought on the GaussDB management console. For more methods of connecting to an instance, see **GaussDB Instance Connection**.

## Operation Process

| Step | Description |
| --- | --- |
| **Preparations** | Sign up for a HUAWEI ID, enable Huawei Cloud services, make sure you have a valid payment method configured, create IAM users, and grant them specific GaussDB permissions. |
| **Step 1: Buy an Instance** | Configure basic information about a GaussDB instance and submit the purchase request. |
| **Step 2: Buy an ECS** | Buy an ECS that is in the same region and VPC as your GaussDB instance. |
| **Step 3: Obtain the Driver Package** | Download the driver package that matches the version of your instance. |
| **Step 4: Connect to the Database** | Use gsql to connect to GaussDB. |

## Preparations

1. **Sign up for a HUAWEI ID and enable Huawei Cloud services**.
2. Before purchasing an instance, ensure that there is a valid payment method configured.
3. For fine-grained permissions management on Huawei Cloud resources, use Identity and Access Management (IAM) to create a user or user group and grant it specific operation permissions. For details, see **Creating a User and Granting Permissions**.

## Buying an Instance

**Step 1** Log in to the management console.

**Step 2** Click in the upper left corner and select a region and project.

**Step 3** Click in the upper left corner of the page and choose **Databases** > **GaussDB**.

**Step 4** On the **Instances** page, click **Buy DB Instance**.

**Step 5** On the displayed page, set **Billing Mode**, enter **DB Instance Name**, select **Edition Type**, **DB Engine Version**, **DB Instance Type**, and **Deployment Model**, and complete other configurations.

**Figure 2-1** Billing mode and basic information

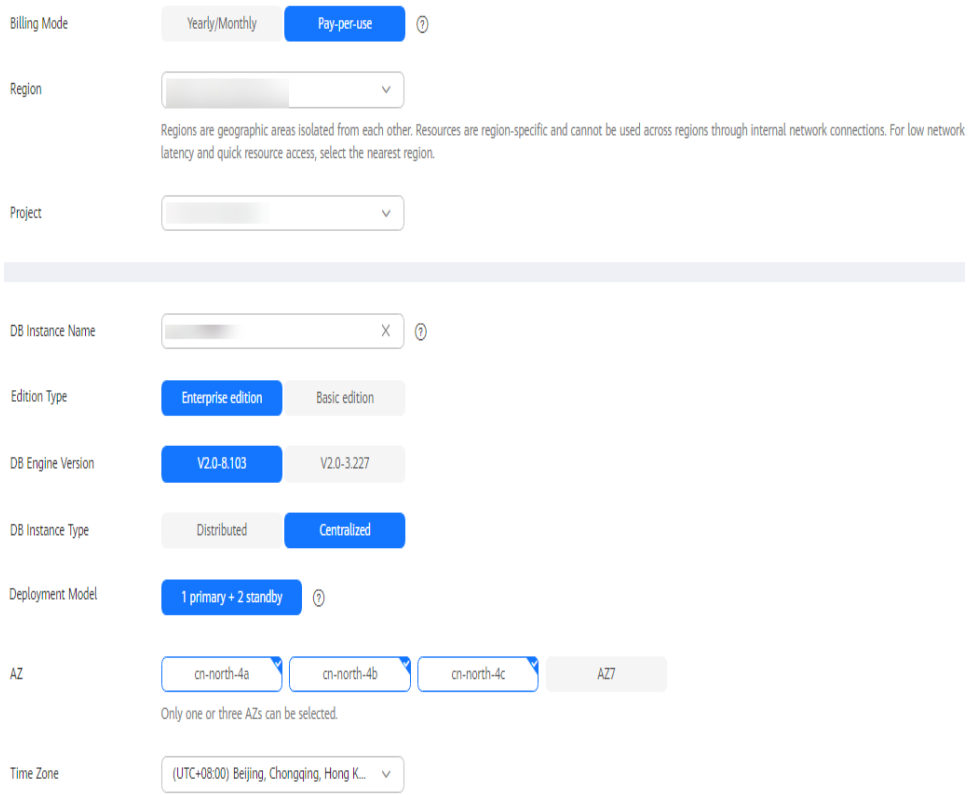


**Table 2-1** Parameters

| Parameter | Example Value | Description |
| --- | --- | --- |
| Billing Mode | Pay-per-use | GaussDB provides yearly/monthly billing and pay-per-use billing.<br>• **Yearly/Monthly**: You pay upfront for the amount of time you expect to use the DB instance for. You will need to make sure you have a top-up account with a sufficient balance or have a valid payment method configured first.<br>For distributed instances using the combined deployment model, yearly/monthly billing is only available to whitelisted users. To apply for the permissions needed, **submit a service ticket**.<br>• **Pay-per-use**: You can start using the DB instance first and then pay as you go. Pricing is listed on a per-hour basis, but bills are calculated based on the actual usage duration. |
| Region and Project | CN-Hong Kong | Region where the tenant is located.<br>Products in different regions cannot communicate with each other over a private network. After the instance is created, you cannot change its region. |
| DB Instance Name | gauss-d0a7 | The instance name is case-sensitive, must start with a letter, and can contain 4 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. |
| Edition Type | Enterprise edition | GaussDB provides **Basic edition** and **Enterprise edition**.<br>The basic edition lacks certain advanced features that are available in the enterprise edition. The basic edition delivers the same level of performance as the enterprise edition at a more affordable price. This edition is ideal for users who prioritize cost and do not need advanced features.<br>For more details about the differences between the two editions, see **Differences Between the Basic and Enterprise Editions of GaussDB Instances**. |
| DB Engine Version | V2.0-8.103 | GaussDB database version. |

| Parameter | Example Value | Description |
| --- | --- | --- |
| DB Instance Type | Centralized | • **Distributed**: You can add nodes for distributed instances as needed to handle large volumes of concurrent requests.<br>• **Centralized**: Centralized instances are suitable for scenarios with small and stable volumes of data, where data reliability and service availability are extremely important.<br>**CAUTION**<br>Per-host licenses allow you to create only centralized instances. |
| Deployment Model | 1 primary + 2 standby | • Distributed<br>– **Independent**: Database components are deployed on different nodes. This model is suitable for where high availability and stability are required and the instance scale is large.<br>– **Combined**: Different database components are deployed on the same node. This option is available only when **Edition Type** is **Basic edition**.<br>• Centralized<br>– **HA (1 primary + 2 standby)**: 3-node deployment where there is a shard. The shard contains one primary DN and two standby DNs.<br>– **Single**: single-node deployment where there is only one CMS component and one DN. To create a single-replica instance, ensure that the instance version is V2.0-2.2 or later.<br>– **1 primary + 1 standby + 1 log**: 3-node deployment where there is one shard with three replicas. The shard contains one primary DN, one standby DN, and one log-dedicated DN. This model is available only for instances of version V2.0-3.200 or later. |
| AZ | AZ1 | An AZ is a physical region where resources have their own independent power supply and networks. AZs are physically isolated but interconnected through an internal network. |

| Parameter | Example Value | Description |
| --- | --- | --- |
| Time Zone | (UTC+08:00) Beijing, Chongqing, Hong Kong, Urumqi | You need to select a time zone for your instance based on the region it is hosted in. |

**Step 6** Configure instance specifications.

**Figure 2-2** Specifications and storage

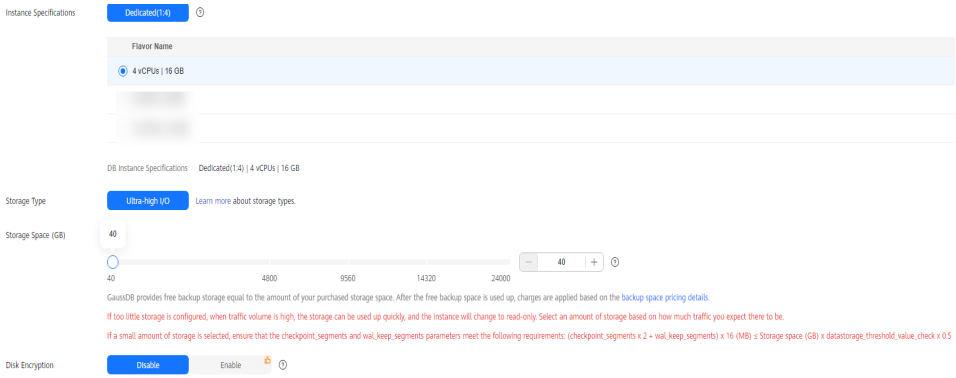


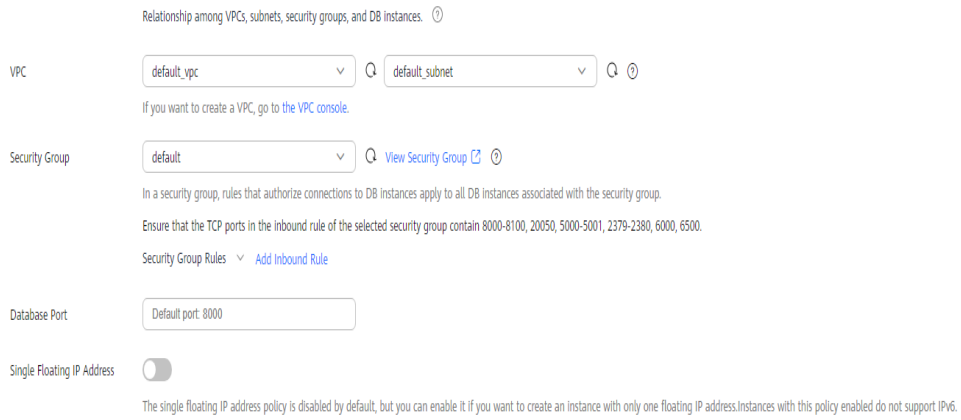

**Table 2-2** Parameters

| Parameter | Example Value | Description |
| --- | --- | --- |
| Instance Specifications | Dedicated(1:4), 4 vCPUs \| 16 GB | The vCPUs and memory of an instance. |
| Storage Type | Ultra-high I/O | The storage type determines the read/write speed of an instance. The higher the maximum throughput is, the higher the instance read/write speed can be. |
| Storage Space | 40 GB | The storage space contains the file system overhead required for inodes, reserved blocks, and database operations. |
| Disk Encryption | Disable | Enabling disk encryption improves data security, but slightly affects the read and write performance of the database.<br>If a shared KMS key is used, the corresponding CTS event is **createGrant**. Only the key owner can receive this event. |

**Step 7** Retain the default settings for the network information.

**Figure 2-3** Network configuration




**Step 8** Configure the instance password and enterprise project.

**Figure 2-4** Database configuration

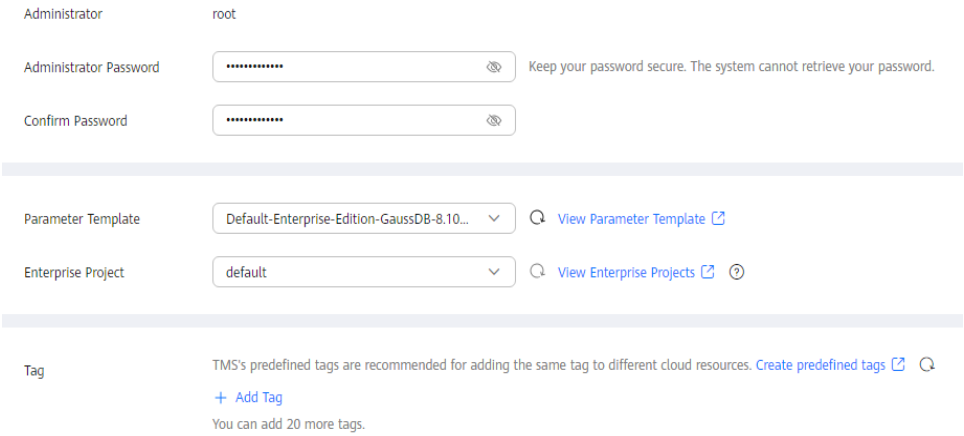



**Table 2-3** Parameters

| Parameter | Example Value | Description |
| --- | --- | --- |
| Administrator Password | - | Enter a strong password and periodically change it to improve security, preventing security risks such as brute force cracking. |
| Confirm Password | - | Enter the administrator password again. |

| Parameter | Example Value | Description |
| --- | --- | --- |
| Enterprise Project | default | If the instance has been associated with an enterprise project, select the target project from the **Enterprise Project** drop-down list.<br>You can also go to the Enterprise Project Management console to create a project. For details, see ***Enterprise Management User Guide***. |

**Step 9** Click **Next**, confirm the instance information, and click **Submit**.

**Step 10** Go to the instance list.

If status of the instance becomes **Available**, the instance has been created.

**----End**

## Buying an ECS

GaussDB provides the gsql tool to help you connect to a database using the command-line interface (CLI). Before the connection, you need to create an ECS for installing the gsql tool.

1. **Log in to the management console**.
2. Click ☰ in the upper left corner of the page and choose **Computing** > **Elastic Cloud Server** to go to the Elastic Cloud Server console.
3. On the page that is displayed, click **Buy ECS**.
4. Configure basic settings and click **Next: Configure Network**.
   - **Region**: Select the region of the GaussDB instance to be connected.
   - **Billing Mode**: **Pay-per-use**
   - **AZ**: Select the AZ of the GaussDB instance to be connected.
   - **Image**: **EulerOS** and **EulerOS 2.5 64bit(40 GiB)**
   - Retain the default values for other parameters.

**Figure 2-5** Basic settings

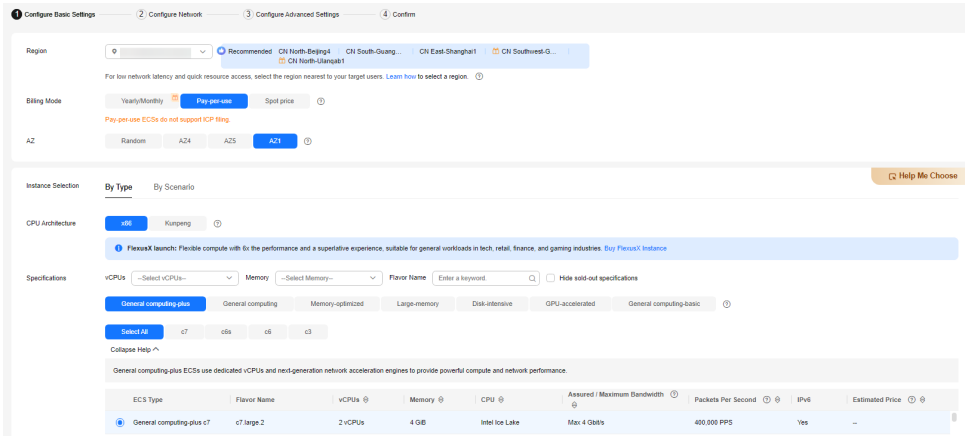
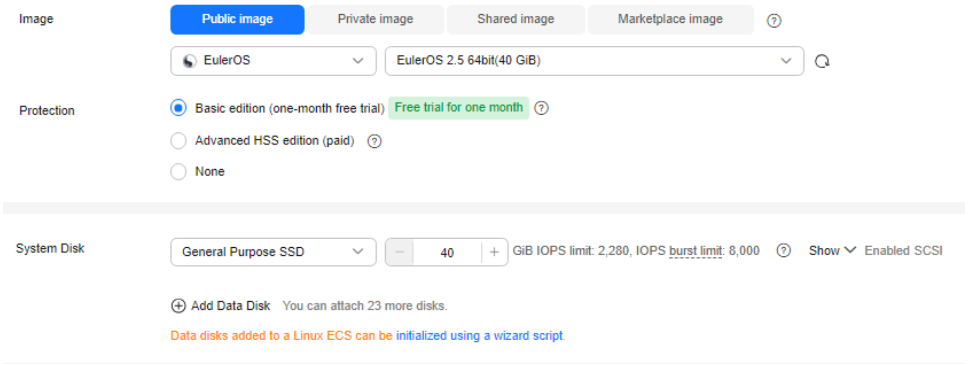


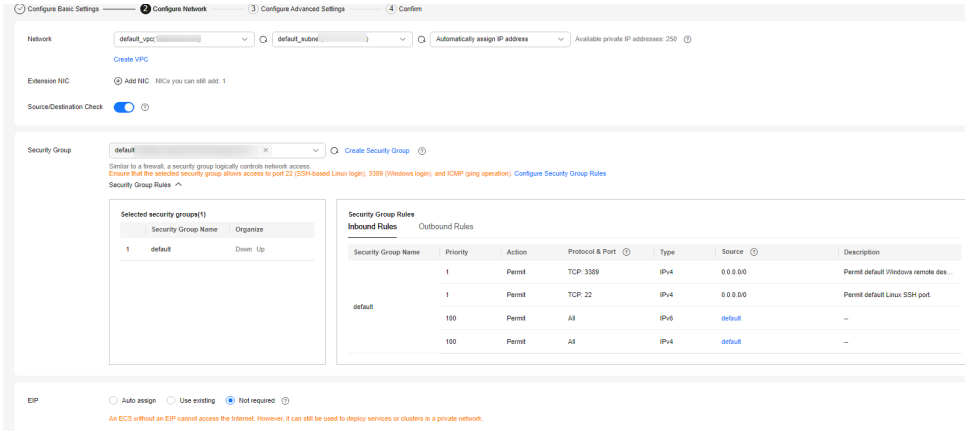

  

**Figure 2-6** Selecting an image




5. Configure the ECS network and click **Next: Configure Advanced Settings**.
   - **Network**: Select the VPC of the GaussDB instance to be connected.
   - **Security Group**: Select the security group of the GaussDB instance to be connected.
   - **EIP**: **Not required**

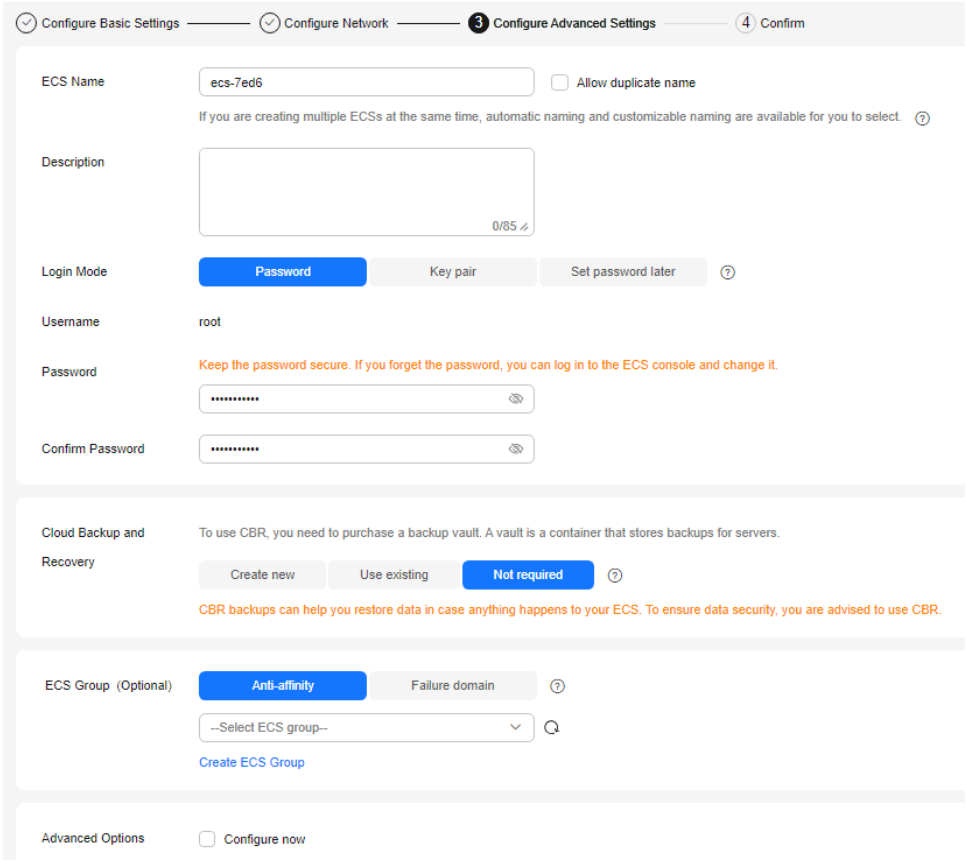
**Figure 2-7** Network configuration




6. Configure a password for the ECS, set other parameters as required, and click **Next: Confirm**.
   - **ECS Name**: Enter a name that is easy to identify.
   - **Password**: Set a strong password to improve security.
   - **Confirm Password**: Enter the password again.
   - Retain the default values for other parameters.

**Figure 2-8** Advanced settings




7. Confirm the configuration and click **Submit**.
8. View the purchased ECS.

## Obtaining the Driver Package

Download particular packages listed in **Table 2-4** based on the version of your instance.

**Table 2-4** Driver package download list

| Version | Download Address |
| --- | --- |
| V2.0-8.x | **Driver package**<br>**Verification package for the driver package** |
| V2.0-3.x | **Driver package**<br>**Verification package for the driver package** |
| V2.0-2.x | **Driver package**<br>**Verification package for the driver package** |

To prevent a software package from being tampered with during transmission or storage, download the corresponding verification package and perform the following steps to verify the software package:

1. Upload the software package and verification package to the same directory on a Linux VM.
2. Run the following command to verify the integrity of the software package:

   **cat** *GaussDB_driver.zip.sha256* **| sha256sum --check**

   If **OK** is displayed in the command output, the verification is successful.

   ```
   GaussDB_driver.zip: OK
   ```

## Connecting to a Database

GaussDB lets you select either SSL or non-SSL connections as required.

## Non-SSL Connection

1. Log in as the **root** user to the ECS you have created.
2. Upload the client tool package and configure gsql environment variables.
   a. Run the following command to create the **/tmp/tools** directory for storing the client tool package:

      ```
      mkdir /tmp/tools
      ```

   b. Download the **GaussDB_driver.zip** driver package of the required version by referring to **Obtaining the Driver Package**, and upload it to the **/tmp/tools** directory of the created ECS.
   c. Run the following commands to decompress the **GaussDB_driver.zip** driver package:

      ```
      cd /tmp/tools
      unzip GaussDB_driver.zip
      ```

   d. Run the following commands to copy the decompressed **GaussDB-Kernel_***_EULER_64bit-Gsql.tar.gz** client tool package to the **/tmp/tools** directory:

      NOTE

      This section uses the gsql tool package suitable for the centralized instances running on Euler2.5_x86_64 as an example. The relative path of the tool package varies depending on where you decompressed it.

      ```
      cd /tmp/tools/GaussDB_driver/Centralized/Euler2.5_X86_64/
      cp GaussDB-Kernel_***_EULER_64bit-Gsql.tar.gz /tmp/tools
      ```

   e. Run the following commands to decompress the package:

      ```
      cd /tmp/tools
      tar -zxvf GaussDB-Kernel_***_EULER_64bit-Gsql.tar.gz
      ```

   f. Configure environment variables.

      Run the following command to open the **~/.bashrc** file:

      ```
      vim ~/.bashrc
      ```

      Press **G** to move the cursor to the last line, press **i** to enter Insert mode, and type the following information. Then, press **Esc** to exit Insert mode, and run **:wq** to save the settings and exit.

      ```
      export PATH=/tmp/tools/bin:$PATH
      export LD_LIBRARY_PATH=/tmp/tools/lib:$LD_LIBRARY_PATH
      ```

Run the following command to make the environment variables take effect permanently:

```
source ~/.bashrc
```

3. Enter the password when prompted to connect to the database.

   After an instance is created, a **postgres** database is generated by default. Database **postgres** is used as an example.

   ```
   gsql -d postgres -h 10.0.0.0 -U root -p 8000
   Password for user root:
   ```

   - *postgres* indicates the name of the database to be connected.
   - *10.0.0.0* indicates the IP address of the instance. On the **Basic Information** page of the instance to be connected, obtain the private IP address in the **Node List** area.
   - *root* indicates the username used to log in to the database.
   - *8000* indicates the port number of the database. On the **Basic Information** page of the instance to be connected, obtain the database port in the **Network Information** area.

   For more information about gsql commands, see **Tool Reference**.

## SSL Connection

1. **Log in to the management console**.
2. Click  in the upper left corner and select a region and project.
3. Click  in the upper left corner of the page and choose **Databases** > **GaussDB**.
4. On the **Instances** page, click the name of the target instance. In the **Configuration** area on the **Basic Information** page, click  next to the **SSL** field to download the root certificate or certificate bundle.
5. Upload the root certificate to the ECS or save it to the device to be connected to the GaussDB instance.

   Import the root certificate to the Linux ECS. For details, see **How Can I Import the Root Certificate to a Windows or Linux OS?**
6. Connect to a GaussDB instance.

   A Linux ECS is used in this example. Run the following command to set environment variables on the ECS:

   ```
   export PGSSLMODE=<sslmode>
   export PGSSLROOTCERT=<ca-file-directory>
   ```

   **gsql -h** *<host>* **-p** *<port>* **-d** *<database>* ***-U*** *<user>*

   Example:

   ```
   export PGSSLMODE="verify-ca"
   export PGSSLROOTCERT="/home/Ruby/ca.pem"
   ```

   **gsql -h *10.0.0.0* -p *8000* -d** *postgres* **-U** *root*

   ```
   Password for user root:
   ```

**Table 2-5** Parameter description

| Parameter | Description |
| --- | --- |
| *<host>* | IP address of the DB instance. To obtain the IP address, click the instance name on the **Instances** page to go to the **Basic Information** page of the instance. The IP address can be found in the **Private IP Address** column of the **Node List** area. |
| *<port>* | Database port number. The default value is **8000**. To obtain the database port, click the instance name on the **Instances** page to go to the **Basic Information** page of the instance. The database port can be founded in the **Database Port** field of the **Network Information** area. |
| *<database>* | Name of the database to connect to. The default database is **postgres**. |
| *<user>* | Username of the GaussDB database account. The default administrator is **root**. |
| *<ca-file-directory>* | Directory of the CA certificate for SSL connection. |
| *<sslmode>* | SSL connection mode. Set it to **verify-ca** to verify that the server is trustworthy by checking the certificate chain. |

For more information about gsql commands, see **Tool Reference**.

7. Check the command output after you log in to the database. If information similar to the following is displayed, the SSL connection has been established.

```
SSL connection (cipher: DHE-RSA-AES256-GCM-SHA384, bits: 256)
```

## Follow-up Operations

After logging in to the instance, you can create alarm rules, set automated backup policies, create databases, and migrate data. For details, see:

- **Creating an Alarm Rule**
- **Setting an Automated Backup Policy**
- **Creating a Database Using SQL**
- **Creating a Database Through an API**
- **Managing GaussDB Databases Through DAS**
- **Migrating Data to GaussDB**

# 3 GaussDB Common Practices

After buying and connecting to a GaussDB instance, you can use GaussDB as required by referring to the common practices provided in this section.

**Table 3-1** Common best practices of GaussDB

| Practice | | Description |
| --- | --- | --- |
| Development and design proposal | **Database Object Naming Conventions** | This practice describes the restrictions on naming database objects. |
| | **Database Object Design** | This practice describes the principles for designing databases, schemas, tables, fields, constraints, views, and joined tables. |
| | **Tool Interconnection** | This practice describes notes about configuring tools. |
| | **SQL Compilation** | This practice describes the principles for performing DDL operations, loading and unloading data, converting types, and performing queries. |
| Database usage | **Creating a Database Account** | This practice describes how to use CREATE USER and ALTER USER to create and manage database users, respectively. Data is not shared between users. |
| | **Creating and Managing Databases** | This practice describes how to use CREATE DATABASE and ALTER DATABASE to create and manage database users, respectively. |

| Practice | | Description |
| --- | --- | --- |
| | **Creating and Managing Tablespaces** | The administrator can use tablespaces to control the layout of disks where a database is installed. This practice describes how to use SQL syntax to create and manage tablespaces. |
| | **Creating and Managing Tables** | A table is created in a database and can be stored in different databases. Tables under different schemas in a database can have the same name. This practice describes how to use SQL syntax to create tables. |
| | **Querying System Catalogs** | In addition to the created tables, GaussDB contains many system catalogs. These system catalogs contain information about instance installation as well as the queries and processes running in GaussDB. This practice describes how to collect information about the databases by querying system catalogs. |
| Data migration | **Using DRS to Migrate Data from Oracle Database to GaussDB** | This practice describes how to use DRS to migrate data from Oracle databases to GaussDB. |
| Data backup | **Configuring an Automated Backup Policy** | This practice describes how to enable the system to automatically create backups for a DB instance during a backup window and save the backups based on the configured retention period. |
| | **Creating a Manual Backup** | This practice describes how to create manual backups for a DB instance. These backups can be used to restore data for improved reliability. |
| | **Deleting a Manual Backup** | You can delete manual backups for instances and tables to release storage space. This practice describes how to delete manual backups of an instance. |
| Data restoration | **Restoring a Backup File to a GaussDB Instance** | This practice describes how to use an automated or manual backup to restore a DB instance to how it was when the backup was created. The restoration is at the instance level. |

| Practice | | Description |
| --- | --- | --- |
| | Restoring a GaussDB Instance to a Specific Point in Time | This practice describes how to use an automated backup to restore instance data to a specified point in time. |