GaussDB

Getting Started

Issue 01

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1 Buying a GaussDB Instance and Connecting to It Through the DAS Console

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

Procedure	Description
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).

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, enter **DB Instance Name**, select **DB Engine Version**, **DB Instance Type**, and **Deployment Model**, and complete other configurations.

Table 1-1 Parameters

Parameter	Example Value	Description
Billing Mode	Pay-per-use	GaussDB provides yearly/monthly billing and pay-per-use billing. • **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. • **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	EU-Dublin	Region where the tenant is located. 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**. 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.
DB Engine Version	**V2.0-8.103**	GaussDB database version.
DB Instance Type	Centralized	• **Distributed**: You can add nodes for distributed instances as needed to handle large volumes of concurrent requests. • **Centralized**: Centralized instances are suitable for scenarios with small and stable volumes of data, where data reliability and service availability are extremely important.

Parameter	Example Value	Description
Deployment Model	1 primary + 2 standby	• Distributed – **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. • Centralized – **HA (1 primary + 2 standby)**: 3-node deployment where there is one shard. The shard contains one primary DN and two standby DNs. – **Single**: single-node deployment where there is only one CMS component and one DN. This model is only available for instances of V2.0-2.2 or later.
AZ	AZ1	An AZ is a physical region where resources have independent power supply and networks. AZs are physically isolated but interconnected through an internal network.
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.

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.

Parameter	Example Value	Description
Disk Encryption	Disable	Enabling disk encryption improves data security, but slightly affects the read and write performance of the database.

Step 7 Retain the default settings for the network information.

Step 8 Configure the instance password.

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.
Enterprise Project	default	If the instance has been associated with an enterprise project, select the target project from the **Enterprise Project** drop-down list. You can also go to the Enterprise Project Management console to create a project. .

Step 9 Click **Create Now**, 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 Enter the correct database username and password, and click **Test Connection**. After the connection test is successful, click **Log In**.

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.

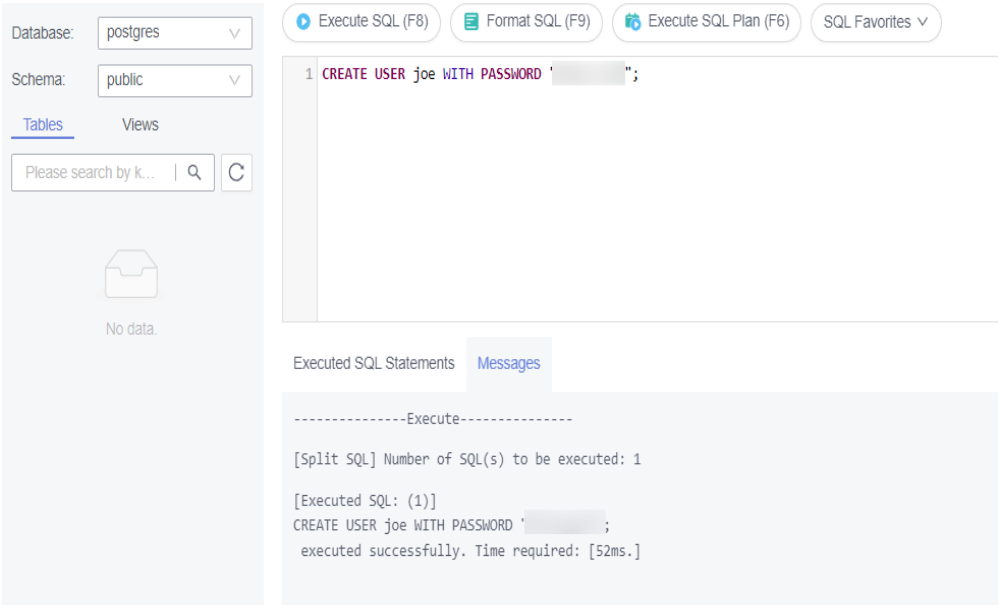
Step 1 Create a database user.

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 1-1 Creating a database user



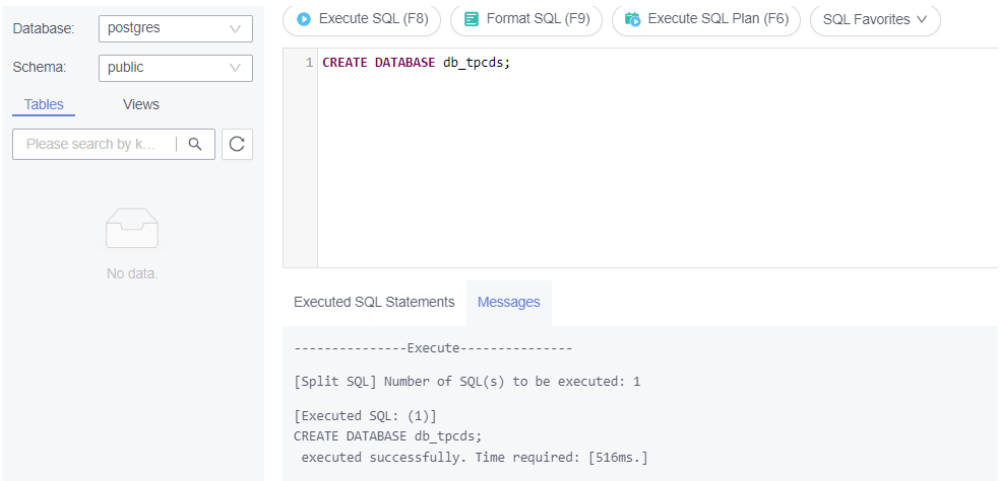
In this case, you have created a user named **joe**, and the user password is **xxxxxxx**.

Step 2 Create a database.

CREATE DATABASE *db_tpcds*;

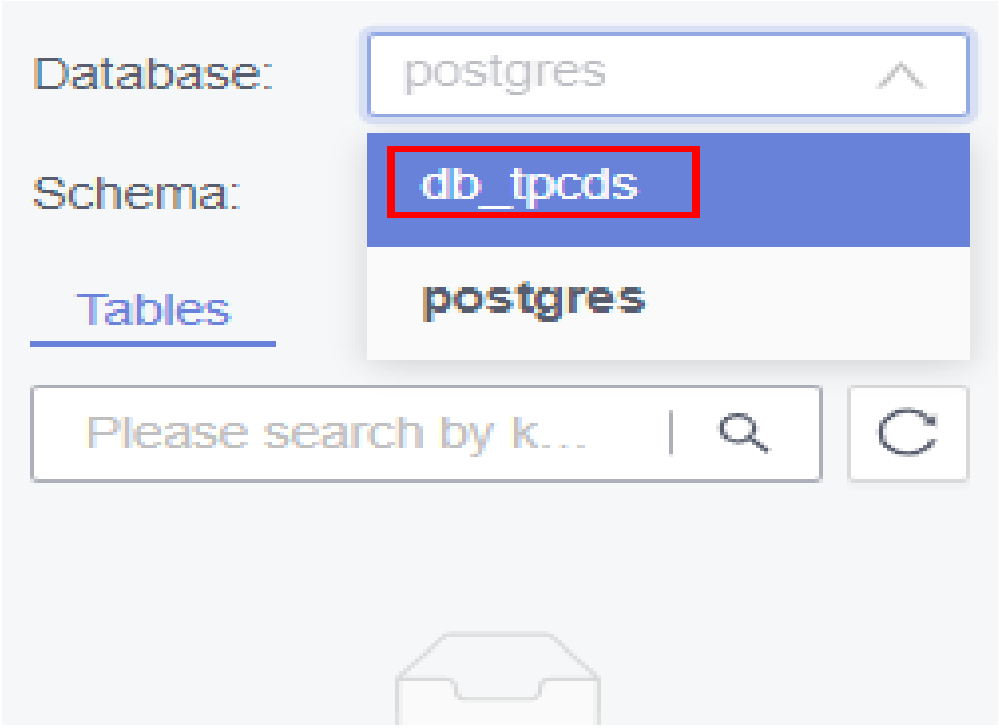
If information similar to the following is displayed, the creation is successful.

Figure 1-2 Creating a database



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

Figure 1-3 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.
- 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.

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;

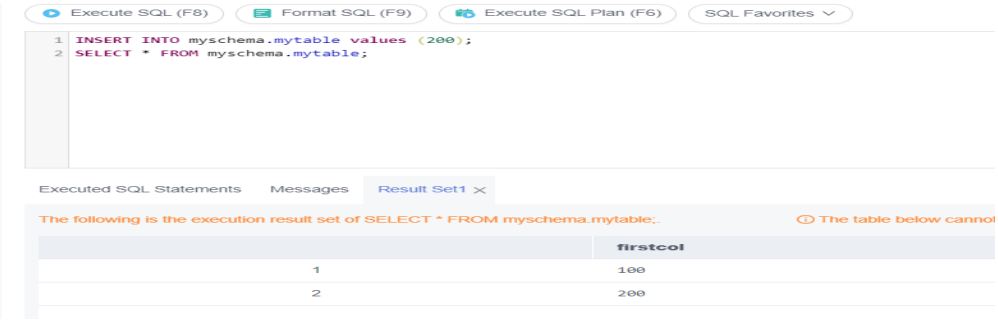
Step 5 Log in to the **db_tpcds** database as user **joe**.

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

INSERT INTO myschema.mytable values (200);

SELECT * FROM myschema.mytable;

Figure 1-4 Inserting and verifying data



----End

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
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: Connect to the Database	Use gsql to connect to GaussDB.

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, enter **DB Instance Name**, select **DB Engine Version**, **DB Instance Type**, and **Deployment Model**, and complete other configurations.

Table 2-1 Parameters

Parameter	Example Value	Description
Billing Mode	Pay-per-use	GaussDB provides yearly/monthly billing and pay-per-use billing. • **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. • **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.
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Parameter	Example Value	Description
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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.

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Parameter	Example Value	Description
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Parameter	Example Value	Description
Disk Encryption	Disable	Enabling disk encryption improves data security, but slightly affects the read and write performance of the database.

Step 7 Retain the default settings for the network information.

Step 8 Configure the instance password.

Table 2-3 Parameters

Parameter	Example Value	Description
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Confirm Password	-	Enter the administrator password again.
Enterprise Project	default	If the instance has been associated with an enterprise project, select the target project from the **Enterprise Project** drop-down list. You can also go to the Enterprise Project Management console to create a project. .

Step 9 Click **Create Now**, 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.

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

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, 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 **Connection Information** 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 **Connection Information** area.

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 **DB Information** 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. You can use a connection tool (such as WinSCP or PuTTY) to upload the certificate to any directory on a Linux server.

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 2-4 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** field of the **Connection Information** area if the DB instance is accessed through an ECS.
<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 **Connection 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.

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)
```

