

GaussDB(for MySQL)

Getting Started

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1 Buying a DB Instance and Connecting to It Using a MySQL Client

You can connect to your DB instance using a Linux ECS with a MySQL client installed over a private network. This section describes how to access a GaussDB(for MySQL) instance from an ECS using a standard MySQL client.

Step 1: Buy a DB Instance

Step 2: Buy an ECS

Step 3: Test Connectivity and Install a MySQL Client

Step 4: Connect to the DB Instance Using the MySQL Client

Step 1: Buy a DB Instance

1. Go to the [Buy DB Instance](#) page.
2. Configure instance information and click **Next**.

Figure 1-1 Selecting a DB engine version

The screenshot shows the configuration page for a GaussDB(for MySQL) instance. The options are as follows:

- Billing Mode:** Yearly/Monthly, Pay-per-use (selected), Serverless
- Region:** [Dropdown menu]
- DB Instance Name:** gauss-0007
- DB Engine:** GaussDB(for MySQL)
- DB Engine Version:** MySQL 8.0
- DB Instance Type:** Primary/Standby (selected), Single
- Storage Type:** DLS (selected), DLS
- AZ Type:** Multi-AZ (selected)
- Primary AZ:** AZ1 (selected), AZ2, AZ3
- Time Zone:** [Dropdown menu]

Additional text: "Regions are geographic areas isolated from each other. Resources are region-specific and cannot be used across regions through internal network connections. For low network latency and quick resource access, select the nearest region."

Figure 1-2 Selecting specifications

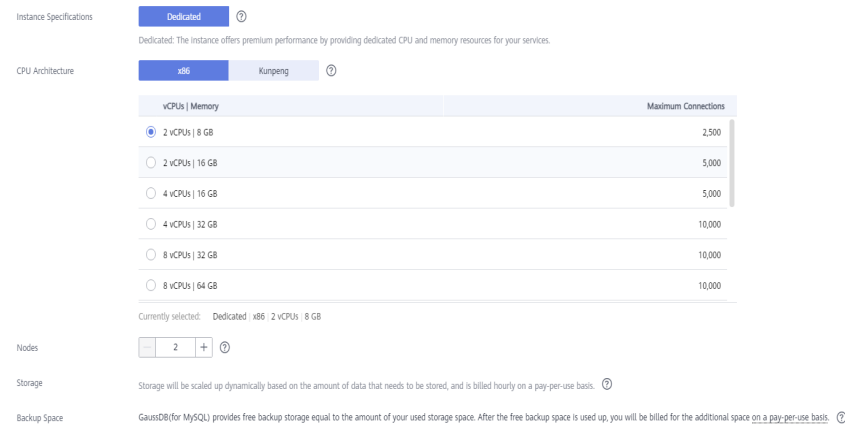


Figure 1-3 Configuring a network

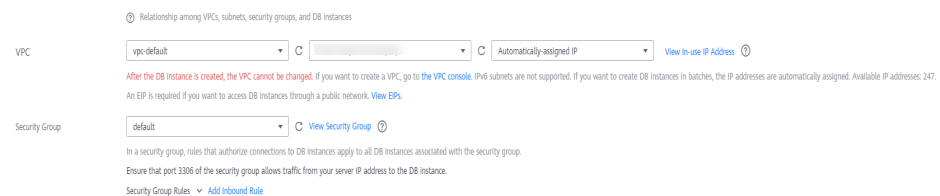
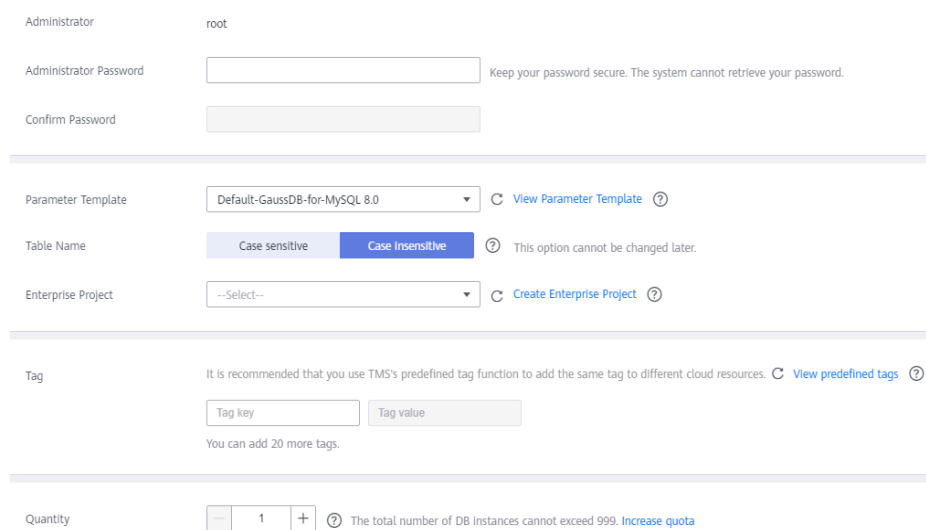
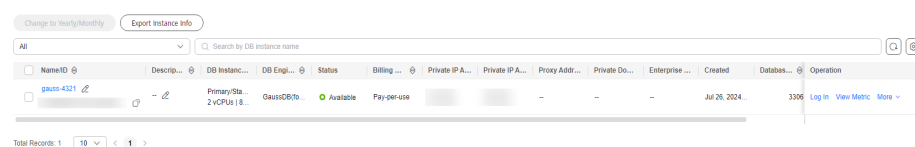


Figure 1-4 Setting a password



3. Check the purchased DB instance.

Figure 1-5 Purchase succeeded



4. Click the DB instance name to enter the **Basic Information** page.
5. In the **Network Information** area, obtain the private IP address and database port.

Figure 1-6 Viewing the private IP address and database port

Network Information	
Private IP Address	Public IP Address (EIP) Bind
Private Domain Name Apply	Database Port ? 3306 ✎
Recommended Max. Connections 2,500	VPC vpc-default
Subnet	Security Group default ✎

Step 2: Buy an ECS

1. **Log in to the management console** and check whether there is an ECS available.
 - If there is a Linux ECS, go to **3**.
 - If there is a Windows ECS, see **Buying a DB Instance and Connecting to It Using MySQL-Front**.
 - If no ECS is available, go to **2**.
2. Buy an ECS and select Linux (for example, CentOS) as its OS.
To download a MySQL client to the ECS, bind an EIP to the ECS. The ECS must be in the same region, VPC, and security group as the DB instance for mutual communications.
For details about how to purchase a Linux ECS, see **Purchasing an ECS** in *Elastic Cloud Server Getting Started*.
3. On the **ECS Information** page, view the region and VPC of the ECS.

Figure 1-7 Viewing basic information about the ECS

ECS Information	
ID	
Name	
Region	
AZ	AZ3
Specifications	General computing-plus 2 vCPUs 8 GiB c6.large.4
Image	taurus client Private image Version: CentOS 8.0 64bit
VPC	default_vpc

Billing Mode	Pay-per-use
Obtained	Jun 03, 2023 13:05:41 GMT+08:00
Launched	Jun 03, 2023 13:05:57 GMT+08:00
Deletion Time	-- Modify

4. On the **Basic Information** page of the DB instance, view the region and VPC of the DB instance.

Figure 1-8 Viewing basic information about the DB instance

Network Information	
Private IP Address	Public IP Address (EIP) Bind
Private Domain Name Apply	Database Port ? 3306
Recommended Max. Connections 2,500	VPC vpc-default
Subnet	Security Group default

5. Check whether the ECS and DB instance are in the same region and VPC.
 - If they are in the same region and VPC, go to **Step 3: Test Connectivity and Install a MySQL Client**.
 - If they are in different regions, buy another ECS or DB instance. The ECS and DB instance in different regions cannot communicate with each other. To reduce network latency, deploy your DB instance in the region nearest to your workloads.
 - If they are in different VPCs, change the VPC of the ECS to that of the DB instance. For details, see **Changing a VPC**.

Step 3: Test Connectivity and Install a MySQL Client

1. Log in to the ECS. For details, see **Logging In to a Linux ECS Using VNC** in *Elastic Cloud Server User Guide*.
2. On the ECS, check whether it can connect to the DB instance using the private IP address and port obtained in 5.

```
telnet private_IP_address port
```

NOTE

If the message "command not found" is displayed, install the Telnet tool based on the OS used by the ECS.

- If the ECS can connect to the DB instance, no further action is required.
 - If the ECS cannot connect to the DB instance, check the security group rules.
 - If in the security group of the ECS, there is no outbound rule with **Destination** set to **0.0.0.0/0** and **Protocol & Port** set to **All**, add an outbound rule for the private IP address and port of the DB instance.
 - On the **Inbound Rules** page of the DB instance security group, add an inbound rule for the private IP address and port of the ECS.
3. Download the MySQL client installation package for the Linux ECS.
A MySQL client running a version later than that of the DB instance is recommended.
wget https://dev.mysql.com/get/mysql-community-client-8.0.21-1.el6.x86_64.rpm
 4. Run the following command to install the MySQL client:
rpm -ivh --nodeps mysql-community-client-8.0.21-1.el6.x86_64.rpm

NOTE

- If any conflicts occur during the installation, add the **replacefiles** parameter to the command and try to install the client again.

```
rpm -ivh --replacefiles mysql-community-client-8.0.21-1.el6.x86_64.rpm
```

- If a message is displayed prompting you to install a dependency package during the installation, add the **nodeps** parameter to the command and install the client again.

```
rpm -ivh --nodeps mysql-community-client-8.0.21-1.el6.x86_64.rpm
```

Step 4: Connect to the DB Instance Using the MySQL Client

1. Run the following command on the ECS to connect to the DB instance:

```
mysql -h <host> -P <port> -u <userName> -p
```

Example:

```
mysql -h 192.*.* -P 3306 -u root -p
```

Table 1-1 Parameter description

Parameter	Description
<host>	Private IP address obtained in 5.
<port>	Database port obtained in 5. The default value is 3306.
<userName>	Administrator account root .

2. Enter the password of the database account if the following information is displayed:

Enter password:

Figure 1-9 Connection succeeded

```
[root@ecs-e5d6-test ~]# ll
total 56080
-rw-r--r-- 1 root root 57424168 Nov  1 20:05 mysql-community-client-8.0.26-1.el6.x86_64.rpm
[root@ecs-e5d6-test ~]# mysql -h 192.168.1.100 -P 3306 -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 108609
Server version: 8.0.21-5 MySQL Community Server - (GPL)

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql>
```

3. Create database **db_test**.
create database db_test;

Figure 1-10 Creating the database

```
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
4 rows in set (0.01 sec)

mysql> create database db_test;
Query OK, 1 row affected (0.00 sec)

mysql> show databases;
+-----+
| Database |
+-----+
| db_test |
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
5 rows in set (0.00 sec)

mysql> █
```

4. Create table `t_test`.

```
create table t_test(id int(4), name char(20), age int(4));
```

Figure 1-11 Creating the table

```
mysql> use db_test;
Database changed
mysql> show tables;
Empty set (0.00 sec)

mysql> create table t_test(id int(4),name char(20),age int(4));
Query OK, 0 rows affected, 2 warnings (0.03 sec)

mysql> desc t_test;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| id | int | YES | | NULL | |
| name | char(20) | YES | | NULL | |
| age | int | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> █
```

5. Insert a data record into the table.

```
insert into t_test(id, name, age) values(1, 'zhangsan', 30);
```

Figure 1-12 Inserting data

```
mysql> insert into t_test(id, name, age) values(1, 'zhangsan', 30);
Query OK, 1 row affected (0.01 sec)
```

6. Query data in the table.

```
select * from t_test;
```

Figure 1-13 Querying data

```
mysql> select * from t_test;
+-----+-----+-----+
| id  | name      | age  |
+-----+-----+-----+
| 1   | zhangsan  | 30   |
+-----+-----+-----+
1 row in set (0.01 sec)

mysql>
```

7. Update the value of **age** for the data record whose **id** is 1 in the table.

```
update t_test set age=31 where id=1;
```

Figure 1-14 Updating data

```
mysql> update t_test set age=31 where id=1;
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

8. Query the updated data in the table.

```
select * from t_test where id=1;
```

Figure 1-15 Querying the updated data

```
mysql> select * from t_test where id=1;
+-----+-----+-----+
| id  | name      | age  |
+-----+-----+-----+
| 1   | zhangsan  | 31   |
+-----+-----+-----+
1 row in set (0.00 sec)

mysql>
```

9. Delete the data record whose **id** is 1 from the table.

```
delete from t_test where id=1;
```

Figure 1-16 Deleting table data

```
mysql> delete from t_test where id=1;
Query OK, 1 row affected (0.01 sec)

mysql> select * from t_test;
Empty set (0.00 sec)

mysql>
```

10. Delete the table structure.

```
drop table t_test;
```

Figure 1-17 Deleting the table structure

```
mysql> drop table t_test;
Query OK, 0 rows affected (0.01 sec)

mysql> show tables;
Empty set (0.00 sec)

mysql> █
```

11. Delete the database.

drop database db_test;

Figure 1-18 Deleting the database

```
mysql> drop database db_test;
Query OK, 0 rows affected (0.01 sec)

mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
4 rows in set (0.00 sec)

mysql> █
```

2 Buying a DB Instance and Connecting to It Using MySQL-Front

After you buy a DB instance, you can log in to a Windows ECS, install MySQL-Front on the ECS, and use a private IP address to connect to the DB instance through MySQL-Front.

Step 1: Buy a DB Instance

Step 2: Buy an ECS

Step 3: Test Connectivity and Install MySQL-Front

Step 4: Use MySQL-Front to Connect to the DB Instance

Step 1: Buy a DB Instance

1. Go to the [Buy DB Instance](#) page.
2. Configure the instance information and click **Next**.

Figure 2-1 Selecting a DB engine version

The screenshot shows a configuration page for a database instance. The 'Billing Mode' is set to 'Pay-per-use'. The 'Region' is selected. The 'DB Instance Name' is 'gauss-0007'. The 'DB Engine' is 'GaussDB(for MySQL)'. The 'DB Engine Version' is 'MySQL 8.0'. The 'DB Instance Type' is 'Primary/Standby'. The 'Storage Type' is 'DLB'. The 'AZ Type' is 'Multi-AZ'. The 'Primary AZ' is 'AZ1'. The 'Time Zone' is set to a default value.

Regions are geographic areas isolated from each other. Resources are region-specific and cannot be used across regions through internal network connections. For low network latency and quick resource access, select the nearest region.

If you buy multiple DB instances at a time, they will be named with four digits appended in the format "DB instance name-SN". For example, if the DB instance name is instance, the first instance will be named as instance-0001, the second as instance-0002, and so on.

Figure 2-2 Selecting specifications

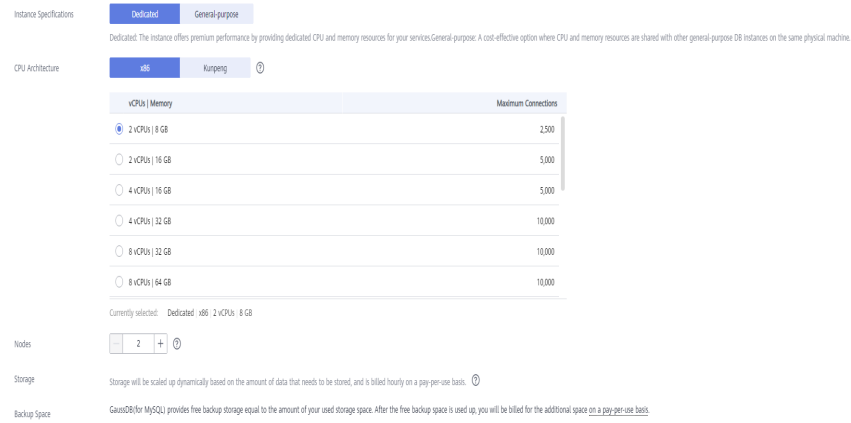


Figure 2-3 Configuring a network

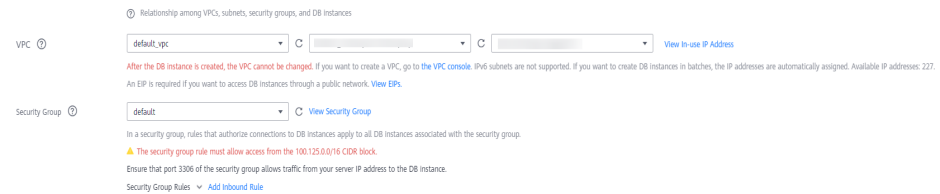
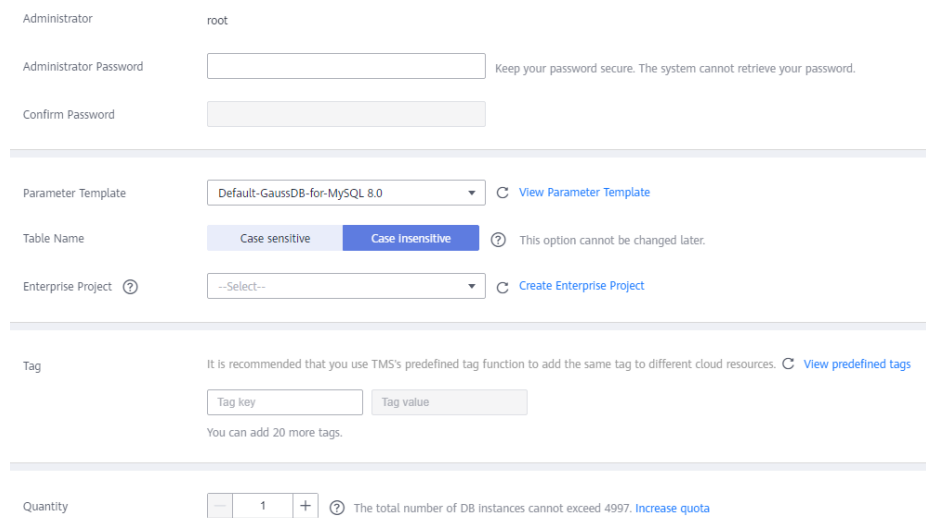
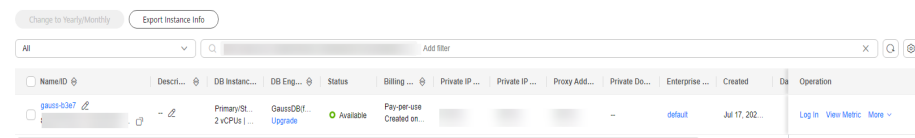


Figure 2-4 Setting a password



3. Check the purchased DB instance.

Figure 2-5 Purchase succeeded



4. Click the DB instance name to enter the **Basic Information** page.
5. In the **Network Information** area, obtain the private IP address and database port.

Figure 2-6 Viewing the private IP address and database port

Network Information	
Private IP Address	Public IP Address (EIP) ? Bind
Private Domain Name Apply	Database Port ? 3306 ?
Recommended Max. Connections 2,500	VPC default_vpc
Subnet default_subnet (192.168.0.0/24)	Security Group default ?

Step 2: Buy an ECS

1. **Log in to the management console** and check whether there is an ECS available.
 - If there is a Linux ECS, see [Buying a DB Instance and Connecting to It Using a MySQL Client](#).
 - If there is a Windows ECS, go to [3](#).
 - If no ECS is available, go to [2](#).

2. Buy an ECS and select Windows as its OS.

To download a MySQL client to the ECS, bind an EIP to the ECS. The ECS must be in the same region, VPC, and security group as the DB instance for mutual communications.

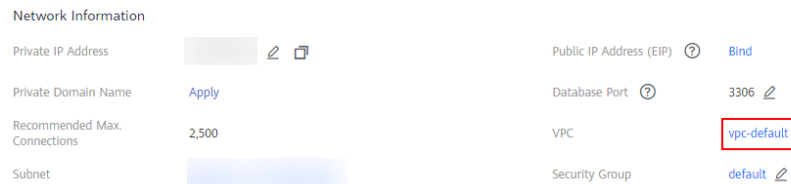
For details about how to purchase a Windows ECS, see [Purchasing an ECS](#) in *Elastic Cloud Server Getting Started*.

3. On the **ECS Information** page, view the region and VPC of the ECS.

Figure 2-7 Viewing basic information about the ECS

ECS Information	
ID	
Name	ecs-ba31 ?
Description	-- ?
Region	
AZ	AZ1
Specifications	General computing-plus 2 vCPUs 4 GiB c7.large.2
Image	Marketplace Windows Server 2019 ? Marketplace image Version: Windows Server 2019 Standard 64bit
VPC	default_vpc
Global EIP	-- Bind

4. On the **Basic Information** page of the DB instance, view the region and VPC of the DB instance.

Figure 2-8 Viewing basic information about the DB instance

The screenshot shows the 'Network Information' section of a DB instance configuration page. It contains two columns of settings. The left column includes: 'Private IP Address' (with a grey box and edit/copy icons), 'Private Domain Name' (with a blue 'Apply' button), 'Recommended Max. Connections' (with the value '2,500'), and 'Subnet' (with a blue box). The right column includes: 'Public IP Address (EIP)' (with a question mark icon and a blue 'Bind' button), 'Database Port' (with a question mark icon and the value '3306'), 'VPC' (with a red box around the value 'vpc-default'), and 'Security Group' (with the value 'default').

Network Information	
Private IP Address	Public IP Address (EIP) Bind
Private Domain Name Apply	Database Port 3306
Recommended Max. Connections 2,500	VPC vpc-default
Subnet	Security Group default

5. Check whether the ECS and DB instance are in the same region and VPC.
 - If they are in different regions, buy another ECS or DB instance. The ECS and DB instance in different regions cannot communicate with each other. To reduce network latency, deploy your DB instance in the region nearest to your workloads.
 - If they are in different VPCs, change the VPC of the ECS to that of the DB instance. For details, see [Changing a VPC](#).

Step 3: Test Connectivity and Install MySQL-Front

1. Log in to the ECS. For details, see [Logging In to a Windows ECS Using VNC](#) in *Elastic Cloud Server User Guide*.
2. On the ECS, check whether it can connect to the DB instance using the private IP address and port obtained in 5.

```
telnet private_ip_address port
```

NOTE

If the message "command not found" is displayed, install the Telnet tool based on the OS used by the ECS.

- If the ECS can connect to the DB instance, no further action is required.
 - If the ECS cannot connect to the DB instance, check the security group rules.
 - If in the security group of the ECS, there is no outbound rule with **Destination** set to **0.0.0.0/0** and **Protocol & Port** set to **All**, add an outbound rule for the private IP address and port of the DB instance.
 - On the **Inbound Rules** page of the DB instance security group, add an inbound rule for the private IP address and port of the ECS.
3. Open a browser, and download and install the MySQL-Front tool on the ECS (version 5.4 is used as an example).

Step 4: Use MySQL-Front to Connect to the DB Instance

1. Start MySQL-Front.
2. In the displayed dialog box, click **New**.
3. Enter the information about the DB instance to be connected and click **Ok**.

Table 2-1 Parameter description

Parameter	Description
Name	Database connection task name. If you do not specify this parameter, it will be the same as that configured for Host by default.
Host	Private IP address.
Port	Database port. The default value is 3306.
User	Account name of the DB instance. The default value is root .
Password	Password of the account for accessing the DB instance.

4. In the displayed window, select the connection that you created and click **Open**.
5. If the connection information is correct, the DB instance is successfully connected.

3 Getting Started with Common Practices

After purchasing and connecting to a DB instance, you can view common practices to better use GaussDB(for MySQL).

Table 3-1 Common practices

Practice		Description
Read/ Write splitting	Enabling Read/Write Splitting	This practice describes how to enable read/write splitting, so that read and write requests can be automatically routed through a read/write splitting address.
	Configuring Transaction Splitting	This practice describes how to configure transaction splitting for a database proxy instance. With this function enabled, GaussDB(for MySQL) can route the read requests prior to write operations in a transaction to read replicas, reducing the pressure on the primary node.
	Assigning Read Weights	This practice describes how to configure read weights of the primary node and read replicas after read/write splitting is enabled.
	Upgrading the Kernel Version of a Database Proxy Instance	This practice describes how to manually upgrade a database proxy instance to the latest kernel version to improve performance, add new functions, and fix problems.

Practice		Description
Data backups	Configuring an Automated Backup Policy	This practice describes how GaussDB(for MySQL) automatically creates backups for a DB instance during a backup window and saves 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.
	Configuring a Cross-Region Backup Policy	This practice describes how to store backups in a different region from the DB instance for disaster recovery. If a DB instance in one region fails, backups from another region can be used to restore the data to a new DB instance.
Data restorations	Restoring Data to a DB 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.
	Restoring Instance Data 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.
	Restoring Table Data to a Specific Point in Time	This practice describes how to use an automated backup to restore table data to a specified point in time.
Data migration	From MySQL to GaussDB(for MySQL)	This practice describes how to use Data Replication Service (DRS) to migrate table, database, or instance data of the source to the destination GaussDB(for MySQL).
	Migrating Data to GaussDB(for MySQL) Using mysqldump	This practice describes how to use mysqldump to copy data of the source to the destination GaussDB(for MySQL).
	From ECS-hosted MySQL to GaussDB(for MySQL)	This practice describes how to use DRS to migrate data from ECS-hosted MySQL databases to GaussDB(for MySQL).

Practice		Description
	From MySQL on Other Clouds to GaussDB(for MySQL)	This practice describes how to use DRS to migrate data from MySQL databases on other clouds to GaussDB(for MySQL).
Data synchronization	From GaussDB(for MySQL) to GaussDB(for MySQL)	This practice describes how to use DRS to synchronize data from GaussDB(for MySQL) to GaussDB(for MySQL).
	From MySQL to GaussDB(for MySQL)	This practice describes how to use DRS to synchronize data from self-managed MySQL databases or MySQL databases on other clouds to Huawei Cloud GaussDB(for MySQL).
	From Oracle to GaussDB(for MySQL)	This practice describes how to use DRS to synchronize data from self-managed Oracle databases to GaussDB(for MySQL).